



THE
MANSE GARDEN.

BY

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“ And he spake of trees, from the cedar tree that is in Lebanon even unto the
hyssop that springeth out of the wall.”—1 KINGS.

SECOND EDITION, ENLARGED.

GLASGOW:

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PREFACE

TO THE SECOND EDITION.

CONCEALMENT is rarely a right thing; and how far, for reasons given, the Author's hiding of his name in the first edition may be justified, it is needless now to inquire, as the attempt so quickly proved an entire failure. Whoever meditates the smallest guile would need to provide more eyes and a good memory. Some years ago, in contributing the Statistical Account of his parish, the writer took notice of a moor blackbird, which he described as a thief. The description, soon out of sight, was soon out of mind; but not so the thief, who, continuing his visits, kept alive the remembrance of his person—and was again, it seems, submitted in "The Manse Garden" to the like advertisement of his stature, visage, and the colour of his clothes.

As in every case of human indictment, accusations, failing of conviction, serve only to excite revenge, and make the offender more inveterate; so in this, the thief, being neither hanged nor incarcerated, but merely affronted, roused his spleen, and, chattering all the way from Galashiels to Glasgow, told every

thing about the Manse Garden as well as its gardener. Thus foiled in his plan of concealment, by "a bird of the air," what can the Author do but, with indifferent grace, set down his name in the title page?

As the science he unfolds is of slow attainment, having its round of experiments only once in the year, he cannot, having published in seed time, be expected, before the crop has come off the ground, to come forward with new improvements to enhance a new edition. Some additions however have been made, as a meagre token of his thanks for the kindness with which his little work has been received—a reception which cannot have further exceeded his desert than it has his expectations.

PREFACE TO THE FIRST EDITION.

WHATEVER might be needful by way of introduction will be found interspersed with the work; but in the mean time the Author's appellative given in the title page of this volume is such as to demand some apology. Why does he take the refuge of a common family name, instead of giving his proper designation at once? In his own defence, he begs honestly to declare he has no liking to that sort of mystery, nor is he wont to use it, never having before given any thing to the public without sending along with it whatever good or ill it might derive from his name.

The truth is, the following work, though nowise contrary to clerical duty, is nevertheless not strictly clerical; and as nothing can equal the obligation of the Christian ministry, or the awe of its responsibility, or its importance to man, the writer trembles at the thought of lessening, by any means or in any degree, either the dignity or the sacredness of his calling; and as the following pages might more properly have been written by one bred to the science of which they treat, or by some leisurely owner of a retired villa, an inference, not the best matured, may be drawn to the effect—that surely the Author can be no faithful labourer in the Lord's vineyard, seeing

he must possess such leaning to his own. He therefore expects, by hiding for a little, to give the arrow less nerve, because the bowman can only shoot into the air, not knowing whither to direct his aim. And if yet his own brethren should suffer some share in the danger due only to him, he seeks their forgiveness whilst, thus dispersing the mischief that might come upon himself, he causes it to fall on them only in the proportion of one to a thousand. And if they are so good as to submit without murmur to this slender imposition, he begs to assure them that their patience is not ill repaid by his very ardent desire to beautify, and warm, and fertilize the places of their abode, throughout all his beloved country north of the Tweed. Nor does he fail to include in the same kindly regard a large tract with which he is well acquainted, extending a long way to the southward of that stream, and within which, whilst the need of this manual is very apparent, the climate is such as to give it a perfect adaptation.

For the advancement then of a good cause, in which his brethren as well as the Author are concerned, may he not humbly hope that they will be pleased to offer and perhaps commend a reading of his treatise to such of their parishioners as are placed in circumstances not unlike their own? In every parish will be found one or more proprietors of a very interesting class of society, tasteful and intelligent, whose neat villas, gardens, and fields, are of a rank not far remote from those of the minister, and who like him are put to their shifts for want of a thorough bred gardener. And that there are many more who might find an interest in what he writes, may be

inferred on considering how much the eye of the traveler is refreshed by the air of snugness and refinement which a few trees and shrubs already afford to the dwelling-houses of the tenantry in those districts where agriculture is the most improved. Wherever skill has augmented (as in all reason it ought) the capital employed in farming, the effect has been a more polite education, which in its turn has produced a finer taste, manifested it may be in dress, and manners, and house accommodation; but more remotely, and therefore more strongly, in the out-door ornaments of roses, ivy, and fruit trees, which at once hide the deformity of naked walls and suggest the idea of comfort within them. This indication of improvement deserves both to be hailed and helped forward on its happy career; for there is more of virtue in it than would be imagined by persons less observant of the connection that subsists between taste and morals. About doorsteps so adorned, both wife and children look far prettier than they appear when seen through broken windows mended with old hats, or met with daubed feet and awkward gait, sliding or like to slide off stepping-stones laid in mire. When home is rendered more attractive, the market-gill will be forsaken for charms more enduring, as they are also more endearing and better for both soul and body. And O what profusion of roses, and ripe fruits, dry gravel, and shining laurels, might be had for a thousandth part of the price given for drams, which cause at market places needless stay, and vain or silly bargains, together with the growing vice which ruins all! In proportion as drinking decays the relish of home will revive;

and in proportion as a cultivated taste makes home more cheerful will the safety of morals be secured.

Thus external things, in themselves so trivial as the planting of shrubs, are great when viewed in connection with the moral feelings whence they proceed and the salutary effects which they produce. And whilst it is gratifying from recent beginnings to anticipate a further progress in such matters of taste as tend to improve the social affections, the following incident, which fell within the Author's knowledge, he begs to record, not only as pleasing in itself, but valuable as a sign of the spirit that is awakened:— A landlord, not more illustrious for rank than generosity, conceiving that he was under obligation to one of his tenants, whether for looking after the game or other civility, asked by what favour the attention might be repaid. Instead of any grumbling as to rent or roads, enclosures or household convenience, the request, as modest as it was elegant, was only a “bit of plantation for shelter and ornament to the dwelling.” Sure is the Author, that falling into such hands his little treatise would be hailed as quite the thing to tell how a bit of plantation may be put down to the best advantage. Wherever such fancy for laudable ornament is found, (and it is a thing which, like fashion, spreads fast and far,) the pastor, by suggesting this Guide to simple gardening, may at the same time do a kindness to one of his flock, and, aiding the cause in which he writes, delight the heart of another friend—

THE AUTHOR.

THE MANSE GARDEN.

PART FIRST.

TREES.

OF all the trees of the forest, the native holly is the most interesting and beautiful. Whether young, as a shrub in the garden, or old, as a lonely tree of the mountain, its glowing fruit and glossy leaves, gleaming in the winter sun, prove the delight of all eyes. It allures to its own hurt the mischievous schoolboy; it is the laurel of Burns, and the sanctuary of singing birds. Shielding its songsters from the hawk, it shelters them in the storm, and feeds them with its fruit when other trees are bare. It does one's heart good to see the humble blackbird picking a red berry amidst the falling snow.

The beauty of this tree is justly appreciated, but its use is comparatively neglected. With a little pains and patience, it were capable of altering the whole aspect of the country, and of adding largely to the comfort of every rural abode. For all the purposes of a hedge it is unrivaled; for ornamenting the lawn, or affording shelter and retirement to the pleasure walk, it has no equal. But lawns and pleasure grounds may not figure on the pages of so hum-

ble a title as "The Manse Garden;" yet neither must the author's spirit sink because his scope is confined. The first paradise was a garden, and though grandeur may require amplitude, beauty is contented with smaller dimensions. The most touching scenes of nature are often found, not in the wide range of hill and dale, but in the very nook of a glen; and genius may appear in a cabinet picture as well as in one of the largest canvass. Why, then, may not the manse garden be fair, though the field be small? and why should not art be employed to make it a very delight to its owner, and an object of pleasure to the traveller that passes by? O for a law, originating in the perception of comfort, and self-imposed, which should make the planting of a few trees an operation as certain as the building of a house! Men would live longer and better for the happiness thus given to their homes; and the sickening sameness of bare hillsides and of cold blue walls would be changed into a succession of the most pleasing objects. But how often do we find even the manse, or villa of similar rank, devoid of that peculiar charm which arises from partial concealment, and standing almost naked in the blast, though some shelter has been sought by a strip or clump of trees.

When partial concealment is the object, the holly fulfills the intention of the planter; it casts a deep shade on the stonework, and, like the dash of the pencil in a good picture, the effect remains unchanged by the changing of seasons; whereas that produced by a deciduous tree resembles the like effect in a bad picture, whose colours fade and frustrate the design of the artist. Much more, where shelter is sought,

has the holly a virtue which belongs not to any other tree. It is usual, by the common mode of planting, to have needless shelter in summer, and none in winter when the want is greatest. Why, said an ancient poet, should music be contrived only to enliven the occasions of mirth, and not rather to sooth those of sadness? And why, with like reason, it may be asked, should such trees be set for shelter as lavish their clothing on the summer months, and leave those of winter to cold and nakedness?

But have not all modern plantations, it may be said, a due mixture of evergreens—Scotch firs, varieties of spruce, and the beautiful Weymouth pine? They usually have, it must be granted; and there is to be found no fault at all with modern science as displayed in the rearing of large plantations; for indeed a true knowledge of that delightful subject, together with extensive and liberal practice, have, of late years, adorned and enriched our country. But of small strips and clumps designed for imparting beauty and comfort to the villa, the author asserts, in general, the utter insufficiency. By attending to the manner in which such strips are usually formed, and to the successive stages of their growth, it will appear that the intended shelter must fail, and nakedness ensue; and, further, the author humbly hopes to show, that for this evil there may be found an easy and effectual remedy.

The strip, then, is planted with hardwood, interspersed with a due proportion of firs, to give warmth and verdure to the winter; and for a time the success is such as to answer all the anticipations of the owner. But thinning becomes necessary, that the

trees may not die or grow sickly and unsightly, like the rubbish of old furze. Still it is hard to make blanks, letting in the wind, or the idle eye that steals on the loved seclusion; the knife is reluctantly employed, and the axe is never laid to the root without a sigh that shakes the leaves, and not till the formality of a trial by jury has passed upon every tree that is doomed to fall. Thinned, however, they are as matter of necessity; and then the important fact, that trees, if they have room, will grow in breadth as well as height, is happily discovered. Thus nature does well for a season: not less abhorrent of a vacuum than the planter, she fills, by lateral shoots, every inch of space. But, by and by, there is a deficiency for which nature, in such circumstances, makes no provision; as the trees rise in stature, the under branches fall away, and leave only bare poles in all the lower region, where shelter is chiefly wanted.

It is not supposed that the goodly evergreens have been incautiously removed; but of these, no sort presents any exception to this law of incipient and progressive nakedness. The Scotch fir grows the barest of all; the spruce tribes do not long give shelter, save where they are sheltered themselves; and the Weymouth, more delicate, thrives only in the deep glen, or in the bosom of a large plantation. An appeal to fact may be had in a matter so important as to involve nearly all the merits of the strip; and nowhere will the reader find one of forty or sixty feet in breadth, which has not, at a certain age, all the unseemliness ascribed, together with the vexing appearance of a scheme that has miscarried. The strip becomes an open shed, having some roof indeed,

but no other walls than a few naked posts supply. Plantations of such breadth upon low and level grounds have a good effect on the distant landscape; but where they appear on heights, verge the horizon, and stand relieved against the sky, they have all the wretchedness of a ragged garment; and having such aspect near a house, where they are designed for warmth and seclusion, it were better not to have them. In the first period of their growth, they afford but the pleasures of hope; then, for a season, they give an air of snugness to the dwelling; and then, as the planter is growing old, they are getting bare; and, looking through his poor strip, he sees from hedge to hedge the withered grass partly broken and partly waving in the winter winds. In point of taste, such a plantation is downright ugliness, and in point of utility its condemnation is, that it does not answer the end.

Plant hollies instead of firs, and every inconvenience will disappear. You will have no pain or hesitation as to thinning and pruning; the promotion of your hollies becomes the main object, and every thing that interferes will readily give way. Only cut down as the hollies spread, and in the long run there will be as much timber as the ground can carry. The timber may grow magnificent if you will; the holly will thrive notwithstanding. Nothing that grows will look so smiling and vigorous under the shade of trees; it may be seen luxuriant where it has been chance-sown by the root of an old oak; it never knows what it is to die under any circumstances; it is peeled by birdcatchers, to whose blackguard calling it seems indispensable, still it lives; age seems

unable to secure its decay: it is literally ever green. The root, holding a perpetual lease of the soil, is possessed of a reproductive vitality, and while the old stem is failing through length of years, a numerous offspring arise, which shelter in their bosoms the aged parent, allowing no marks either of the infirmity or the change of generations. The expense is nothing; four shillings' worth (the price of a hundred good plants) is enough for an acre. The hollies should be placed, say twelve feet asunder, and so arranged that one farther remote may divide the space betwixt the nearer two.

A strip so furnished, though not more than thirty or forty feet wide, will afford more beauty and shelter than one of three times the breadth reared in the common way; and it will also have this incomparable advantage, that no length of time will produce the nakedness of a wretched row of poles; it will continually increase your privacy and shade, providing for the comforts of your old age, by substituting for the bleakness of December the gayeties of June, and give you the happiness of leaving the world better than you found it. Neither is it all the while a petty low shrubbery that you rejoice in. Amidst the shining hollies may stand the flowering lime, with its accompaniment of bees—the mountain ash, bending under its vermilion clusters—the shady plane, with its chattering magpies—the early-budding poplar, giving notice of the spring—the walnut, of sweet-scented leaves, and whatever else may please your fancy,—all rising to the majestic; whilst all within and beneath is closely covered, and always green, and full of birds fighting in song. It is not

meant that the holly is the only tree that will grow in the shade, or that nothing else should be planted as underwood: privet, common laurel, and some others, may aid the variety; but the holly must be your sheet-anchor. Every one of the fir tribes may have a place at the first, serving early to give a clothed appearance; but still it is the holly, always improving as all other things decline, which alone can make the progress of shelter keep pace with the progress of time.

To censure the success of a design so interesting, as well as to make its advantages more generally available, it will be proper to offer a few remarks both as to the first formation of a sheltering strip, and the amending of one which, having been reared in the common way, has become next to useless.

Choose your ground where shelter is most needed, whether for the house or garden, and trench it well; but do not trench too sorely on the glebe, lest economy, afterwards more observant, should regret the extravagance. A quarter of an acre, well shaped and situated, will do a great deal, considering that the plan already specified is contrived to make much shelter of little space. Let it be fenced outside by a sunk stone wall, of three or four feet, with a hedge on the top—a hedge of thorns, if the soil is indifferent, and the situation much exposed; in more favourable circumstances, by all means, let the hedge be of holly. Before planting, manure the ground with lime and dung, which will be repaid by excellent crops of potatoes for a few years, and in the mean time your trees will vie with one another, making shoots of four or five feet in a season. If the hedge

be of thorn, let it grow three years untouched, except as to careful weeding; then cut it as close by the ground as the knife can be laid; thus treated, it will become so compact that no hare or rabbit can find entrance even when snow has filled the excavation of the sunk fence. If the hedge be of holly, clean it, of course, but do not touch it with the knife for seven years. When the lateral shoots project over the wall, they may be trimmed flush with its front, which will render the fence impervious to the nibbling invaders that prove so destructive to young fruit trees and various productions of the garden.

Thus matters are easy where the ground is clear and of your own choosing; but the case is more difficult when you have to do with old trees copped with hemlock, nettles, and brambles, and surrounded with bad hedges, of many blanks, and choked, root and branch, with an absolute matting of grass. Do not go in a passion to root out trees and all, but exercise a little of that patience which belongs to a slow and steadfast revenge, and which bears with pleasure a present annoyance, because of a plan which, though not quickly, will surely accomplish the triumph of a thorough correction. Every advanced tree is of great price; it is the purchase of time, not of money. Let a sufficiency be spared, lest, in future, waiting on young plants, you remember the old, and repent the rashness.

Begin by ordering from the nursery one hundred hollies. Plant them in the best piece of border ground your garden can afford, in rows, eighteen inches apart, and six or eight inches distant in the row. Let them remain till they are good large bushes

of two feet in height, giving them all the while the advantage of frequent hoeing in summer, and slight digging between the drills in winter. By this process not only do they rapidly expand above ground, but, which is more important, they form, instead of the whip-lash roots of the seedling bed, a very fleece of fibres, to which the earth adheres, and by which, when transferred to the shrubbery, their growth is at once sure and vigorous. Along with the hollies, lay in a small stock of Portugal laurels at threepence each, common laurels at half so much, variegated hollies at sixpence, a few of the arborvitæ, laurustinus, arbutus, and juniper. Of these, some of the finer sorts may be planted near to the house, where they are to remain, and on ground which may not require a tedious process of amelioration. Should the house be situated in the garden, by all means let some of those beauties come next the eye, to the exclusion of cabbage, filthy in decay, or of gooseberry trees, with their accompaniment of trampled ground and refuse of fruit—a hideous sight. Others of the more hardy shrubs may be set to nurse, for future lifting, in the manner of the hollies; and in the mean time layers of every sort may be freely taken. This is the easiest thing in the world, and the most certain of success. Stir up the ground, and make a rut, two or three inches deep, all round the plant; from the under side of the lowest branches pare a little of the bark; or instead of paring, give the branch a twist; lay the portion that is twisted, or pared, into the bottom of the excavation, and fasten it down with a peg; then replace the earth, and set up the head of your future plant, keeping it erect by firming the soil around it

Every shrub of a few years old will thus afford a dozen of fine young plants, which will be more prized than those bought at a considerable expense, and surer of growing well than such as, being brought from a distance, have their roots less fibrous, and half peeled half withered before they arrive. Thus your stock will increase, and afford the pleasure both of tracing its progress and possessing a ready supply for beautifying and filling up any vacant space which may occur. Whilst these preparations are advancing, any fit time may be taken for the reformation of your ill looking strip, with its ragged hedge and underwood of hemlock.

Begin by grubbing up old lilacs, stunted and flowerless for want of sun and shower—elders, which, though beautiful in the open lawn, grow deformed in a thicket, and blight every thing near them—willows, worthless as trees, and ill favoured—spirea, growing like a sheaf, and retaining the dead stalks amongst the living—the hedges totally, and not to be succeeded by any thing of the same kind in the same place; and sparing only a few of the best trees, at such distances as they may require for growing to a goodly size. Proceed then to trench the ground, reserving to the root of each tree that is saved, a circle of as many feet in diameter as there are inches to the stem. In this process of trenching and uprooting, make distinct heaps; one of stones for the roads, one of wood for the fire, and one of all abominable weeds, with which accounts may be settled by a due mixture of lime. It may be that a gravel walk is needful, either where there has been one of grass, or none; and in the excavating of which

there will be furnished an invaluable mound of earth, as well as a convenient receptacle for the heaps of stones. The earth may be wheeled to the trenched ground, and made into compost with dung, in the proportion of one to three of earth, or with lime at the rate of one to six; the whole to be turned over once or twice a-year, till the hollies, as previously recommended, have attained the proper size; and the soil to which they are destined, being now renovated by trenching, may, in the mean time, be enriched with manure, and kept clean by alternate crops of potatoes and turnips; whilst the matured compost will be in readiness for application to the roots of the hollies in the final act of transplanting. That so much care and trouble are not needlessly bestowed, may be ascertained by examining the state of the mould from which the poor and profitless tenantry have been ejected: it is dry as dust, and terribly impoverished; it seems, at a small depth from the surface, not to have felt the refreshing of a shower for half a century; it has seen no sun, and suffered no frost, nor has it breathed the vital air in all that time; it is mingled with the recent chips of the mattock, and full of turf fibres, which, though dead, are undecaying as wool or hair. In this state it might do well for oats or barley; but not for your hollies, the hope of your old age, and of centuries to come: and hence the use of a contrary series of productions, and of the rich mound to be had, as above described; or failing that, a portion of the rooty earth may be exchanged for the black mould of an old onion bed.

Proceeding thus, with good assurance of success,

you cannot choose for the operation of transplanting a better time than the gloomy month of November—provided it be gloomy. Avoid a clear frost as you would the fire of the dog-days. After some mornings of rime, when you are sure of a week of wet weather, seize the amiable opportunity;—and surely not a little may be said for an occupation that can make a November drizzle more cheering than the sunny dews of May. It is not intended that this is the best time for lifting the more delicate evergreens; but hollies, though by mismanagement the most readily lost, are not delicate; and this is the season which best secures all advantages to that plant: its last year's growth is perfectly ripened, and not one shoot will hang its head. In a dryer season of the year, every thing newly transplanted requires frequent watering, the trouble of which, in this case, may as well be spared, and which, however liberal, never equals the natural moisture; and by the prevalence of the winter and spring rains, the roots get thoroughly incased in the soil before the period of growth returns. I venture to assert that, by properly conducting the removal of hollies and other hardy evergreens in this month, you will not be able to pick up one fallen leaf, of one of a hundred plants, before you see the young fresh buds of the following spring.

Have near the scene of your operations a plentiful supply of water, as many small pointed stakes as you have plants to lift, and a large clue of oakum—the shop name for single but strong threads of hemp saturated with tar. Have, at least, two men with strong new spades, and stand by them every minute;

for the spades have, in all ordinary hands, a strange centripetal attraction, on account of which it is difficult to maintain a due remoteness from the heart of the roots; and notwithstanding the strictest mandate, you will find frequent cause for calling Hold, when the murderous slash is about to descend through your living fibres. Set spade over against spade, each a foot from the stem of your hollies, and allow no wriggling or prizing till they have gained an even-down depth greater than that of the roots—then lift, and up comes the whole living form, as unconscious of suffering by the change of bed as a sleeping child. Carry softly: make the new bed broad and deep, of the prepared compost; set the most projecting branch to the west wind; pour in a little more of the foreign with a mixture of the native mould; then drench with water: the wetness of the earth or of the day is no excuse, as it might be found, on a narrow inspection, that the roots, though surrounded, are not closely embraced by the soil, but that there are cavities, within which the roots will become mouldy, and die of dry rot—so called;* level all up, making the surface slightly

* “So called”—In throwing this discredit on the *name*, the author does not profess to unravel the mystery of the *thing*; in other words, to account for and cure that remarkable decay, whether it be in the timber of ships or houses, which is usually denominated *dry rot*. But if the name be wrong it deserves correction, lest it lead to a wrong idea, and the attempting of a remedy, by securing to the wood more wet, and so preventing a disease that may be supposed, from its name, to originate in dryness. It is only by comparison that the term has any truth. The cause of rotting is more obvious in wood that is laid on wet grass; and then it seems mysterious that a waste as rapid should be found in that which is so dry as the floor and panels of a frequented parlour. These are indeed dry as compared with boards laid on the grass; but where the rot occurs in the panels, they

firm with the foot; and lastly, stake and tie every plant. Make this last a rule without any exception. You are apt to say when it is calm that the wind will do no harm; but wait the equinox, and you will see an exactly conical perforation, smoothly plastered around the neck of every unfastened plant. For the sake of variety, other sorts of your large and well nursed evergreens may be removed to the same place, and after the same manner. Having thus furnished your boundary strip, as a sheltering outline, you may plant anterior to it your finer evergreens, which from time to time may be multiplied and diversified from your stock of layers. This inner range of shrubs, mingled with flowers, and made accessible by a walk, remains to be further noticed in Part III, the flower department.

The incurable hedge we suppose to have been

are in reality not dry. Mushrooms of large dimensions, or plants of another species, will be found growing inside, and seeking their way to the light. Such tribes do not live without water: roast them, and the falling drops will prove the fact: neither are those deals so clothed with vegetable life that are always near the fire. It would seem, therefore, that the above misnomer should be amended by substituting the word wet for dry; and it may be observed, too, that the wetness which causes, is just in the most favourable circumstances for aiding the disease in its hidden and appalling devastations. The moisture is closed in, and excluded from the air. Were the circulation free, a dryer atmosphere would sometimes, at least, check the decomposition of the timber; and the progeny of its corruption being, though mischievous, naturally delicate, might suffer by the changes of temperature. Wherefore if dryness of site and freeness of circulation cannot be provided for in the case of a house so infected, let not the inmate breathe his wrath upon the mushroom—itself not the cause but the effect of the dangerous damp of which it gives a friendly admonition; and let him seek no oil or mineral poison to prevent in future the wood which he repairs from giving the like indications of harm; but let him rather flee for his life, lest staying unwarned he may be found to have slain the witness, not the foe, and made himself a prey.

utterly extirpated; and if the place it occupied happen to be under the drop of the trees which you have spared, or is likely to be soon overshadowed, a new stance, somewhat farther remote, must of necessity be chosen, and there the same method as that recommended in the formation of a strip on new ground may be adopted; but with this absolute resolve, that from the first the fence shall be perfectly hare-tight. A garden lying open to hares, rabbits, hens, dogs, and cats, is truly nonsense; for why incur the expense of many things, and render them all nugatory by saving the expense of one? A few words, therefore, on the article of fencing will not be deemed unnecessary; and ample apology for the pains may be pled by the frequent occurrence of a ragged hedge as the only shield of the manse garden.

But should the requisite work appear less easy than you could wish, the only rule for you is to break all up, and have no garden; to buy your vegetables and your fruits; to make open pasture, suffering the cows to poke your windows, defile your doors, and rub their necks, leaving the brown hair on the greased corners of your harled house. This has at least the merit of a system, in which no part counteracts the whole; and the taste that approves of grazing, with its understood accompaniments, up to the doorstep, has not long gone by. But to fence, and yet not fence, is faulty, not in point of taste, but of reason; and to exclude your own cows from your garden, whilst you admit hares and rabbits which are not your own, can scarcely be reckoned charity, and is not very justifiable on the ground of prudence. But a garden in all probability you will have; and if

a fence secure against all intruders be difficult, let the difficulty be met by a greater—namely, the annoyance, in various ways, repeated daily, and continued all the years of your life.

You have sown your small culinary and flower seeds in fine season, and raked all in, neat and clean; and when you look out to see whether the young sprouts yet carry the dewdrop, you find a lot of hens, like partridges under a dry hedge, reveling in the luxury of filling their feathers with the soil, and repaying what they take away with the plumage which they leave. You have a standard pear, whose quality you have secured by grafting, and whose fruit you are waiting for year after year; and that is the very tree around which all the cats of the village choose to assemble for the peculiar diversion of exercising their claws, piercing the core, and making the bark to the touch of the hand what the under part of a stirrup is to the foot. And whilst your patience is thus under the claws of the cat, that of your good wife is submitted to the teeth of the rabbit. The early cauliflowers were expected for a particular occasion; but the munching tribe, popping out and in at will, have not left a green blade. You have a Ribston pippin on your best wall, and every flower-bud is nibbled as neatly off by the hares in the night time as if great industry and a sharp knife had been employed all the day. It may be some consolation, that though they have taken the buds, you have still the branch; and there is no saying what may happen to the hares before another winter; but look to your espaliers, and you will have no occasion to congratulate yourself on the

exemption of the fruit-bearing wood. It is near the extremities that the crop is most abundant, and these also are the portions that the hare makes choice of to eat entirely, whilst the wood, otherwise garbled, contracts a disposition to canker. The lowest branch, lying most convenient to the teeth, suffers the furthest process of gnawing; the next a degree less; and the third, not so accessible, is truncated only as far as the bite is easy; so that the tree is mere vacuity where the fruit clusters should abound; and the branches, instead of maintaining their destined parallelism, are reduced in figure to the transverse section of a Dutch ship. I might tell of a remedy for this wasteful sight, but rather withhold it, lest, in mastering the hare, you submit to the hen. This busy gardener will be found at one time nestling in your onion beds; at another, breaking the newly set rows of your dazzling ranunculuses, or scooping out the half struck layers of your prize carnations, or combing with her claws the roots of a fine shrub, and leaving them to crisp in the sun. With much care, but scarcely without damage to the fruit buds, it is possible to make the young wood unsavoury to the hare, and thus to secure its safety; but it is far better to look to your fence—to make that secure, and so ratify a truce with all your enemies at once.

Have no quarrel with your heritors, and you will have a capital garden wall. I have never known a case in which there was not manifested by that honourable body a great readiness to promote the comforts of the minister, except where the latter has proved either nearly useless, or given to litigation.

The legal fence is one of stone and mortar, two ells in height, measured from the surface, and therefore exclusive of the depth necessary to obtain a foundation, and of such length as to enclose half an acre of ground. Mortar perhaps once signified clay, but now it means lime, according to use and wont. And lucky it is for your apricots, as they require so much nailing, and the clay does not hold. But you are not likely to suffer by the substitution of clay for lime, as no gentleman, in these times, is willing to have an ugly hole in his property, or to exhibit, by a clay pit, the proof of an execrable soil. A lime wall, besides, will in most places cost less, requiring only one foot in thickness; whereas a mud construction must be twenty inches, or two feet, to have any chance of standing; and even with such expensive thickness, as the wall has not the benefit of a roof over its head, it will be sure, on the slightest failure of the turf cope, getting soaked, to suffer expansion by frost, and to burst, a mass of hateful ruin, in the February rains. But not failing, the turf cope is a pest, polluting, by the seeds of every thing vile, both flower borders and gravel walks; and if to prevent the bursting of the wall through the failure of coping, and kindly to save the minister from a pest, as well as to remove from the eye the meanness of a turf heap which uncouthly mingles with peach blossom, the heritors should determine for a cope of stone; then the needful thickness of a clay wall becomes a very considerable aggravation of the expense. For if freestone be adopted, it is charged by the square foot, and if common stone, for cheapness, be preferred, it is yet not cheap when required of a

length not less than two feet, such stones being valued not by the weight, but by the difficulty of finding them.

Supposing the legal dimensions and proper materials freely granted, you may by a little management and taste, at nearly the same cost, have a much more efficient fruit wall, and an equally good fence on all sides, with less of formality in the appearance. This is to be done by diminishing the length of mason work, and by adding to the height, where the aspect is good; the remaining boundary being completed by a hedge, and sunk wall of four feet, consisting of dry stones, pointed with lime. And with such advantages, surely there ought to be no penurious grudging on the part of the possessor, in regard to nursing the hedge, temporary paling, or a little extra expense, by which the estimate on this plan may exceed that of the uniform and allowed dimensions. An equally high and four-cornered garden wall, staring in the open field, is the most unseemly thing that can be set down on the surface of the earth. If your house stand in such a garden, it looks like a prison; and all flowers within such boundary of stone appear not otherwise than as a parterre for the amusements of bedlam. Should the house be a little remote, still the huge square box of a garden annihilates every possible trace of natural beauty; and this it does equally in every degree of littleness or of magnificence. Witness many villas—witness Floors.* The shape must vary according to circumstances; but in general angles may be avoided,

* The seat of the Duke of Roxburgh, whose splendid park is thus disfigured.

and two or three of the sides may consist of wall ; but something of the crescent form, opening its arms to the sun, ought to be preferred ; and then the figure may be completed in a way the least offensive, by a low hedge surmounting a sunk wall, which is but little obtrusive.

Still the visible line of demarcation is bad ; and nothing tends so much to do away this effect as a few irregular trees near to and without the boundary. And this leads me to remark, what might be proved by a thousand observations, that it is the ring fence of a plantation which mainly fixes on it the stiffness of artifice, and prevents it, whatever be its form, from having the ease and elegance of natural wood. All ornamental clumps ought, therefore, as soon as possible, to be freed from the encumbrance of their surrounding hedge or dyke ; and it is impossible to describe the instant surprise of new beauty which succeeds to such act of demolition. If to the removal of such hampering lines from the landscape be added the advantage of a few chance-scattered trees, allowing the clumps as it were to dissipate like the verge of a cloud, your work of art is completely charming, and hardly to be distinguished from that of nature's hand. But as your garden fence cannot be so disposed of, the best that can be done is to break, by a few trees, the exactness of the outline ; and if you have planted within your enclosure, it is at once pleasant and easy to transfer some portion to the outside. For this you have trees where they are wanted, and of such size as to need no fencing ; and by forming a colony to relieve an over crowded population, you avoid the pain of cutting off young and

promising lives. And as this is an operation so important wherever the hand of rural improvement is at work, the devotion of a page to the subject may well be allowed.

The most novel and interesting experiments of this kind are those of the ingenious and enterprising Sir H. Stewart. His theory, founded on a careful analysis of the physiological laws, is undoubtedly good; his method of shifting the site of living timber, so far as time has yet proved, appears to be eminently successful; and no small praise is due to the splendid scheme of clothing a lawn in a few days with trees of a stem three feet in circumference—the growth of thirty years. Yet there is reason to fear that neither the author's valuable treatise, nor the demonstration of his success, will go very far to help the nakedness of our country. To the success of such operations, not to speak of skill, a large expense per tree is absolutely necessary; and reasonable fear there may be, that trees of such magnitude will not do well upon indifferent soil. The excavations for their new residence must have considerable depth; and the whole apartment, loosened as by trenching, and enriched with compost, is highly favourable to the life of the old, and to the growth of newly formed roots, for a certain number of years. But look to the sides of the pit, consisting, it may be, of hard till or sheer gravel; and what iron wall have the surprised roots in their new adventures to perforate, or, after good feeding, in what poverty to live, when they seek to extend their sphere. It will then be time to lift again, and seek a larger flowerpot for the plant. It is a just theory, that the roots must be taken up to

a great degree entire if the branches be kept entire ; but this method is wholly inadmissible for the adorning of treeless hedges, or relieving the sterile and wretched appearance of dry stone dykes—an object extending to nine tenths of the arable fields throughout all the breadth and length of the land.

Let younger trees be planted, in the form of pollards, and they will do in every case—clothing the country, and at no considerable cost. It is objected to the pollard, that it has a mean and deformed appearance ; but what is the patience of a bare pole for one summer, compared with enduring the nakedness of a country age after age ? And that the defect is only temporary, I could refer to a thousand instances in which the most critical eye could not discover that the tree, no longer a pollard, had once suffered the disgrace of decapitation. Where the young shoots are thinned out, the second or third year after transplanting, and any decayed wood smoothed off, so as to allow the bark to close in with the new growth, no more defect will be visible than in any tree of the same advancement growing where it was sown. The ash and elm do best, and the oak will not fail in good soil ; but the beech and the plane had better not be lopped, and in that case the roots must be more carefully extracted.

But why make pollards at all, it may be asked, since their appearance is at least for a time deformed ? The answer is, that, having little ballast, they meet the wind with less sail ; but a far stronger reason is, that the future growth of the pollard is better than that of a tree, of whatever size, transplanted entire as to the branches, but mangled as to the roots. In

the thicket of a young plantation, it is impossible to accomplish the lifting without considerable laceration; and if that could be avoided, it would still, in many situations, be impracticable to replace a sufficient compass of root in the ground. If the roots then must be curtailed—so must the branches. Every thing as to the leaves being lungs is well enough understood; but, notwithstanding, the head must be taken off, though the leaves be consequently few; for as the principal nourishment comes from the smallest and remotest fibres of the roots, and as those are mostly severed, it follows that the top branches—and the fact is seen in every case—being unmoistened from beneath, get so dry and indurated in the heat of summer, that they never afterwards serve well for the circulation of the sap; whereas the head being diminished, and little more than the trunk, which does not so readily part with its moisture, being suffered to remain, new shoots are formed, which, growing in proportion to the nourishment supplied, have no unhealthiness, and cause no future obstruction, but serve in all time coming as open tubes for conveying the sap to succeeding ramifications.

The best age for pollarding may be from ten to fifteen years; but as size, which depends on soil and shelter as well as time, must also be consulted, the best rule is to choose the healthiest tree, of a stem two, three, or four inches diameter. The ball or circle of roots should measure at least one yard across, and the pits for their reception a little more. When the soil is poor, a few spadefuls from the nearest field should be allowed, or as much compost, if it may be had; and for the better firming of the

roots, and preserving of moisture, it is of no small use to throw around every stem a quantity of loose stones, which take in all the rain that falls, and exclude the sun. For protection, the top being high enough to surmount all bestial, nothing more is requisite than a handful of thorns tied round the stems, to ward off the necks of cattle, the teeth of sheep, and the poisonous grease of their wool. There is no nicety of seasons as to planting: any time of soft weather, from the fall of the leaf to the middle of April, will do; but the earliest is the best chance, save where too much wet might cause rotting—and in that case, it is better to plant just on the opening of the bud.

It is gratifying to remark, that the whole expense of lifting, transporting, (where the distance is within a mile,) making pits, planting and defending, does not exceed thirty shillings per hundred—a number quite sufficient to relieve the stiffness of the garden fence, and ornament every field of the glebe. And why, throughout the country, are fields so generally bare—why is the harshness of stone dykes so long unmitigated? One pound is no great price for an elm; and in how short a period might not the thirty shillings grow into a hundred pounds! England has less plantation than Scotland, yet England seems all wood, and Scotland all bare. The explanation is the hedge-row, which, besides beautifying, brings money, and, without marring the plough, gives more to the field by shelter than it takes away by shade. In the letting of grass parks, the earlier verdure tempts to the highest price for that field which is surrounded by the thickest row of trees. Remember

the thirty shillings, the hundred pounds, the higher rent, the charm of wooded scenery, and wonder how there should be any where a field without trees where trees would grow; and wherever corn ripens they will grow. The chief hinderance is the difficulty a man has of moving himself. That difficulty is increased by the coldness of a bare territory; and the cold that once subsists secures its own continuance—it begets an unwillingness to stir, even when it is known that the movement would bring warmth. Cold in this respect differs from hunger: the former is sedative, the latter is stimulant; hence men are more active in the procuring of food than of clothing; hence the plough goes further than planting; and hence England, having less cold, has more trees.

But not only is the pollard convenient for the forming of hedge-rows, it admits of an application as easy and economical to all by corners, steep banks, and open pastures, not submitted to the plough, or too much exposed to the blast; and the success of the method may be seen in the county of Selkirk, on the beautiful and well wooded estate of a gentleman, distinguished equally for the science and the revenue of planting, where thousands of trees, in groups or sprinkled like stars, promise a rich return; though no further fencing has at any time been given than that of having placed them, as pollards, in the heart of a *whin bush*, wherever such had occurred in the sheep walks, or in steeps and glens incapable of other cultivation.

If you plant a tree, it has been justly said, you will water it, intimating the pleasure you will take in its growth; and to succeed, the main rule is to

put your hand to the work. A volume of minute details might be written on this pleasant theme; but, giving an air of importance by the minuteness of detail, they would serve only to deter from the enterprise which their author would zealously recommend. There is no such mystery in the matter. Only make a beginning; improvement will grow out of experiment; and you will find in the very nature of the work a new interest communicated to your life; and which, relieving the pressure of cares, and lightening the burden of toil, will tend to no worldliness of spirit; for ministers certainly do not plant for their heirs, and though others may, yet do they reap only the pleasure of their handiwork, and must bequeath its gains to the unknown futurity. Thus conferring as well as receiving good, and incurring no evil, let our gardens and every corner of our glebes be adorned; and if we have to lament, on the part of those having large possessions, that too little is done, let us at least set an example, though it be but in the model style, and have our home a paradise of fruit and flower, of shelter and shade, endeavouring still to make the place more worthy of ourselves, and ourselves more worthy of the place.

In order to avoid the box-like appearance of a common walled garden, I have recommended, as part of the enclosing line, a hedge and sunk fence. It is not to be expected that before the hedge is well grown, the low wall should be sufficient to keep out the ordinary intruders; and there it will be necessary to erect a paling, which may be very slight, as it will neither be long needed nor have much to do in resisting cattle, being well aided by the sunken wall of

three or four feet. As economy is a great beauty, when the end is sufficiently accomplished, the minuteness of the following description of paling will readily be excused. At the distance of nine feet from each other, let stuckings (stakes) of peeled larch, three to four inches diameter, charred at the lower end, be driven at the bottom of the wall, and held against its front by rances from behind;—the stuckings must overtop the wall by two feet;—let two bars run along the outsides, giving thus more room to the hedge, the one a little lower than the summit of the wall, and the other an inch or two from the top of the stuckings; and let these bars be crossed by pieces of lath placed upright, and not more than two inches apart. Let the whole be anointed, when very dry, with coal tar, and the fabric will last for ten years. It may be asserted, that no other sort of paling, if hare-tightness be effected, as by the above, will so much combine cheapness with durability. For greater security, it is proper to observe, that though the laths may surmount the top bar, where they are out of the reach of cattle, they must not descend lower than the under one, where their frailty would be more exposed; and as the under bar is placed a little beneath the summit of the wall, the poking sort of invaders will not discover a way of access, although there may be room enough to admit their bodies.

Should it be found, on the decay of your wooden erection, that the hedge, with all due care, is not sufficiently close, let a small peg be set upright into any vacancy that may occur; but by no means draw in a bushy thorn, as is frequently done, and which, as it hinders the growth of lateral shoots, soon makes.

the blank larger than before. If any part has failed to a greater extent, fill it up with a well grown plant of a different species; for it is remarkable that a thorn will not grow in a soil already occupied and exhausted by thorn roots; but a common or sweet brier, a barberry, a crab, or wild plum, or a well grown holly, will fully answer the intention. Should it however appear, that from the bad thriving of your hedge in general, such remedies will not be effectual, it may be expedient, on removing the paling, to add one row of stones by way of a cope, so as to raise your wall about six inches higher than the roots of your thorns, and thus make sure of tightness, as the difficulty is experienced only at the very surface of the ground.

But it may sometimes happen that a snow storm will level a pathway over the very top of your defence, and yet leave your trees in some places uncovered, and exposed to the enemy. A quantity of soot, with twice as much cow's dung, reduced with water to the consistence of paint, and laid on with a soft brush, will prevent the hares from touching the bark, and serve for the whole season, without causing any injury to the tree. In too great proportion the soot is unsafe; and care should be taken not to hurt the flower buds; but withall, the remedy is by no means tedious in its application, and is perfectly efficacious in preventing a devastation which many years will not repair. All these little matters, I am aware, will be judged worthy of notice by every one who has experienced the peculiar provocation of the various garden enemies—their assaults being of a kind too trivial for the exercise of resignation, and yet, by frustrating the hope of your labour, making all your plans and expenses mere foolishness.

But whilst the above methods may apply to all ordinary situations, there are others in which they could not be adopted with any degree of propriety. In very high and exposed places, where the soil and atmosphere are such as to stint all vegetable growth, the planting of hedges for such nicety of defence is out of the question, and the erecting of paling still more. Look around you before you lay your plans. Is your height above the level of the sea 800 or 1000 feet,—does the plough turn up black peat earth mingled with round white stones,—does the nearest plantation of Scotch-firs present its small tufts of annual growth, like the top of a thistle; and is its hedge, of twelve years' standing, scarcely two feet in stature, and covered all over with moss of an ochry colour mingled with silver grey,—take your measures accordingly. Plant no hedge with a view to keep out hens or hares, but raise a strong rampart of large blue stone from the nearest quarry, and within it plant green kale and potatoes. Your kale plantation will thrive no worse for affording shelter and pasture to your hens, whose eggs will be the best of your garden productions. Even here I could figure a certain degree of beauty inside the garden; but it must be of a kind suited to the nature of the place. I would have the high mound of dry stone fence completely covered with Irish ivy. I would have no fruit trees and no flowers; the heath is beautiful, and the village children will bring enough of fruit for preserves from the cranberry bogs. In the keen air, giving a keener appetite for breakfast, it will be no vexing sight to see the garden full of hens; some feeding amongst the kale, some cackling for joy of

their warm nest, beneath the ivy, in the vernal sun; and others, white as the snow, perched on the green summit, like sea-mews on the ridge of the wave. For your own shelter, rather collect peat fuel all summer than plant trees all winter. If your glebe could spare an hundred acres you would do well to cover them with larch, which, occupying such breadth, will grow well at any height, and soon improve both soil and climate; but spare yourself the misery of a strip, or clump, or hedge-row, of which the branches, lying all to one side, like the rigging of a sloop, instead of making you warmer, will only chill you by demonstrating the effects of the incessant blast. As it is easier to bear want than failure, be content with bleakness; and of mental food, healthful exercise, and the relish of beauty, even in the bleakest season, there will be no want in your library, in pastoral visitations, and the sight of clear blue sky, glassy snow, the social circle, and a blazing fire.

But circumstances so untoward as the above described do but rarely attend the abodes of the Scottish clergy. The kirk and manse are generally objects of pleasing interest to the traveler. A great advancement both of taste and liberality, on the part of landed proprietors, appears in all the recently erected churches of our picturesque country; and the adjacent manse stands, amidst the gradations of wealth, a model of the golden mean—as if Providence had chosen to illustrate, by his servants in the church, the wisdom of the prayer, “give me neither poverty nor riches.” The situation of the manse is, for the most part, low, sheltered, and beautiful, by the woody bank of lake or stream. The country being every where mountain-

ous, abounds, of course, in glens and rivers; and in these romantic retreats are found the decent church, and the peaceful looking abode of the pastor.

Such felicity of site has often led to the sarcastic observation, that the Church is too wise not to have the best things to herself. But so far as the accusation of a selfish wisdom is limited to a predilection for the murmuring stream and the shade of trees, without implying the guilt of aggrandizement, it may be easily borne. But even this, if the charge were grave, might be answered by the fact, that the sweet attractions of the river have first moved the flocks to feed on its green pastures, and that thither the shepherds have but followed them. It is true that the church, in consequence of this attraction, is but rarely central to the parish. In some districts may be counted nearly a score of churches ranged along the winding valley, whose stream serves to each in succession as the parochial boundary; and hence the area of the parish is very unequally disposed around its place of worship. Nevertheless, the site of the kirk and manse is chosen on a far juster principle. For obvious reasons, the population is crowded on the valleys, and thinly scattered on the moors; and the most perfect adjustment of every claim, is to suppose the people, with their respective distances, to form a coherent substance, of which substance, the centre of gravity is the proper site of the church. This principle, as just in morals as in mechanics, may serve to appease the remote inhabitants who complain that they must travel all the breadth or all the length of the parish before they reach the place of worship. From the above it follows, that the

manse, in the situation of which the minister has seldom any choice, has, by a law of nature, nearly the best advantages of soil and shelter which the parish can afford.

Surely this holds out to the incumbent great encouragement to accomplish what nature has left to be done by art for completing the beauty and comfort of his residence; and as he, from superior education, must be supposed to possess a cultivated taste, and ought to have charity, he cannot be excused either in suffering dirty doors, or refusing to plant a tree because he plants not for his children. But where is the ground of complaint, it may be said, seeing that so much has already been done? Improvements, it must be owned, have taken place in an age so replete with improvements; and as this is just the ground of expecting more, so, indeed, much more may yet reasonably be expected. And therefore these pages are humbly submitted to my honoured fathers and beloved brethren. Were the times as formerly when there was no stir—no taste in this way, who would have written what none would have read? But now that improvements are begun and progressive, many are looking out for hints on a subject in which they are interested; and for any that may be here suggested, I can answer that they are the result of experiment, and adapted to the circumstances of the persons for whom they are designed.

Having provided for the shelter and ornament of your garden, as well as its safety from devastation and annoyance by small foes, we come now to take a look of its interior; and for the following reasons I venture to suppose, that the observations next to be

made will be judged worthy of your attention. The village or the country gardener is a man that has his price; he is not always to be had, and what is worse, he is least to be had when he is most needed. The seed time is his harvest, and in that season of his importance, he must divide himself amongst his customers. Thus your reeking furrow, impatient to receive the seed, must again get cold and wet before the man of science makes his round; and thus waiting for your man you lose your crop. But know a little of the thing yourself, and with the help of a common labourer, you have the time and tide in your own hands. But look to the workmanship of these men of price, and you will discover your need of knowing more than they do. How often do you see on the best wall, every sort of tree, for "uniformity's sake," submitted to the same rule of training, a rule too which in the case of some is such as to prevent the possibility of fruit bearing. The fault may be in nature, making one tree to differ from another; but the fault must not be in this man's science—all must conform to the same laws. He knows that the young wood is an encumbrance to the pear; and he lays down its well trimmed branches with many a side-long glance at their exquisite parallelism; and this delight were marred if the plum might be any exception. It insists, indeed, on not bearing a morsel of fruit, except on its young wood; but Andrew will not allow a twig to remain, and hence the tree, after ten years of trial, by torture, is, with others of the same family, condemned and burnt, either for barrenness or contumacy. Meantime your wife and children have often had watering teeth, on viewing,

in the 'squire's garden, the rich profusion of green-gages and of magnums, like the golden eggs of yore, and have wondered why they have none at the manse. Andrew blames the nursery-man for cheating in the matter of grafts, and you suspect the soil. This is really too bad, to have nothing for the teeth—to have the best soil, a wall that did not come there without expense; not forgetting your account current with the man of price; and to have no other produce than a set of bare, knotty, gnarled old poles, held up to the beauteous sun with shreds of old hat or pieces of shoe leather; and all this, because your man of science cannot see why the plum should differ from the pear. I would exhort you not to suffer ugliness, sterility, conceit, and useless expense. If you do not choose to notice what part of a tree is made for bearing fruit, and tell Andrew to spare that, or put in a nail yourself, lay the axe to every root, and plant ivy, which will train itself, look beautiful, and cost nothing.

As in the fruit department, so in the vegetable. Dinner on the table, you have nothing but potatoes; and an apology is made, alleging the badness of the garden. The truth is, your man, going to all places, remembers nothing about any place; and the succession of cropping, as necessary to the garden as to the glebe, is a matter of chance. Hence your cauliflowers, having succeeded late cabbages, instead of swelling to a noble bumpy head that might please a phrenologist, are mere buttons; and so of the rest. Yet no expense is spared; the garden consumes a great deal of manure, as much as might help a large field of wheat, besides incurring a considerable debit for seeds and plants; and not a little for whole days,

half days, and odd hours, as per Andrew's account. Still there is nothing to eat. I have so often met with complaints of the unproductiveness of manse gardens, that I have suspected some ill bit of ground, long peeled by the parish privilege of feal and divot, had generally been allotted for clerical horticulture; but the suspicion was bad, and the deep black mould every where testified against it. However rich the soil, it gets deadened by long use; the constant supplies of manure serve to quicken it rather for the production of animal than of vegetable life; and so fed for half a century, without trenching or rest, it becomes a living heap of worms. Hence the verity of the statement, the worm took the carrots, the worm took the onions, and the snails, as busy above ground, left not a vestige of the peas. Having so many eaters in the garden, it is easily understood that you are at no little expense in feeding them, and have nothing left for yourself. A little skill on your own part, to be acquired herewith, together with a few days of a potent labourer, might dispense with Andrew and his worm-eaten crops.

As in the vegetable, so in the flower department, (for what garden wants something in that way?) Andrew cannot remember, and no bump of locality could, where all the lilies in the parish have made their beds for the winter, and what cares he for the sleeping beauties that lie waiting for the summer sun. Slash goes the murderous spade, with the harshness of a guillotine, through dhalias, jonquils, crown-imperials, and narcissus-poetica. This, perhaps, you consider of little consequence, but if you do not care for flowers do not have them. It is not natural to

combine nursing with destruction,—to cherish hope and plan its ruin. Root up all and sow grass, a beauty that never tires, and amidst which, the “wee modest crimson-tipped flower” will spring up of its own accord, and defy the scythe. Such a remedy easily suggests itself, and such an arrangement would afford far more pleasure than indifferent and ill kept flower borders, and would display a certain elegance of taste suited to those who have no love for horticulture. Yet this is a thing no more to be met with than ivy substituted for ill trained and fruitless trees. The truth is, there is far more of imitation than of consistent plan in the measures that are every where adopted. All gardeners, having walls, have wall trees; and as every garden has its flower plots, you must have them of course; but it is good to imitate a good design only when imitation is purposed in the execution also. It is the universality of the former, and the rarity of the latter, that causes so many failures, both as to the comforts and the fruits of a garden. That man might claim the praise of wisdom, who, having no love to garden work, and caring nothing for flower, or fruit, or other vegetables than the fields produce, would feed sheep upon his half-acre, and save fifty shillings per annum, instead of adopting the imitation plan only in part; and having, at no little expense, the shadow of all things, but the substance of none.

These being the evils of the case, this little volume is proposed for their remedy; and the better it will prove remedial that it is small. You will escape, in the first instance, the great evil of a great book. There is often a monstrous affectation about science,

that swells its details to the consumption of far more time than would be necessary, without its aid, for the discovery of all that it contains; and, besides, a book on the subject before us is sure to contain a great many things of which we have no manner of use.

If I want to know what sort of peas I should purchase for seed, I meet a list so long that I am perplexed, like a shopping damsel amidst an ocean of calicoes; and how should I get out of the labyrinth, if indeed I should venture in, to choose an apple out of three hundred varieties? My life is not long enough to try so many apples or to eat so many peas. Besides, although I have no hot-houses and no conservatory, I cannot learn how to sow carrots without encountering a dissertation on the bleeding of vines, or the temperature fit for exotics. I am, moreover, three hundred feet above the level of the sea, and farther from the tropic than I could wish; and when I proceed with directions for the month suited to Covent Garden, if not to the climate of Italy, I find, for the time being, nothing but ice and snow, and might as well dig a Roman causeway, or sow the top of Mount Blanc.

And then some of the finer fancy pieces of work, such as budding or grafting, which in their nature are very captivating, and as simple as splicing a rope, cannot appear in a book of science, without a portentous minutiae about saddles and scions, that deter from all attempts, and make it appear that nothing short of a regular apprenticeship can qualify for the mystery. Kind reader, I mean to deliver thee from the killing toil of ponderosity, and from the awe of mystery—from the perplexity of needless varieties,

and from prescriptions for which you have no use, or which, being worse than useless, prove false, by having no adaptation to your climate. It is simply the purpose of this little manual, to suit the medium climate of North Britain, including a goodly portion of the south; to consult the economy of ministers; to make every manse garden a model of neatness and fertility; to give shelter and seclusion to the meditative walk of the pastor, and plenty of pot-herbs, fruits, and flowers, to his tasteful and thrifty wife. But the secret must be out, that to these ends it is nearly indispensable that the minister should be his own gardener, wholly as to knowledge, and partially as to work.

Now the book will not do without the bite; but how to get at hand or heel to infuse a little of the mania, is the ticklish question. In order that you may let me come at all near you, it is probable that you should like first to be informed as to the nature of the bite, the intensity of the virus, and its effects on the system. It would be unreasonable not to satisfy an inquiry so natural in the circumstances of the case; and I can assure you that you need be under no serious apprehensions. You may experience a little uneasiness at the first, from a powerful excitement of the nervous system; but the uneasiness is occasioned rather by the novelty of the movement from a state of comparative rest than from the motion itself. In this respect it resembles the law of projectiles. There is first a considerable disturbance produced amongst the sleeping particles in overcoming their vis-inertiæ; but when once impelled, they find the motion so agreeable, that were it not for obstacles they would

never cease to move. This effect of the bite does not disappear till the decline of life—not that the mental and nervous energy are then expended, but a more quiescent state is superinduced in accommodation to the weakness of the bones and muscles. From all the cases, however, that have come under my observation, I can truly say that this decline has been put off to a far greater distance from those who have submitted to the bite, and the increased activity which it communicates, than from such as, preferring a mere torpid state of existence, have treated their nervous system with punch and pipes and morning slumbers and strong tea. I am not philosopher enough to tell why a machine, that has so many joinings, levers, pulleys, and pivots, should last longer by constant and even rapid motion than by lying a good deal idle—unless it be that rust consumes faster than labour wears; but, like other venders of specifics, I rest chiefly on the facts of the case, and to these I can confidently refer.

I have further observed, as to the effect of the infusion by the bite, that it stimulates the brain gently, increases the circulation, and determines to the surface—that it gives to the head a great turn for quick inventions, and fills the heart with kindly feelings. In short, I have never discovered any thing of a rabid tendency in its effects on those who have been bit except a strong propensity to bite others. And as to its operation on your taste and pursuits, it will inspire a love of your garden, and as strong an antipathy to that of the sluggard as another sort of bite gives to the sight of water. But neither will it infect you with a flower mania, and set you to the

useless counting of petals, prosing about anthers, and dosing away your time amongst poppy heads. You will prefer a goodly laurel, placed with good effect; and having this noble advantage, that whilst it is fair to view, there is no further trouble in all time coming with the goodly breadth of ground which it covers. Beneath the shady brow of your laurel you will set the bright eye of a flower and rather have a few of Flora's bounteous smiles than wait on all her little caprices and humours. You have other work in hand, and will not despise the rearing of a cabbage as large as the church bell, or of baking apples as thickly grouped as a string of onions. You will deal in the substantial as well as the pretty; and, insisting upon order, the chief ingredient of beauty, you will not tolerate weeds, rubbish, broken branches, and scarcely a blank in your drills of any crop.

Thus have I set down, *bona fide*, all that I have observed as to the effects of the bite; and I sincerely hope that your first reluctance will be overcome, by the assurance that the gentle infusion will prove in many ways beneficial. But it will require a little aid. When Socrates had meekly swallowed the hemlock juice, he asked his physician what he should do to assist its operation, in order, no doubt, that he might be not half killed, but duly and rightly affected according to the design of the drug: and as most medicines require some vehicle and coadjutor—supposing that you have imbibed my infusion, which, I am aware, is rather inefficient by itself—I recommend the following prescription, which will in all probability insure its success:—Read “Thomson's Spring” for what the garden now is; and “Milton's First Days

of Adam and Eve" for what it was. The former will induce you to realize by sight what the poet has so beautifully figured upon your imagination; and the latter, when you are charmed with the first simple delights of man in watching the progress of flower and tree, will remind you that human imagination cannot go further in the conception of earthly felicity than the Creator did, when he put the best of his creatures (two, they were not one) into a garden to keep and dress it. I pity thee, O brother, if thou, being alone, art incapable of receiving this part of my prescription! There is nothing that bears any resemblance to paradise for thee. There is no beauty in the rose, or the ripe cherry, except you have more eyes and more lips than your own. But there is more of the prescription, and perhaps more suited to your case.

Independently of the pleasure, let the use of your garden be considered—the use, I mean not for your living but for your life. Your mode of life is sedentary;—you walk abroad, it is true;—but if you happen to see your face reflected from the deep black pool, as you wander by the river side, you will discover that the last theme of your studies has left its print still upon your brow, and you will infer from that index, that the solitary walk, which has set the limbs in motion, has produced no change of action in the brain, the heart, the liver, or other organs which are strongly affected by the exercise of the thinking faculties. But besides the walk taken purely for health, you have many out-of-door duties, to the performance of which you must travel no small distance; and hence you are apt to imagine that the

inconveniency of a too sedentary mode of life will be sufficiently counteracted. A little attention, however, to the principles of physiology might correct this mistake. These duties discharged amongst the distant members of your flock are all of a solemn kind, and many of them deeply affecting—keeping the mind as intent as in the study, causing the heart and throat to swell and tears to flow, and keeping in quick vibration all those untraceable cords that serve for a correspondence between the mind and the remotest material parts of our system. This mode of overworking and wearing by only one sort of application, which is inconsistent with the health of our frame, as it is inconsistent with man's nature, soon destroys either the mind or the body; and indigestion, or bilious disorder, is frequently the first intimation that violence has been done to the laws of our constitution.

The great prevalence of this Protean malady amongst my clerical brethren might be attested by the illustrious practice of the late Dr. Gregory, or that of his successor, Dr. T., the hope of such dependents. With great love to my brethren, and perfect belief of a theory, agreeing with nature's designs, and verified by facts, I recommend the work of the garden, which effectually sets the mind upon a new train of ideas, whilst it gives salutary play to all the bodily functions. The long continued sameness of intellectual exertion, whilst health remains, too nearly resembles that lamentable state of mind, in which only one idea can be entertained, to be judged either accordant to the indications of nature or beneficial to humanity. Do you plead that you

have in hand too serious and important labours for admitting of any diversion by things trivial and temporary—your pleading is met by the analogy of material things: the ground will not bear the same kind of produce for any length of time, and art, having made the discovery, adopts a succession of crops. The natural forest is never succeeded by trees of the same species, showing, where no art is used, that nature will not give birth to a progeny for which she does not provide the resources of strength. You propose, by a contrary course, to yield always the same sort of fruit; and the consequence will be, that, wearing out yourself, your productions will in a short time become sickly and weak, and, should you not discover their deteriorated quality, you will soon lose the gratification of doing what you esteem your first duty, by losing the power of doing any thing whatever. You will become bilious; and then farewell to study and all its charms—to walks, and the music of the brook, where you pondered the same theme—to duty and all its rewards—to every thing that soothes or delights,—the face of friend, the look of love, the soft cheek and guileless tongue of babes—farewell to all, but horrid apathy, and pitchy gloom, and long night watching, or the dream in which you know not whether you are man or beast, wood or stone.

If in such a condition to find deliverance you would submit to any terms, think it not hard to adopt those which, as they are easy, are able also to save from such a calamity. Have first a sense of the might and steadfastness of those laws which belong to your constitution, and which the almighty Founder of

them never suffers to be broken with impunity. It is no matter on what pretence or from what cause the violation is made; ill health, disease, or death, will be the consequence. Piety seeks seclusion, and thinks it does well; but the mind becomes vapid, the frame nervous, the imagination gloomy, and the loved seclusion is soon completed in the grave. Ignorance fares no better: in the merry dance, a draught of cold water is surely a harmless luxury, being the ready cure of burning heat; but the cure is followed by inflammation and sudden death. The most helpless innocence fares no better: the lovely child, in his playful way, drinks the wrong vial, and quickly dies.

Why is this life, the dawn of an immortal existence, the all that we have in this world, and chiefly given as a preparation for eternity, so badly guarded from a thousand causes of destruction, by the non-observance of those laws which are ordained for its advantage, but of which the violation is fatal? Why does the knowledge of those laws not form a part in the elementary process of every school and seminary of learning? why should not ministers contribute to a boon so essential to the designs of their calling, and the welfare of all men? and why should they, in all other respects so learned, disregard this branch of knowledge, the most momentous of all, because that on which their life, their usefulness in time, and their fitness for eternity, depend?

Let the subject be viewed according to these tremendous realities, and you will subscribe to the necessity of diversifying your pursuits—of having for bodily exercise such an object as may withdraw the attention from graver studies, and hold you in suffi-

cient occupation, whilst it keeps you a good portion of every dry day out of doors. Your profession is of a nature that cannot maintain a healthful subsistence without having the body kept in motion from two to four hours a-day—and all that time bathed in the free, open air of heaven; and neither will your mind work to good purpose on serious subjects without frequent recourse to such as are light and recreating. Languor, debility, and a quick decay of the digestive organs, are inevitably superinduced by a contrary treatment; and whoever, on the appearance of such symptoms, has recourse to other stimulants than those of air and exercise, in order to help on the flagging powers of vitality, sows that moment the seeds of some mortal disease, under the suffering of which he cannot say that he is guiltless of his own blood.

Such unnatural stimulus is to the body what enthusiasm in religion is to the mind; and they who, forsaking the salutary use of the divine Word, can be pleased only with fanatical excitement, must soon fall from their giddy height, and have themselves to blame for all the melancholy and moping idiocy which consequently ensue. Every artificial stimulus, whether in mind or body, is followed by a periodical lowness, causing, in spiritual things, the gloom of despair, and in bodily, a wretchedness which can find no relief but by the exciting drug, which, on every fresh application, adds fuel to the flame it has already kindled. There is no misery like this—to be a self-destroyer, and yet to shrink from the approaching catastrophe; and the more, it is feared, to hasten it the more. And this is a state of being

into which many are as unwittingly drawn as a ship when it first touches the noiseless edge of a vortex. On the decay of the digestive powers, through the want of proper exercise, it seems reasonable and harmless to call in the aid of a dram; but the law is violated by that decision, and all future miseries are but the result and the punishment of that first violation. Let it be a fixed thing that temperance, air, exercise, with diversity of attention, are essential to a healthful and useful existence. The law holds on its even tenor, regular as the sun, and steadfast as the mind of the Eternal. Conformity or suffering is the only alternative: let the character of the transgressor be in other respects good or bad, the punishment is equally sure. God doth not suffer his law to be changed: he changes the countenance of the violator, and sendeth him away.

To render your observance of the above law both cheerful and constant, nothing can be more efficacious than to betake yourself to the study and labour of your garden. In summer or in winter you will always find there something to do, and something that will give pleasure when it is done. Your required exercise never wants an object; one, too, that sufficiently draws off attention from more serious things, and has that peculiar interest which arises from a work that is progressive. Whilst the mind is refreshed by a continual variety, the exercise to which the body is called, has not only the advantage of being in the open air, but of accommodating itself, by various degrees of activity, to every change of temperature. In the training of trees, the mind is agreeably occupied, whilst the free air and moderate

exertion are admirably calculated for relieving, in the early part of the week, the languor and debility incident to the labours of the pulpit. When the air is colder, and the frame more energetic, the saw and the pruning knife, the one toilsome and the other easy, are excellent companions; and the spade, in one half hour, will bring on a summer glow in the coldest days of winter. Here, then, you have a kind of exercise, suited to all circumstances, ever at hand, and the motive to which is ever new, and strengthened by the love of progress, and the grateful survey of the work you have accomplished. A mere walk, compared with this, is like the amusement which children take in writing their names on the sand of the seashore; you derive advantage from the motion as you pass along, but you leave no abiding trace on the path that you have trode.

It is more important to observe, that whilst the mind is invigorated by diversity of pursuit, there is this further benefit, that the reciprocity of mental and manual exertion creates for each an increase of relish and aptitude: the garden recreation quickens the appetite for study, and the quiescent posture of study renews the desire of garden activity. Whoever has maintained, for a sufficient length of time, a regular system of employment, in which bodily and mental application are upheld in due proportion, will be surprised by the spontaneous appearance of those energies which hitherto lay dormant in his frame; nor is this the discovery of a fact merely—it is a source of delight; for the healthful play of either muscular or mental power is as certainly a pleasure to the humane creature, as skipping to the lamb, or

singing to the bird. A man used to this renovating process cannot become sluggish, and is a stranger to the sloth that eats into the bone. He keeps disease at a distance; and duties, which to the sluggard are a load, are light and easy to him. Whatever he has in hand he has also in heart: his movements are impetuous; so that it is dangerous, from the velocity with which he is carried, to meet him at the turn of a corner; and when the bodily energies are for a time suspended, but not exhausted, and there is a return to study, he enjoys, in the exercise of the thinking faculties, an actual revelry in the flowing of thoughts, which amount to more, in a brief space, than the most laborious efforts could produce, by the longest application, in a more languid state of the system.

To possess this efficiency and promote its continuance, it is necessary not only to alternate, as above stated, the muscular and the mental activity, which by a mutual reaction improve each other, but it is necessary alike for both to avoid either lassitude or too long rest. Do not continue in study till mental application be overstretched, or till the circulation of the material fluids has become clogged and stagnant; and do not labour with hands or feet till weariness come upon the body, whilst the mind has been too long inactive. The moment that the thinking powers begin to flag, hasten to your garden; and as soon as weariness affects the body, return to your books. Let rest and fatigue be your tropics, and you will travel with unabated vigour over the undulating line of your ecliptic. But let quiescence be too long indulged, or lassitude too long sustained, and the

consequence will be a long unfitness for any achievement; the one state terminates in leaden slumbers—the other in faintness; the one makes exertion seem appalling—the other makes it really impossible.

Thus ought we to observe those constitutional laws which so deeply affect our happiness; and I am greatly confident that experience will, in every case, confirm all that has now been advanced as to health and the efficiency of labour; and the indisputable conclusion I trust will be allowed, that your work in the Lord's vineyard will thrive the better that you work in your own.

Suppose, then, that on stepping into your garden you observe a fine fruit branch loosened from the wall. It is covered with blossom or heavy with fruit; and the wind bends it over, and bears it against the remaining point of its attachment. It endures many a harsh gust, and seems in pain to be delivered from its peril. You look on, and would fain relieve it, as you would a child that is drowning. But you have no mechanical turn, and, in furnishing your house, never thought of buying a hammer. Snap goes the branch, making a very unseemly fracture, peeling a good bit of the yet fastened wood, and hanging forth to the withering sun the shriveled fruit and seared leaf, to the reproach of useless hands, if not a relentless heart. As it is no doubt painful to behold the labour of the long year perish, it were as certainly a pleasure, by timely interference, to prevent the catastrophe.

The mechanical turn is not like the gift of the poet; though not born it may be bought, and that for a few shillings—the price of a hammer and a

parcel of nails. Love to the work is all that is wanted: get the liking and the turn will come of course. The work too will certainly prosper and please every eye: the lines that you write upon the wall will be full of flowers and sweetness, vastly popular, and condemned by no critic. Thrice happy state to do according to your liking, and what you like to do so well that none may grumble! and I cannot but wish, for the sake of certain brothers, that they would contract the above predilection with its consequent art, were it only to keep them from the liking of that for which they have really no turn. What boon to set them to the inscription of rich and beautiful lines of fruit upon their garden walls, instead of lines of fruitless trash upon waste paper—to take them from the smoky midnight lamp, by which they vainly court Apollo, and place them in the literal light of the sun—to give them free movement of every limb, and a happy face, open and joyous amidst the blossoming tree, and the bees singing at their own work beside them; instead of the knit brow and hard sitting at the loom, weaving a bad web for which there is no market, and grinning over broken threads, and ends of threads, which will not meet. Dare rather to be successfully wise. You are satisfied that there needs no mechanical turn to fasten a branch as it was; and as to all other directions for the training of trees you shall quickly see them comprised in a very narrow compass.

For apples and pears, set one shoot in the centre of the tree, straight up; and on each side, lay one horizontal, nine inches from the ground, or the same distance from the branches underneath, cutting off

all the rest. This is nearly the whole work for the year as far as these kinds of fruit are concerned. To have wood where you want it, for the like operation of the following year, cut over the vertical shoot in spring, at the height of eight or nine inches from the lateral branches already laid in, taking care to cut immediately over a bud and not to injure it. That bud will grow up for your next upright shoot; and in consequence of the amputation you will in general be sure of a choice for laying horizontally. There is the whole mystery; and yet how often do you see large pieces of valuable wall quite naked, and the branches at other places so crowded as not to allow the flower buds to ripen, or the fruit to acquire its proper size and flavour; and whilst it is vexing thus to have the end so frustrated, there is this additional aggravation, that a tree ill conducted in the horizontal mode of training does not easily admit of any future reformation. But it is certainly easy not to lay the branches too thick; and to avoid blanks, it is only necessary further to observe, that as you may not in some cases have the requisite trio of shoots in the middle of the tree, a supply for the deficiency may be found by reserving the most convenient of the superfluous shoots growing from the next lateral branch, to be carried first upright to the required height, and then set off on its proper destination. The fractures that often take place in laying the young wood in its proper position, when the shoots have gained too much strength and hardness, will soon teach the inexperienced practitioner the advantage of bending trees at a more tender age.

And as to the fit time of summer pruning, there

is this difficulty, that if too late, the tree loses the benefit of sun and air; and if too early, you have an aftergrowth, which, not being intended, proves a want of skill, and is considerably detrimental. This evil thing too will show itself even when you have made the best choice of season, owing to an unusual warmth and wetness towards the end of autumn. But to avoid the difficulty of a nice distinction as to season which after all may not serve; and to accomplish the first intention of giving free air to the fruit as well as to guard surely against the trouble of aftergrowth, the following compromise will in all cases be successful. Towards the end of July, take a large sharp knife, and reserving only the few twigs that are to be nailed to the wall, go over all your trees of the kind in question, and, by one half hour's indiscriminate slashing, clear off all the encumbrance of breastwood, that is, of young shoots growing straight forward, taking care only to leave about a handbreadth of stubble, or in other words to cut the scions at such distance from the stem. From the higher ends of these stumps, young shoots will very likely arise; but no matter, your work is not finished, their appearance is at a place where they do no harm, and you settle accounts with them by the proper pruning at the end of the year. For this proper pruning you must distinguish leaf from flower buds, and bearing spurs from ligneous shoots, which may be done by looking at the tree better than by a page of writ. When you have enough of flower buds or spurs (little shoots of two inches, with a large head, and not like the rest) say at every half foot or less, make a clean cut in taking of the woodshoots close by the

root, so that the bark may grow over the wound; but when there is a scarcity of the former, leave a quarter of an inch, which in many cases will become the nucleus of a cluster of flower buds, and show, by an equal distribution of fruit over your tree, the value of a little attention to the modes of nature.

Cherries may be considered next in order, because they admit of the same method of training; though, in regard to some sorts, that training which is aptly compared to a fan ought to be preferred. In the horizontal mode the space betwixt the branches is the first consideration; and this will best be determined by allowing for that distance rather more than the length of the pendulous leaves. If you see a branch completely buried under the foliage of one that is higher, in which case it will not bear fruit, you will do well either to cut it out, or to unnailed all the tree and give every branch more room. The black or the white heart, I do not recollect which, (but look to the leaf) will require nearly as much width as the apple or pear. As for the morella, those may plant it who are fearless of acid, and have nothing to do with their time; as it is sourer than vinegar, and, to be duly trained, it requires the wall to be bristled with nails. Having an incurable ascendency, like ill doers, it gets the worst place—usually a north wall; but I have been told that it is somewhat mitigated by having the best of the sun. And I doubt not it may, just as republicans are sweetened by a place near the throne; but why to mend the bad exclude the good, and suffer loss by doing injustice? The excellent may-duke cherry will have abundantly fruitful branches, though only four inches apart; and as it

is more given to bearing than idle growth, it ought to have the fan form, by which, as the radii widen, you have room to lay in the side shoots. And even the breastwood (that which grows right forward) is not to be lost; for if, instead of cutting it entirely off, you leave nearly a handbreath, the stump or snag will carry a large bunch of rich dark fruit enough to fill both mouth and hands. The black geen may be treated in the same way; and is well worthy of a place on the wall, though not of the best exposure.

With regard to apricots, peaches, and plums, the training is the easiest thing in the world; and if the work be as pleasant to you as I could wish it, you will find an entertainment of some duration, and of frequent repetition in this department of your wall. They are free growers, and afford plenty of wood for laying in. The most important rule concerning this class is to look to the space which you design the tree to occupy, whether thirty or forty feet in the length of your wall; and to set off the branches fan-like in such a way as to reach the several parts of the ultimate boundary in straight lines. By this you will avoid an awkwardness that is often to be met with, in having the branches first more vertical and then more inclined to the horizontal, resembling the figure of a cup or tulip. I do not object to the prettiness of this; but it is an arrangement that embarrasses the subsequent operations of training. It is important to put the strongest shoots always the lowest that may consist with the above plan, as the main strength of growth takes always the direction of the more vertical shoots. The young wood must be laid in from time to time, as early as it will admit of that opera-

tion, in order to have the full benefit of the season for ripening, and for the same reason the superfluous shoots must be cleared away. All that is not duly ripened, especially of the peach, is killed with the winter frosts, and must be cut down to the nearest fresh buds in the spring. Avoid crowding and have no blanks. The small shoots may in general be two inches apart; and twice as much would be an unnecessary freedom. The reason of this closeness is the constant succession of young wood that must be kept up; some always coming forward to take the place of older and thicker branches that must be removed. Some little variations in the contiguity of the shoots must be admitted according to the size of the leaf, the fruit, and the nature of the wood as to bearing. But whoever proceeds according to the above direction will not go far wrong, and will acquire by a little practice an exactness which no ordinary patience would serve for writing, and far less for reading.

Nothing more should be wanted for your entire success, did you enter to the possession of your garden as of your house with walls unfurnished, and had all to do after your own taste and fashion; but the probability is that you succeed to a garden not without trees, and that most of them will be found in no small disorder. When your predecessor was about to leave the world, he either had the fruits of the upper paradise in view, and cared less for the lower; or being unfit, through age or lingering disease, for the oversight of his affairs, the stewardship devolved upon his wife; and what heart to the garden could she find amidst flowers that seemed the ghosts of bygone summers, and fruits that had a savour of

widowhood? Children half reared, the means reduced, the widow's loneliness, and the flitting, were cares that could not well accord with the training of trees. Be not rash to blame, but think of the next flitting, and let the unknown term lead the heart to higher things, whilst the hand proceeds to the recovery of your trees from the effects of mismanagement or of long neglect.

It will probably be found that your espaliers, now become standards, have grown so high as to cast your sunny wall into the shade, whilst the wall-trees themselves have run as wild as willows by the stream. For such inveterate rebellion of either province, there can be no remedy without some death; but proceed with mercy to the flexible, and use policy to reduce the obstinate. A venerable pear must not be cut down, for it will be a long time before those of your own planting will yield much fruit; and an old tree, however lost by neglect or bad training, may be wonderfully reclaimed. Leaving the espaliers to be afterwards called to account, we suppose, in the case of an aged pear upon your wall, that its branches have got as thick as your arm, and bear only at the farther extremities—all the spurs near the centre being quite effete, and nine tenths of the tree nearly fruitless; yet, by the following method, may such a tree, in the course of two years, become the wealth and ornament of your garden. By means of a large chisel and mallet, let every alternate branch be taken out, with a clean cut, close by the main stem; and, with the same implements, smooth off all the fruitless spurs of the remaining branches near the middle of the tree. Several young shoots will spring where

the alternate branches have been amputated. Of these, let one be laid to the wall, to run along the site of the former branch; and let another be trained along the front of the remaining branch, not scrupling to nail it to the wood, smoothed of its spurs, in the same manner as the other is nailed to the wall. In this way proceed to fill all the vacant spaces, and to furnish the naked front of every old limb of the tree. In the first year, supposing your wall to be three yards in height, you will have, perhaps, six square yards covered with young wood, and ready for full bearing in the second year; and that, too, in a quarter where no fruit had appeared for a long period before. But this is not the only region where you may have the benefit of young wood, and consequently of juicy well grown pears. For, on the first year's growth after the operation, if, instead of clearing away all the breastwood from the whole length of the old remaining branches, you select and lay to the wall as many scions as are needful for an interim supply—say one to every foot, and placed as in fan-training—they also will commence bearing, and serve for a time, whilst the shoots first mentioned, and which are designed to be permanent, are proceeding to fulfill their destination; and whilst they so proceed, those adopted for an interim supply are gradually to give way. In like manner, those running along the front of the old branches must have a path cleared for them by knocking off more of the knotty spurs as the young wood advances; and in this way you lose no chance of fruit on the old wood, except where you have gained a far better by substituting the new. Thus, whilst the fruit-bearing is maintained at the

farthest extremity of the branches, as before the operation, you have fruit of the like quality all over the surface: and at the same time your plan is still advancing towards the entire renovation of your tree. For supposing that, in the course of five or six years, the shoots which you have trained on the face of the old branches have gained a sufficient length, you have only to lift them carefully from their site, till the old branches are removed, and then promote them to their proper station upon the wall. Those which occupied the intervening spaces will be equally advanced, and of course the tree will be wholly renovated. I have seen other shifts for old trees, but none which provides, as this does, both for the continuance of a crop, and the entire replacing of the old wood with new; and that which in description is so obviously feasible has been proved by experiment to be wholly successful.

The same may be done with an apple of a good sort, and without any symptoms of canker. If the wood be healthy, and the fruit of an indifferent sort, the process may be altogether the same, except that grafts should be made on all the shoots which are designed to be permanent—allowing the breastwood, which is laid in for temporary use, to bear after its own kind. But when canker appears on the old wood, it is probable also that it will soon affect the new, though grafted; and, in that case, it will be better to plant young trees, at a proper distance, one on each side of the old, taking such fruit as the old will supply, till the young get forward, and removing only such branches as come in the way.

With regard to the recovery of other misguided

trees, the cherry, if not very old, may be cut over with a circular sweep, about two feet from the ground; and the consequent shoots set all off in the manner of wheel spokes—even bending some of them downwards, so as to hide the deformity of the naked stumps, and making them fast by tying, not by nails driven into the old wood, as in the case of the apple or pear. The peach, in its age and disorder, had better be replaced by a young tree. But with regard to apricots and plums, in the like circumstances, a very gratifying arrangement may be adopted—one by which the tree will no longer be ill looking, but soon clothed with abundant blossom and fruit. This affords a pleasure of that kind which we have in the reformation of a prodigal; and in which case, as in the former, some of the complacency is perhaps due to the patience and methods we have employed, contrary to the opinion of others who judged the recovery hopeless.

Choose some fine winter day, and begin your operations by wrenching the ragged hedge-like tree entirely from the wall. Cut out a number of its oldest and barest boughs, with a view to acquire a plentiful supply of young wood near the heart of the tree; prune all the remaining branches quite smooth, about half way to the top, and then restore them to the wall, by an equal distribution in the form of a fan; but let the bared portion of each branch be held out from the wall, about four inches, by pieces of wood set behind. Near the extremity of these branches will be found, by the favour of former negligence, an abundance of young shoots, some of one and some of two years' growth. Let all these be

laid down in close order, like a circle of rays, which in summer they will still more resemble by the brightness of their blossom. Within this luminous ring you will have another circle, yet in embryo, composed of the young shoots proceeding from the old stem, and for whose expansion you have provided, by keeping the naked part of the old branches at a proper distance from the wall. This inner circle will also abound in fruit, as close and beautiful as the stars of a peacock's feathers, and will quickly enlarge its dimensions, approaching nearer to the exterior ring. When the younger rival comes quite up to the older, then, agreeably to the laws of nature, the beauty of the mother must fade, as that of the daughter is unfolded. On the first conjunction your tree is complete, and all in full bearing; and this completeness will be maintained by gradually diminishing the outer ring as the interior disk is enlarged. For the success of this shift also, I can refer to the test of experiment; and may be allowed to notice again the advantage of a principle by which, without losing one year's crop, an old and almost barren tree is submitted to a process of entire renovation, having not only young wood in every part, but studded all over with golden apricots or green-gage plums.

In the wall department of your garden, I have placed pruning before planting—an arrangement which, though not very accordant with the order of time, is most likely to answer your business as to the order of importance; because, for one in your circumstances who is called to the first operations of planting on new ground, there are ten who enter to a garden already in some sort furnished; and that,

too, with trees most frequently in such condition as above described. And as the chief thing is to bring your own skill, and occasionally your own hand, into requisition, the above methods of reforming bad trees are the most likely to promote that end; and if that end be once gained, all the rest will follow of course; for there is something so attractive in horticultural occupations, that we never find them abandoned by those who have once engaged in them; and to effect that first engagement, we can figure nothing that will present so strong a motive as an obvious, and quick, and certain process of establishing beauty and fruitfulness in the room of confusion and sterility. Nor is it to be expected, that you shall have the satisfaction of beholding such a process, if your dependence be not on your own resources, but on the common routine methods of your professional man; it being far more probable, in these circumstances, that you will first endure, for some seasons, the ugliness of ill grown, useless trees, and then, after sustaining as much disgust as serves to fix the resolution, root them out, to place more hope on the young of your own planting; from which, however, you will gather very little bulk of fruit for ten years.

But we now proceed on the supposition that you have new ground, and a new wall to furnish; and here it is almost certain, unless you have bestowed more attention than is usually given to the works of others in which you have no personal interest, that, on proceeding to plant, you will find yourself in doubt as to many things; and that, long after the work is done, you will either suffer regret on account of the place chosen for certain fruits, or, in order to

get rid of your vexation, you will shift the site of your trees, and occasion no small loss both to yourself and them. Wherefore, the following observations are humbly submitted to your attention, that you may profit by the writer's loss, or purchase at a cheap rate the lessons he has learned.

The first thing is the soil; and you must either be at the expense of making the soil fit for the tree that you desire, or be content to want that tree for which the soil has no fitness. It is a necessary principle of all vegetable growth, that the expansion of roots, including depth as well as breadth, must bear a due proportion to that of the branches. If your wall is only 6 feet high, your fruit border must be trenched at least 2 feet deep; if 8, $2\frac{1}{2}$ feet; if 10, 3 feet. If the subsoil be either pure gravel, or hard till, you can have no satisfaction with less trenching; but if the subsoil be alluvial, or consist of the debris of a hill side, showing good soil, though plentifully mingled with large stones, the trees, with less of your provision, will forage for themselves. But early canker, and that even of the young shoots, will certainly ensue wherever pure gravel or indurated clay meets the feeding fibres within 18 inches of the surface. If, then, you choose to content yourself with such a depth, plant nothing but paradise stocks, from which you may have good fruit for a few years; but rather take down your wall than show a summer codling upon it—a sort of tree that will do well enough in a common hedge. The most that can be made of a low wall and slender depth of soil, is to set the paradise stocks on the very surface, making no pit in planting them, but merely throwing earth

upon the roots. The pavement that we often hear of for counteracting the descent of roots is nonsense, or nearly so; for if it be of sufficient breadth, it will cost more than might serve to deepen the soil; and if it be of small dimensions, the roots will hasten to the extremity, and then take their own way, going straight down, with a greediness proportioned to the period of their confinement. The causeway theorists suppose that the progress of a tree is like that of inert bodies, which continue their motion in the direction that is given them; whereas the living plant has more alliance to the living animal, taking the nearest road it can find to procure food and drink. One would think that the error as to the supposed obedience of the roots in their less visited territories might have been corrected by a pretty fair analogy taken from the nature of the branches, which are well enough seen. After being tied down for any length of time, or carried horizontally to any distance, every espalier branch, as soon as it gains its liberty, sets its head erect; and so every root held up by the pavement will begin, the instant it passes the barrier, to go down. Therefore trust more in shallow planting than in a few slate stones; and make provision for replenishing your wall with new paradise stocks when the old begin to fail, which, in the above circumstances, may be expected in the course of ten or twelve years.

In a small bit of ground you may have a sufficient supply ready grafted, and a few years trained on small stakes to that figure which they are afterwards to maintain on the wall. The stocks cost nothing; and if you apply your own hand to engrafting, you may

have, at very little expense, and even on the thinnest soil, a constant supply of fruit, and that of no inferior quality. The paradise stocks not being seedlings, but raised from layers, are remarkable both for avoiding the thong-like tap-root, and for sending out a great multitude of small fibres, which nourish the tree, without traveling fast and far like those of the free growing kinds. This accounts for their early bearing, their short life, and their adaptation to a low wall and a scanty allowance of good mould. In other circumstances they ought to have no preference; for at every replanting there is incurred a considerable vacancy as to space, and consequently a loss both of time and of fruit; whereas other trees set in good soil will soon complete your design, and serve for the period of your life, without leaving the bare face of your wall to look idly at the sun.

In giving scope to the roots, the next thing to depth of soil is the breadth of your wall-fruit border. The technical rule, that it must equal the height of the wall, may readily be discarded. If you have a good height, there is no need of objection; but should your wall be only six feet, the border will still be the earliest and most productive portion of your garden; but how little area for cropping will the length give when multiplied by only two yards in the breadth! And, considering the roots of the trees, how often do suckers appear on the farther side of the gravel walk, showing how far the tree goes in quest of food, and what bad fare it meets with in passing through or under a mass of stones, instead of more latitude of soil, enriched by frequent manuring, and quickened by many upturn-

ings to the frost and sunbeams! Wherefore, on more accounts than one, although stinted in your allowance of wall, it will be wise to give a more liberal breadth to your border. Should the former be only six, let the latter be at least nine feet, and there can be no harm in making it twelve. I am aware that the look is something, and that your greater distance from the wall adds to the meanness of its height; but a good crop of early cauliflower and better fruits are of far more consequence, and of such real beauty as to conquer the defect.

Next to the fitness of soil in the furnishing of your wall, the choice and arrangement of trees are to be considered. The depth, the extent, and the richness of your soil constitute your talents for valuable productions; and that your wall, as a splendid page, may display those talents, you have only to observe the rule of good composition—"Apt trees in apt places." If your elevation exceed that of 400 feet, unless the advantages of local shelter be very great, plant no peach, neither attempt, although out of sight, the best of its species, the Moorpark apricot. It always argues a weakness to strive against nature, and to spend, in badly executing what is above your ability, those labours which, if laid out on things within your reach, might be crowned with abundant success. At a height of 300 feet, with ordinary shelter, the Magdalene peach will ripen well in most years, and the Moorpark apricot in favourable seasons. Let this then be your border, observing that, if 100 feet must be added to your elevation, such addition may be compensated only by the utmost advantages of encircling hills, woods, southern as-

pect, and gravelly subsoil. If these trees, then, are to have a place at all, they will of course claim the best—not only the wall that sees most of the sun, but such portion of it as falls not within the shade of other walls.

The magnum plum, if you would have it eatable, will come in for the next favourable exposure; but you need not allow it to ramble very far. It is a good fruit when its great depth of pulp is well broiled in the sun, but otherwise it is worse than the skin of a melon; and as we have too many dark summers, in every one of which this tree is useless, it ought not, seeing it must have the best aspect, to be allowed much room.

The Ribston pippin and the jargonelle pear will repay you both in quantity and quality for every hour of more sun that you give them. If your situation be near the level of the sea, the green-gage plum will do as well on an east wall; but any where about the medium elevation it must come in for a view to the south—and richly it deserves it. Should the Moorpark apricot, according to the above notice, be excluded, you may have a beautiful display of the Royal George, or of Breda, which, though inferior in flavour, are yet good fruits, and illustrious for preserves. The Orleans plum, the green pear of Yair, the nonpareil apple, and Thorle pippin, are all so much the better of all the sun they can get at a medium elevation that you may admit them to your best wall according as you have room.

The year 1826, the dryest and hottest we have seen, proved, by the size and quality of various fruits, that in high situations sun heat is the great want.

Trees go well down for moisture, and do not suffer for want of rain in the dryest season, as they do for want of sunshine in ordinary seasons. And as ministers may not have so much in their power as to the mode of laying out their gardens, it may not be amiss to suggest to proprietors who do not incur the expense of hothouses, that the best way in which a garden can be laid out in higher situations is to have only one wall in all its length facing the south. The expense of building is the same. The north aspect is at all events useless: and though the east and west walls may have fruit on both sides, yet the two will not equal, taking quality together with quantity, the production of half the space having an aspect to the south. A garden of such a form might be made more beautiful than any other: and it would free its owner from the embarrassment which so frequently occurs in settling what trees may be put off with an inferior exposure; for in truth one and all of them are valuable in the proportion of the sunlight which they receive.

But supposing that you have now made choice of as many as your best wall can accommodate, the room to be given to each is an important consideration, and not very often, as far as I have seen, considered wisely. A small bit of wall will yield a shilling's worth of fruit in one year, and that is more than the price of a good tree. The wall is the main expense. Have it well filled up as soon as possible, and have in view to keep it always full, removing the whole or part of any tree that proves less valuable than the one which it begins to incommode. You may, according to this plan, allow one dwarf tree for

every twenty feet in the length of the wall; and let the whole be interspersed with riders if your wall be eight feet high or upwards. These last should all be of kinds which bear almost immediately—as cherries, plums, and various sorts of apples. The dwarfs are trained close to the ground; the riders are so called because they overtop their neighbours: and the first design is to have them out when the dwarfs make up to them. But it may happen that you will be loath to part with one of these short-leaved tenants, especially if the neighbour that comes to supplant him prove less deserving; in which case the rider, with his long shank, may be trained in the form of a windmill, pointing the vanes in all directions, or two branches may be led downwards, parallel to the main stem; and from these lateral shoots will spring, which may serve to fill all the required space. Of free growers, the wood bears most fruit when submitted to such tortuous course.

With regard to the other walls, it may be proper to have on certain portions of them duplicates of some of the trees which have been chosen for the south exposure. This will be found convenient chiefly in the case of such fruits as keep no time, but must be eaten quite ripe from the tree—as cherries, plums, and some pears. In the one situation the crop will be finished when that on the other begins to ripen; and thus the season of fruit gathering is agreeably prolonged. The red magnum ripens early, and has no need of a better aspect than the east or west. Observe the shelter as well as the sun. Perhaps the one wall may have more of either than the other; and you have only to choose the position

according to the quality of the fruit, for which choice the observations already given may be sufficient—the rest is merely filling up. And where this is the only object, you may, for the sake of variety, and a little economy of time in covering the wall, alternate the horizontal with the fan-training. Apples and pears should all be horizontal, in which mode of training they assume the form of a pyramid; and as all the stone fruits should be fan-trained, the latter admit of spreading for a time over the space that is vacant towards the top of the pyramidal.

It is important to occupy one of the corners having partly a south and partly an east or west exposure exclusively with your cherries; and to plant them, both dwarfs and riders, so as to fill the wall at the soonest. For no sooner will fruit appear than it will be carried off by birds, unless protected by a net. By having a double aspect, you prolong the fruit season; and by having the trees of that species brought together, one net will serve for all that you require.—A most pestilent fellow, a moor blackbird, without any coral on his bill, sooty, tuneless, and ill shaped, has of late years, like the old invaders of Italy, found the fruit of our gardens better than that of his native wilds; and, having once tasted the cherry, he cannot forget the flavour of it. He comes a host exactly at the season of ripe fruit, and never fails, with an angry chatter, when he is disturbed, to intimate that you are as annoying to him as he is to you. He is sure to have the advantage of you in early rising, which both quickens his appetite and affords him leisure for his morning meal. He is besides less shy as to the quality of his food; for,

whilst you are judging that your fruit has not quite attained the mellowness that is wholesome for your stomach, he is busy eating; and that he has no complaint of acidity he proves by a readiness to fall upon your plums when he has done with your cherries. Thus, differing from you only a little as to the nice point of perfect ripeness, he makes the round of your several crops, and is about to conclude his harvest of each sort just when you had thoughts of beginning yours. Finding my sooty foe too many for me—that he was ready enough to quaff, in cherry juice, “a good conclusion to the harvest,” but never once to think of the sentiment that “fair play is a jewel,” I thought of saluting him with a little sparrow hail,—of which, on making the attempt, I observed no further effect than the provoking of that peculiar chatter by which he is wont to express his disapprobation as often as he is disturbed in his interesting avocation. In this I felt some sympathy with my antagonist, perceiving that he regarded the hail not otherwise than I have done certain visitors who had as little to say, although they did not fail to make havoc of time and hinderance of important duty. He lost no feathers, but merely an hour of harvest work: and yet the loss was more apparent than real; for, getting thereby a rest for rumination and whetting of teeth, he resumed, as other martyrs to small hail must do, his beloved task, and with redoubled quickness soon made amends for all his loss. Doubting whether my aim might not be too erring, I inquired of an old man, who was known to the premises for half a century, what in former times had been done with an enemy so untractable and persevering. Upon

which my old friend, with a shake of his grey locks, which intimated that the case was a hopeless one, said, "A dinna ken; the doctor used to shoot them whiles, but it never did them meikle guid."

Judging that, if no better for being shot, their manners were not likely to amend by mere provocation, I determined to alter my mode of warfare; and so, grubbing up my trees, I gathered them into one place, that one mode of defence might serve for all, and sent, by a herring cart, for a long web of decayed net, which cost only ten shillings, and has lasted nearly as many years. Thus, paying the enemy the same kind of compliment that Agricola did the aborigines of the north, I have found the defensive system entirely successful.

When you have gathered your cherries at the full maturity of their rich and dubious hue between red and black, the same net may be transformed to your plums. But whether the enemy takes himself off on being foiled, or is compelled to raise the siege for want of provision, or finds easier prey in other fields, I have not been attentive to ascertain; but certain it is, that for the above small cost you may be free from any material damage by this swarthy and moorish race. As to the small matter of currants, it remains to give elsewhere a method of having plenty in spite of all that the birds can do.

A white rasp, or a red or white currant, may be planted in the vacant spaces between your young trees. As the fruit of these will be early, and of superior quality, it is always something to add to the benefit of your wall, and to give it a more clothed appearance. But should you find pleasure in graft-

ing, you may, at no expense, raise on these vacant spaces a few young trees of superior value; and by allowing them two or three years' training before removal becomes necessary, you either have an estimable and long remembered present for a friend, or you have a tree that may keep its place, in preference to some one of inferior quality, and which has offended you by not answering to the tally of your nurseryman. And as this last is an inconvenience not unfrequent it suggests the need of acquiring the easy and pleasant art of inserting a twig of a name and nature certainly known. Should a summer codling set up its face on your best wall, or a white hawthornden—which had better be left to its early canker in the orchard than in a place where every branch receives pains and has a permanent destination to fulfill—it is important either to have a well advanced tree ready to supplant the interloper, or to have the art of lopping off the unworthy branches, to be substituted by new shoots of your own inserting, in such a way as to incur the least loss of time and to make sure of the fruit which you wish to cultivate. A note to this effect will be given in the sequel.

In the mean time, to finish our observations on the wall department, the following list of trees may be added for giving scope to make selection according to your dimensions, and for preventing such planters as may not know the quality by the mere name of the tree from rearing on a wall such fruits as are not worthy of that preferment.

LIST OF TREES FOR THE WALL.

PEACHES.

Red Magdalene.
Royal George.

APRICOTS.

Early Orange: not best, but
least shy.
Breda: better, and fit for me-
dium elevation.
Moorpark: the best, but need
not be tried in high places.

APPLES.

Ribston Pippin.
Golden Pippin.
Nonpareil, Old.
Nonpareil, Scarlet.
Golden Rennette.
Corpendu.
Thorle Pippin.
Royal Pearmain.
Winter Pearmain.
Scarlet Pearmain.
Juneating: (very early).
Paradise Pippin.
Golden Russet.
Kentish Pippin.

PEARS.

Colmar.
Jargonelle.
Green Pear of Yair.
Summer Bergamot.
Autumn Bergamot.
Green Pinkie.
Swan's-egg.
Grey Auchan.
Moorfowl-egg.

PLUMS.

Green-gage.
Coe's Golden-drop.
Magnum-bonum, White.
Magnum-bonum, Red.
Blue-gage.
Orleans.
Orleans, New: earlier.

CHERRIES.

May-duke.
Black-heart.
White-heart.
Black-eagle.

ESPALIERS.

As taste ought always to be consulted in matters of the garden, and as some object to espaliers altogether, on account of their stiff and formal appearance, it may be proper to say something for their

admissibility before giving directions for their culture. It will be found that much of the bad effect complained of arises either from the undue height to which they are carried, or a great degree of unneatness in the mode of training. The straight lines in which they are planted cannot surely be urged as a valid objection, seeing that the espalier row has no more fault in this respect than the wall to which it is parallel, or the walk that lies between both; and if straight lines must be banished from the garden, then peas must be sown broadcast, potatoes must not be drilled, and we ourselves must walk crooked, either in a stooping posture or in a serpentine direction, in order to please the eye. Let the height of your rails, supposing your garden not to exceed the usual dimensions, be no more than enough to accommodate five branches, trained horizontally, and nine inches apart. Erect no heavy and green painted woodwork, but rather let the trees themselves be the prominent objects, constituting a green and flourishing wall, sustained only by the slender tops of peeled larch, which may be suffered to fall away one by one, as the branches acquire strength for their own support. Such a line of fruit or blossom, instead of proving inconsistent with beauty has rather a good effect; serving, like a picture frame, to give completeness, by a rich and beautiful boundary, to the flower border which usually runs between the gravel walk and the espalier row.

But should your taste be over fastidious, it may be observed that the fruit raised on espaliers, of which every branch has an equal portion of the sun, is greatly superior to that of standard trees; besides, trees of

the former description, whilst they yield a great deal of fruit, take up little or no ground ; and, being kept so low, they do more good by sheltering than harm by shading the crops or flowers.

But to determine finally the question as to ornament, take a survey of your garden after one of those gales with which we are usually visited about the autumnal equinox, and see the havoc that is made amongst the standard trees : one half of the fruit is thrown down, and every fallen apple or pear has received a mortal wound ; some are deeply bruised, others are pierced with small stones, yet sticking in the flesh, and some have taken a dimple scarcely perceptible, but even that is an irreparable injury, and not one fruit in a thousand so hurt will keep for any length of time. But observe also how the un-fallen have suffered by the shock of the tempest—their heads have been dashed together, or they have been rubbed against the larger branches, or lashed all day and all night by the smaller twigs, till their natural colour is lost in the multitude of stripes and blows. That they have not fallen is no proof of their safety—they have perished, but having less maturity they have been more tenacious of life, and are found after the storm, like those more resolute seamen whose dead-grasp is on the rope when their companions have been washed away.

Doubting not, from the above considerations, that you will judge favourably of espaliers, and give them a place in your garden, the following directions may be of use for their successful and economical cultivation. Have the ground well trenched and manured (see wall department) and plant the trees

three or four feet from the walk, and twice as near to one another as they should afterwards be when full grown. The reasons for this close planting are, as formerly stated, that the value of a few crops is more than the expense of the trees, your rails are sooner covered, and when the trees begin to meet and incommode one another you can then, having ascertained their various qualities, give scope to the best, by diminishing or rooting out the less worthy. For one or two years, after the meeting has taken place, you may delay the pain of execution by allowing the young shoots to pass one another on the opposite sides of the rails.

To incur no more expense than is necessary, the stakes may be placed two feet apart, in which case the annual shoots will require to be conducted from one resting place to another, by pieces of lath, or wild brier, or willow of two years' growth. These conductors require a firm and separate tying, distinct from that which fastens more loosely the living wood; they thus give strength to the rails, and provide for straighter training than is commonly done by having the stakes twice as thickly set, and consequently at double the expense of timber.

It might be worth while, as an interesting experiment, to construct the rails, or some portion of them, after the manner of a Venetian blind, but having the boards, one for each branch, broader and farther distant; and set to a proper slope, meeting the sun's rays, so as to give the espalier nearly the full benefit of a wall, together with a greater freedom from mildew and troublesome insects. The boards thus placed above one another, would, except the uppermost, cut

off the descent of silent hoarfrost, and protect the blossom; and if painted of a dark colour, they would not fail to cause a considerable increase of temperature, and might last for twenty years.

Supposing that you have succeeded to a garden in which the espalier rows are already complete with full grown trees, but which prove very unproductive and unpromising, the question will be, whether to cut down with a view to replant, or to attempt some mode of renovation similar to that proposed, under like circumstances, for the wall department. First see whether the fault lies in the soil or in the training—if in the former, nothing will do but uprooting, if in the latter, a reformation may be easily effected. If canker appear both on the old and young wood, there is no room for hesitation; the tree so affected cannot be too soon removed; but if the young shoots be healthy, and if the spots of canker be confined to the stem, or some of the older branches, the tree may be spared for a time. And, further, should the tree be much overgrown with moss, and the soil, whether from bad bottom or want of depth, be evidently unfit for trees of considerable age, the most satisfactory way will be to extirpate all for firewood, and, before replanting, to trench the ground much deeper, and raise upon it crops of vegetables for two years, with plenty of manure.

In the mean time, provide young trees from the nursery, and set them in good ground, that they may advance under a training suitable to their subsequent destination, and they will suffer very little, when they come to be removed, by your own careful lifting and transplanting, compared with the injury which those

of an equal advancement sustain when taken up in the ordinary way and carried to a distance. But though there be no fault either by age or canker or soil, it is no uncommon thing to find espaliers wholly unfit for fruit bearing owing to mismanagement alone. You may see that the top branches, which give rise to an annual profusion of young shoots, have been annually cropped in a manner proper to a quickset hedge; and all over the body of the tree, instead of bearing spurs, you will find a multitude of ligneous knobs, every one yielding its own bundle of brushwood—manifesting such a mode of pruning as that practised on English hedgerows, where the design of leaving so many stumps on the stem of the tree is to afford every year a more liberal supply of fuel.

For the redress of this woful wrong, it is only necessary to distinguish a fruit spur from a wooden knob—which any one a little more discerning than such a knob can be at no loss to do—and, having made this distinction, to apply the saw, or a strong knife, or the chisel and mallet, sparing the knobs as little as honey bees do their drones. Then will your flower buds once more see the sun, and rejoice in their liberty, whilst the pith of the tree, which the idle knobs consumed, will go to swell your store of juicy apples and honey pears. Where the vile hedge-pruning of the top branches has left a strong, close, and lengthy stubble, you must proceed with a lower cut, and make all smooth, even though your work should resemble that of peeling oak for sake of the bark. In the healing of such sores the powers of nature are wonderful; and it is just the tenderness

which shuns the inflicting of a wound that betrays the worst ignorance of the pruner, and puts all trees, whether forest or fruit, into the most unnatural and unhealthy condition.* Should the bearing spurs

* It were desirable to have the dispute as to the pruning of forest trees settled by an appeal to facts, and which might be ascertained by those who are much conversant in the sawing and planeing of old timber. There are two methods of pruning, each of which has its peculiar fault. One method is to cut off a branch close by the stem, and allow the bark to grow over the wound: and the fault of this method is, that the process of healing may require some years, during which time a certain decay on the surface of the wound ensues, and the decayed matter, not being absorbed, as improper substances are in the animal frame, must continue as it is, and may probably constitute the source of a spreading decay at a future period, after the new and healthy wood has grown deep around it. Hence, it may be contended, the origin of cavities so frequent in the heart of old timber. The other method is not to amputate near the stem, but to mutilate the branch that ought to give way, so as to check its growth but leave the life in it: and the fault of this method is, that the successive layers of new wood, deposited year after year, are every one marred by this stump, which continues its cross grain through them all, making a bad knot in every plank, and must either prolong this mischief for fifty years, or be cut off some time, and cause the evil complained of in the former method, or it must decay, and allow the successive layers to grow around a decayed substance, proving a worse danger, by leaving outwardly a hole, and inwardly a tube for conveying wet. The evil of the cross stump is well seen in firs whose branches fall of their own accord, not without leaving a host of ragged remains, which though dead last a long time, and show in the subsequent sawing of the timber, as it were, the transverse perforations which they have made in every deal that is cut; the perforations are indeed fitted with a knot or plug, but the plug, though neatly fitted, is so indifferently fixed, that it may often be pushed out with the thumb. Such are the two methods of pruning, together with the fault of each. The last is by much the worst, unless the first cause rotting. Let some proprietor of old trees cut down one, of which he knows the very spot whence a large branch was amputated some ten or twenty years before, and after taking off a slab opposite the ancient wound, let the plane be applied, proceeding, under his own eye, by hairbreadths, till the vertical grain be separated from those that meet the plane at right angles—this being the exact seat of the supposed disease. The last shaving will be worth gold, as it will finish the controversy, determine the rules of a delightful science, and give, as the author expects, a victory to Scotland over

seem to have contracted, from old age, a hardness that is incompatible with a free circulation of sap, they too must be knocked off in order to make way for the training of fresh shoots along the old branches, as recommended in the wall department. The scheme there laid down is no uncertain theory, and the success will be as certain here.

In order, however, that you may ultimately have a surer dependence than on trees verging towards decay—if the soil do not require a total renewal by deeper trenching, and the extracting of old roots, it may be expedient, in order not to be without fruit for some years, to adopt a compromise, namely, that of retaining for a time your old trees, and setting young ones in the intervening spaces. When no good comes by longer waiting on the aged, it will be necessary to trench the ground where they stood to a considerable depth; and before setting young trees in their stead, to exchange a portion of the soil for that of a plot used for the culture of pot herbs, and which exchange, like free trade, will prove a mutual benefit.

In choosing the sorts of trees fit for your espalier the English, who are enemies to the first mode described, and which obtains in the north. The experiment ought to be made with respect to wounds that have been anointed, and to such as have not. It would be interesting to see the paint in the middle of the shaving. But apart from all experiment, two things are clear: first, that by pruning in due time, no branch thicker than the wrist would ever need to be amputated at all; and, second, with regard to firs, that if the broken, barkless stumps, when past bleeding, were cut clean off with axe or saw, a great many deals of the future growth would be free from the annoyance both of knots and plugs. With regard to fruit trees, by all means prune early; but if neglected, cut freely without fearing to spoil the timber. Some ointment however is better than allowing the wound to fall into chinks and furnish beds to fungi and moss.

rail, let it be a general rule to adopt those that are of a finer quality than can be advantageously cultivated as standards; and at the same time not to attempt such as require the greater heat and protection of a wall. The observations formerly made with regard to elevation, local shelter, and subsoil, will require to be noticed also here, that you may not plant such trees as have no fair chance of realizing your expectations. It should be a maxim for all climates that fruit, good of its kind, though the kind be inferior, is preferable to that of a better nature, but imperfectly produced. A good crop of codlings is better than a bad crop of golden pippins. I have seen a tree of the latter sort occupying a space large enough to have yielded a bushel of fruit, but from which it was thought something considerable to reap three or four apples in a favourable season; and when they were gathered, I have no doubt that the little disfigured crabs, being all seed and no pulp, were greatly inferior, even in point of flavour, to the worst apple of the orchard that grows to a full size. For it seems to be a principle in nature, that if a tree be such as rarely to produce an average quantity, there must be something in the circumstances of the case which will mar also the quality. Yet it is no uncommon thing, whether in the cultivation of farm or garden, to aim rather at fineness of kind than excellence of quality, although it is the latter which chiefly repays the cultivator, and shows the superiority of his discernment. The temptation lies either in the more honourable name, or in the higher price which is obtained for the commodity of a finer kind: for there is a pride in saying, I grow wheat, and I rear bred

sheep on my farm; or I have golden pippins in my garden; but the wheat scanty in the field is also light in the sack; the sheep dwindle and die; and the pippins are not eatable, if so be that there are any to eat. There is in this every way a wrong judgment, and there cannot fail to arise much discomfort from preferring a higher kind, though of worse quality, to a better quality, though of a lower kind; and the vanity of the whole idea is brought to view, by comparing the peasant, of either sex, nobly clad in native wool, with the rake or drab that would be genteel in decayed finery.

Having your wall already furnished with the best sorts that may suit your climate, you have only to go a degree lower in the scale to make up your espaliers. But should your wall be so limited as not to afford room for so many of the better sorts as might otherwise be admissible, it will be proper to cultivate as espaliers certain trees which ought, in other circumstances, to have a place on the wall. That part of your rails which is opposite to the south wall, and has some benefit from its reflection, is the most favourable for such an experiment. At the medium elevation the Ribston pippin will do well in this situation; for though it will not come to such perfect maturity it will yet be better than most other fruits, and the tree will prove more healthy than it usually does on the best wall. A jargonelle pear, in the like circumstances, may be not unsuccessfully tried; and in lower situations, failing the extent of wall, a variety of the finer sorts of apples and pears may be raised in this way. The less favourable aspects of the espalier rows must of course be filled up with

such as are coarser and more hardy; and the sub-joined list, from which a selection may be made, is set down in the order of that quality, beginning with the more delicate and such as require the best aspect. It may be remarked that none of the stone-fruits do well for training in the espalier mode, save cherries, which bear for a number of years on the old wood; but though they admit of the protection of a net as well as on the wall, yet this method is in other respects less eligible, as the young wood cannot be laid in to the same advantage.

Where the climate is the best, and there is little or no wall, it would be well worth while, for the sake of stone fruits, to fix on the common rails a series of laths, about as close as the courses of a brick building, and which would answer as well for fastening the young shoots. The expense would not be great, and the laths, which are made of the best foreign fir, would certainly last for ten years if favoured with a coat of paint.

LIST OF APPLES AND PEARS FOR THE
ESPALIER ROWS.

APPLES.

Ribston Pippin.
Nonpareil.
Thorle Pippin.
Royal Pearmain.
Early Julian.
Paradise Pippin.
Eve Apple.
Kentish Pippin.
Irish Pitcher.
Carlisle Codling.
Nonsuch.

Yorkshire Green.

Stone Pippin.

White Hawthornden.

PEARS.

Jargonelle.

Green Pear of Yair.

Grey Auchan.

Summer Bergamot.

Swan's-egg.

Moorfowl-egg.

Lammas Pear.

The proper mode of fastening the branches to the rails is not to be overlooked, and ought to be provided for in every garden. How often does it happen that for want of a few willow trees, the easiest of all things to cultivate, recourse is had to tying with pack thread, or strands of bass matting—the latter giving way in high winds, and leaving the tree to its fate, the former indeed keeping its hold, but cutting into the bark, and producing diseased growth, which is sure to terminate in canker. It is therefore a great thing for the comfort of your garden to have plenty of willows; there is no doing without baskets, and the twigs required for tying are innumerable. Several varieties of the willow tribe answer well enough, but the black and the golden are the best; and these, like most things of a more delicate essence, are not the easiest to be had. From slips they do not so certainly strike root, at least on a dry soil, but by a little care in choosing a shady place of some moisture you get rooted plants which may be set any where. It is better to have them planted at random in the shrubbery than in regular crops, which, both by show and convenience, attract the cupidity of tinkers; and to have some growing up as trees, (the golden is very ornamental,) and some cut over by the ground. The former, in their tree or shrub form, with numerous but short twigs, are not tempting to thieves—the latter will be well hid; and both, as they afford shoots of all sizes, will answer all your purposes. The tying of espaliers with an abundant provision of willows possessed of unfailing toughness, and admitting of so great despatch, is one of the pleasantest operations of the garden. The appropriate knot, you will

soon discover, is a little different from that usually made with twine; but this is the distinguishing property of such ligatures, that they do not cut the bark by contracting, when wetted, as hemp does: they shrink with dryness, not as to length but thickness, and thus grow slacker in the summer's sun as the branches they hold increase in the summer's growth.

Supplementary to both wall and espaliers is the following device, which has proved eminently successful. Supposing that you have more garden ground than is necessary for the supply of vegetables, and that some part of it may be spared for a green shady walk amidst shrubs mingled with standard fruit trees; on the south side of a row of evergreens, impervious to the eye, let a dry stone wall be raised to the height of four or five feet, and coped with large stones, merely for strength and durability. Plant this on the north side with ivy to assist the screen of shrubs, and in a short while not one stone will appear. From the south side take away all the good soil to a depth of two feet, a breadth of five feet, and a length equal to that of the wall, which may be sixty or a hundred feet, as you find convenient. This excavation, it is to be understood, runs close by the building, the foundation of which must, of course, have been secured by perhaps a foot of depth, and which will yet be uninjured, as the stones that cast up in removing the earth will immediately be thrown to the base in room of the materials taken away. Thus an effectual provision is made against the springing up of docks, nettles, or other troublesome weeds; the earth removed will be an invaluable treasure, whether for making compost or helping a thin soil, and the exca-

vation itself will afford a most convenient receptacle for the immense quantities of stones which occur in trenching or raking the garden. Suppose the filling up in this manner to be nearly completed, let a row of large thin stones, set on edge, run along the southern boundary, and rise two or three inches above the surface of the ground. This will serve to keep the mass of stones distinct from the earth, that there may be no mingling in the process of digging. You have then on the one side of this excavation the low edging, and on the other a wall of four or five feet: and the design is, in the course of time, to fill up, with the riddlings of the garden or with clean stones, in whatever way, the whole space from the summit of the low edging to the top of the wall, to present an inclined plane, facing the south and nearly at right angles to the rays of the sun. On this fruit trees are to be trained.

But in order to save time, before the bank is completed to its proper slope the trees may be planted along the southern boundary, and trained, for two or three years, upon poles laid from the edging to the top of the wall, according to their future destination. When the surface of the sloping bank is raised within an inch or two of its proper height, let a layer of coarse sifted gravel be laid on the top. This will much improve the appearance, and increase the reflected heat, and, being free from small sand and earthy particles, will give no birth to annual weeds.

For the purpose of training, should peaches or apricots be planted, a close trellis will be requisite; but apples or pears will require nothing more than common espalier rails laid on the gravel and held in

their places by two slight spars running across, one at the top and the other at the bottom. In the mean time, the ivy produces a beautiful and beneficial effect, surmounting the wall and adding to the closeness of shelter caused by the evergreen shrubs. It should be clipped along the top after the manner of box edging. Nothing can exceed the real snugness of the trees so placed, or the beauty of their glowing blossoms spread out under the eye: and the quality of the fruit comes fully up to the theoretic advantages with which it is favoured. The heat is undoubtedly much greater than that of the best wall, and the open flowers find, in their humble height, a shelter, like the daisy of the field, from the sweeping blast which often scatters the petals of a higher tree like a shower of snow.

Experience has fully proved the suitability of this contrivance to all elevated situations. In some places very low and warm the heat so powerfully reflected might possibly be too great; but in that case figs and nectarines might be so exposed, and would certainly take all that they can get. Yet judging by the hot summer of twenty-six, when the fruit attained a size and flavour little known in our northern climate, I should not much fear the roasting of either apples or pears by such method of cultivation. On this sunny bank one place at least should be reserved for the Ribston pippin, the chief of the apple race, but whose virtues cannot be elicited without plenty of warmth.

It has long been observed that the Ribston as a tree thrives better in the orchard or in the espalier rows than on the best wall, but then the fruit, not

sufficiently ripened, soon shrivels, eats tough, and does not acquire the genuine flavour. On the other hand, where the fruit is in the best circumstances for ripening, the wood seems to be in the worst; for on the wall the leaves are generally blighted, and the fruit is in consequence destroyed. It is probable, as this evil does not occur to the standard or espalier Ribston, that it is prevented by the natural washing and cooling of showers and dew. Hence the combined advantages of the above exposure, by which the leaves get all the rains of the orchard, and the fruit more than the heat of the wall.

Standard trees is a term which does not signify such as come up to a certain pitch of excellence, as when we say a standard book, but such as have one great quality, namely the independence of standing on their own legs, without requiring either to lean against a wall or to have supports under their arms. We are not here to enter on an orchard dissertation; for in general the manse garden is too limited for any thing so extensive as an orchard implies, and it is seldom expedient to dispose of the glebe in that way. Nevertheless some observations on the cultivation of standard trees may be proper, as no garden ought to be without them, and much more than is usually accomplished might be done with them, whether for the purpose of ornament or shelter or household economy.

Supposing that you plant considerably more trees than your ground can at length accommodate, you will have the benefit of their fruit for a few seasons; and then there is no more difficulty in their safe removal than in the transplanting of forest trees. It will generally be found too, that there are some

odd corners of deep soil about the outside of the garden, where fruits of the coarser kinds might be advantageously cultivated; adding much, at the same time, to the richness of appearance, and to the shelter of the place. The main objection to trees so situated is their exposure to plunder; but if thieves are much set on their work they seldom make difficulty of breaking into the garden; and as they want apples, not caring whether codling or Ribston, the readiest may perhaps satisfy their longing, and save your more valuable treasure.

Besides, a dog, well placed and not very well chained, will serve for both the inside and the outside of the garden. A whimper, as when he dreams, is enough to make the thief's hairs stand on end; a growl will make him take to his heels; and if the chain have once snapped, the report will serve for the three next parishes at least during that year. The trees thus defended from plunderers, or submitted to their discretion with a view to the defence of such as are more valuable, need cause no hinderance to the freedom of pasture; as the pruning knife will set the branches out of the reach of cattle, and a handful of thorns, or a straw rope, about the stem, till its strength be established, will be a sufficient protection from rubbing or peeling, or that venom, so deadly to trees, which unexpectedly resides in the wool of sheep.

Do not scruple then to plant a superabundance of standard apples and pears in your garden, as they will bear for a number of years without sensible injury to the under crops: and when they begin to be troublesome, and have gained considerable height,

part of them may be carefully lifted to the glebe; or should the axe be laid to others it will only destroy what at first cost a shilling or less, and that after a bountiful return in the production of fruit. Besides, it is no small pleasure to send a cart-load of such trees to a friend who possesses a naked garden.

Yet though such redundant plantation be recommended, some part of the ground, in order to have the best vegetables, where deep digging and occasional trenching are requisite, should be kept always entirely free from either root or branch of standards.

Espaliers, subjected to the low training, do not spread their roots so mightily, and are not the worse for being curtailed when they encounter the operation of trenching; but no other trees should be allowed to interfere with the best vegetable plots. Rhubarb, sea-kale, artichokes, common greens, turnips, potatoes, and some others, which either require no depth or have strong roots, suffer little from the proximity of trees, and therefore a considerable portion of the ground destined for culinary purposes may also contribute to the store of fruit. Whatever is kept in grass, for sweetness to the eye, may be studded with standard trees; but avoid, as you would the blow of a poker, the straight rows of tree and gooseberry, as they are seen in orchards, and not less obnoxious though they cut the sward in the manner of the handsomest diagrams. Whatever portion you allot for shrubbery may also contribute to the store of apples: and the effect of the ever-greens, which show most beauty in winter, will in summer be much enlivened by the mingling of a lighter green with the red or white blossom, and the

graceful bending of branches laden with various coloured fruits.

Should you judge your soil too shallow or too poor for a general planting in this way, and not undergo the expense of trenching and manuring, the next remedy, though a very inferior one, is to have a succession of young trees. Almost any soil will bear good fruit for a time. Set the tree on the very top of the ground, gathering a little earth over its roots, and spreading above some turf with the green side down, or rough manure, or stones, so as to admit the rain and keep out the sun; and use the pruning knife with a view to encourage fruitbearing rather than the growth of wood, taking care to cut out from the middle the strongest branches, and to leave those towards the outside which are smaller and pendent. Thus, by causing the tree to spread and diminishing its height, you lessen its growing powers, promote fruitbearing, and retard the descent of the roots.

With regard to the figure of young trees, in any circumstances, it is better to have nothing to do either with tying down the branches or with hoops to keep them open, but to leave all to the knife. Let the tree live on, in its own way, till it have something to spare, and then it is easy to shape it to your fancy. The main thing to make it spread properly is to cut each of the outer circle of shoots right over a bud that looks outwards. This must be done at the rise of the sap, in spring, as it is not safe, before the winter frosts, to expose the bud, on which you depend for future growth, to the rawness of an incision so near it. This bud, pointing outwards, will give rise to a shoot which will take a direction con-

siderably more horizontal than that to which the tree is naturally disposed; and this, the simplest operation, only requiring a little minuteness of attention, will promote the spreading of a tree far more effectually than the clumsy artifice of appending weights, or introducing hoops, and doing mischief by so many knots and strings.

The removal of larger branches from the middle, or of smaller twigs that point inwards, may be effected any time in winter when the weather is soft; and in general, as trees have plenty of branches going in all directions, the judicious thinning of these will be sufficient to give any form you please—it being necessary to regard the position of buds only in those cases where there is a great disposition to vertical growth with few lateral shoots. When these are in ordinary abundance, they have only to be thinned out, so as to keep the heart open, and to supply an even balance of the branches around the stem.

The worst error with regard to young standard trees is that of allowing the stem to take a slanting direction from the prevalence of high winds. The help of a stake, at first necessary in planting, should be continued till the trees be well established; but if, from oversight, the bad position of the stem has become incorrigible, the only remedy is, by saw and knife, to remove half the branches, and restore the equilibrium, by giving the head a contrary inclination. If this is not done in due time the tree cannot stand, as the weight increases at the longer arm of the lever and overcomes the resistance of the roots. Hence it is no uncommon thing to see a fine fruit tree lying flat on its side, and after all bearing as well as others; but

it is not easy to endure the sight without a feeling of compassion for the tree, and of indignation against its owner. In high and exposed situations the west or southwest wind, not so much by its frequency, compared with the east, as by its greater force, gives uniformly an eastward inclination to the heads of trees; but this also may be corrected by a due attention to the use of the knife. Begin by cutting off, on the west side, such branches as slope away from the wind, and lean towards the heart of the tree; leave those lateral shoots which point westward to take the lead in the subsequent growth, and let the temporary loss of wood which you thus occasion on the one side be balanced by an equal reduction on the other. Thus the branch on the most exposed side is made to point to the wind like an arrow, and is able to maintain its position, as it suffers the pressure only on its extremity; whereas one that is more elevated presents its side to the wind, and, like a flagstaff, sustains the pressure over its whole length, till, bending away in an opposite direction, it finds relief by presenting its lower extremity to the power that assails it.

Let it not be supposed that all this care in promoting an equal distribution of the tree is merely to please the eye, or that the production of round tops is the best calculated for that entertainment: on the contrary, I would judge that tree by much the handsomest that has the most decided bearing against the worst wind; and certainly nothing can be more unsightly than a tree so affected by the sweep of the blast as to resemble a besom that has been used to sweep only on one side. But there is here a greater

object than the pleasure of the eye. If you cannot make your tree spread in all directions, the consequence must be that you either want room for the production of fruit, or you suffer crowding of the branches, from which you have fruit of an inferior quality. Besides, the south aspect of the tree is by far the most productive; and if you do not effect a sufficient growth to the westward, you have consequently less of that surface which sees most of the sun.

Besides apples and pears, a few other kinds of fruit may be conveniently cultivated on standard trees; and it may save the inexperienced planter from disappointment to give some notice of the sorts and their relative chances of success. Cherries and geans may be set in some out-of-the-way place, or on the worst soil, for the ornament of their white blossom and for food to the birds. You will certainly get none of the fruit; but such trees, by occupying the enemy for a time, will cause a diversion in favour of your garden. The greengage plum is copiously produced on standards, but will rarely, except near the level of the sea, come to maturity in that way: the yellow magnum as to any chance of ripening is out of the question, and the red magnum will not hang on the tree. It is advisable to have one or two standards of the Orleans plum, whose fruit comes to maturity when that of the same kind on the wall is expended.

But by far the most profitable is the wild plum, of which there are many varieties, and which, being indigenous, or natural to this climate, requires neither budding nor engrafting. A sucker from this root soon grows a fine tree, and of so little delicacy that it may

be set in a hedge. The small yellow or yellow and pink coloured is the best for eating; a large purple, called the *Whitcorn*—but the name is perhaps local—is best for preserving. A row of such trees about the outside of the garden, with some in the shrubbery, and one or two in the best soil, will prove a valuable treasure. The fruit is not greatly prized, but is always eaten; and it rejoices the table for a whole year by excellent preserves. No one can look without pleasure on those trees covered all over with purple and golden fruit in clusters and swarms. In blossom, towards the end of April, they are the most beautiful objects in nature—shooting into the sky the most picturesque forms of aerial lightness, and white as the clothing of angels. Yet is so bright a beauty associated with a happier sight—the season of ripe plums and preserves, and the smiles of children looking for a jelly piece.

As a useful and interesting addition to the ordinary methods of standard cultivation, let one or both sides of some convenient walk be thickly planted with *paradise stocks*; the rows to be each four feet from the walk, and the trees in the row not more than three feet apart. Supposing the walk to be thirty yards in length, you will thus have sixty young trees, which will cost, I believe, less than two shillings. When they have stood one or two years they may be grafted; and in case that any should fail, as blanks where a row is designed are never easily endured, it will be proper to have a few spare plants, subjected, at the same time, to the like operation, in order to fill up any casual deficiency; or it may be better to have the whole planted at first in some other part of

the garden, there to remain one year after grafting, and then to complete the rows at once upon well prepared ground. In this way there will be less risk of blanks; for though grafting be ever so carefully done, some, at least in dry soils and dry seasons, will give way; but when you have trees of your own lifting, it will be owing to mismanagement alone if one in a hundred die by transplanting. Supposing, then, you have the paradise stocks, whether by the walk sides or elsewhere, in readiness for grafting, a great part of the interest in the designed scheme is to be derived from your own handywork. In any of your rides, when you meet with a good tree, whether remarkable for the abundance or the flavour of its fruit, it is easy to procure a few slips; and though you may not get the name, you make sure of the quality, which is of more consequence. Having grafted your trees, many of them will bear the second or third year after the operation; and it is astonishing how many dozens of fine apples may be gathered from a little thing not half the size of a gooseberry bush. After bearing copiously for a few years, in the close order of one to every yard, it may be necessary to take out every alternate tree, giving room to those that remain; and the compactness of the rows may, during that period, be maintained by pruning to smaller dimensions such as are destined to be removed, and allowing those that are to remain to extend their branches, before you have caused any vacancy by extirpation. Thus your walk, more beautiful in this case if it be of grass, will present an alley bordered with close apple hedges groaning under a load of various coloured fruits, and all of your own selection. Such a prospect, easily

and certainly to be realised, may well induce you to take the trouble, as occasion may suggest, of carrying home a few slips, and also to put your hand to the neat and interesting experiment of their insertion.

The slips or shoots, of one year's growth, may be gathered from trees not very old and free of canker, at any time from the fall of the leaf to the opening of the buds in spring; and they may be carried to any distance, if drying be avoided, which is very simply done by sticking them into a potato. In every case, whether carried to a distance or not, they should be taken from the tree at least a fortnight before engrafting, in order that they may be retarded whilst the tree on which they are to be set is advancing; for thus they at once imbibe moisture from the tree which is more advanced; but if they were equally advanced, they would be more liable to wither during the first few days after their insertion. To preserve them after removal from the tree, it is only necessary to set them in the ground, covering them nearly to the top, and rather in dry earth, under the shelter of a bush and shaded from the sun.

Judge of the proper season for engrafting rather by the opening of the leaf-buds than by the day of the month; but you will not be far wrong by taking the middle of March as the fit time for pears, and that for apples two weeks later. Choose for the operation a day when it is agreeable to be out of doors—mild, but not sunny; and for this latter inconvenience early rising is an excellent remedy. Have every thing in readiness—a mass of equal parts of blue clay and cow's dung, wrought to such consistence as to retain whatever form you give it, a sharp knife,

and plenty of strands of bass matting previously steeped in water. The modes of engrafting are numerous; but the main principle in all is to bring the inner bark of the stock and of the slip or scion into close contact, and fasten them in that position without the smallest deviation. Wherefore, keeping these principles in view, it will only be necessary to describe two modes of applying it, and which will be found to answer in every case—the one more convenient for young, and the other for old trees or such as have considerable thickness of stem.

When the stock is young, and not thicker than a finger, give it a smooth splice cut clean through, about half a foot from the ground, and make the cut two inches long: set the edge of the knife upon the middle of the sloping cut, and, pressing downwards, raise a thin slice of the wood and bark, taking in all the breadth of the first cut, and extending to about half an inch in length. This is supposed to resemble a tongue, and hence this mode of the operation is called tongue grafting: prepare the slip, which should not be above six inches long, in a similar way; and it is no matter whether it be the top, middle, or under section of last year's shoot that you so prepare; give it the like sloping cut, and raise up the like tongue from the middle of that cut; then apply the slip to the stock, making the bark of both even on one side, inserting the one tongue beneath the other, and giving as much pressure downwards as to make a close neat joining. Apply the bandage, taking care not to twist, but to lay it flat and with no more tightness than is sufficient to keep the parts in contact. Take then a handful of pre-

pared clay, and press it all round the tying in the form of an egg, smoothing it with a little water, and making it adhere to the bark both of twig and stem, so as to exclude the air. In claying, the chief care is not to disturb the joint; and if you have reason to think that any derangement has taken place, you must punish yourself by beginning the work afresh, that being less vexatious than the subsequent discovery of a bungled job, which can admit of no remedy for twelve months to come.

As no small help to the success of the operation, take a piece of thick brown paper, and wrap it round the clay, including also the scion as in a tube. The paper may be kept in its place by pins, or a tying of twine; and its great use is both to prevent rains from washing off the clay, and the sun from shriveling the bark of the young shoot, before its veins have received the strange but vital fluid. About midsummer give relief to the knit joint, by removing the clay and bandage; but as the wind may prove trying to the recent graft, the bond must be restored, and that so easy as not to impede the circulation, and yet so firm as to guard against a rupture of the union. In the case of old trees, where the grafts are higher and more exposed, where there is no elasticity in the old stem, causing all the pressure to come on the weak part, and where the graft, after it has grown a whole year, is liable to be carried away, it is necessary, not only to continue the matting bandage, but, sometimes, to strengthen the joint by fastening a rod or switch below it, to the old stem, and above it, to the young wood. This will make sure against all hazards till the joining, encompassed with new bark, has become as strong as any part of the tree.

As to the mode of engrafting on old stocks, the following will be found the most convenient in every case, being at once the easiest to perform and the surest of success. Cut off all the branches a little above the stem, leaving as many stumps as may serve for the insertion of ten or twelve young shoots: make the cut smooth and horizontal. This is better for preserving the wood in sap, and when the graft has grown a season or two, its awkward seat may be reduced, so as to encourage the closing of the bark. In improving the operation, having smoothed the horizontal cut, take out, on the side of the stump, a wedgeshaped piece of the bark, two inches long, of a breadth, at the upper end, equal to the diameter of the young shoot; give the slip a splice cut of the same length, and take a little off each edge of the splice, bringing the extremity to a point: set the point into the place prepared for its reception, and press it gently down to a perfect adaptation of the bark in all parts: and then apply the fastening and clay as above directed. This is the neatest of all the methods of engrafting, and the least liable to fail or produce canker by any fungous or unnatural growth.

Intimately connected with grafting is the nice art of inserting a bud, from which proceeds a shoot, then branches, and then a large spreading and fruitbearing tree, possessing in all its parts the same qualities and producing the same fruits as that from which the bud was at first abstracted. This is one of the greatest wonders of art; and as we do not see any natural process at all analogous to this, or any ready way of anticipating the effect, the first conception of the thing, giving rise to the experiment, is to be

regarded as one of the most beautiful of human inventions. Certain parasitical plants which grow upon other trees afford no analogy. In this case the sap of the tree becomes merely the pabulum of the heterogeneous plant: the tree is not converted into the parasite. It is essential to the life of the latter that the tree bear its own leaves, in order to prepare and continue the aliment of the foster plant; but in the case of budding all may be cut off except what grows out of the bud, and thus the whole nature and character of the tree are completely changed. Again, the seed of one species of tree is often sown by the winds, or otherwise, on the cleft of one of another species; but in this case also there is a total want of analogy, for the decayed moss, and debris of old bark washed down by the rains into the cleft, constitute merely the alluvial soil in which the seedling grows. Thus the mountain-ash may be seen growing, as it were, out of the sycamore, or the sycamore out of the body of the mountain-ash; but these trees are not, by such natural process, mutually convertible the one into the other. But by the art of budding or grafting, the mountain-ash may become the stock on which no other leaf than that of the pear shall be suffered to unfold itself, and from which an abundant crop of pears may be gathered. Although nature, so far as I know, presents nothing in her operations analogous to the art in question, yet there may be observed in her proceedings some things which might suggest experiments in that art. In the dense forest, owing to the crowding and crossing of branches, an accidental union is sometimes exhibited: the winds cause friction, by which

the bark is eroded; thence adhesion takes place, and then an entire incorporation. This might lead to one mode of engrafting, called inosculation; and that, again, to the insertion of a twig, at once severed from the parent tree, and set green into the sap of another, as in the common artificial process. There would be the same boldness of conjecture in this experiment as in one that has of late been successfully performed in the human body. The growing together of two fingers, as by inosculation, above described, is the first discovered fact; and from the knowledge of this, a finger, which had been wholly cut off, was lifted from the ground, carried some distance to the surgeon, and, being artfully replaced, adhered, and became fit for all its wonted functions. After the success of grafting, there remained one further trial of nature as to the freedoms which she will sanction—namely, the insertion of a bud instead of a twig; and the intimation of her willingness to give countenance to this might be gathered from the fact, that though a graft die away from the top downwards to the last bud, there is no further difference as to the effect than a retardation caused by the loss of so much wood; and therefore it might be conjectured, that a thing so small as a single bud would be sufficient to answer the expectations of the engrafter. Thus budding and grafting are virtually the same, the one being more wonderful only in this, that the entire change of character produced on the future tree by a single bud is the result of means more slender and apparently more inadequate.

It cannot be unworthy of remark, that a phenomenon so striking as that of the mountain-ash bear-

ing, instead of its own little, sour, and unwholesome berries, large, sweet, and nutritious pears, in consequence of engrafting, has given rise to a scriptural metaphor most expressive of a like change in our moral nature—one that is as true in point of fact, as certainly accomplished by appointed means, and as beneficial in its effects, comparing the fruits of the old nature with those of the new. It becomes not immortal beings to admire the one mystery and to overlook the other; it becomes not me to tell a fellow creature the remarkable art by which his trees may be fruitful without reminding him that he is himself a tree to be engrafted; and it becomes neither him nor me to study the fruits that we shall gather without considering the fruits which we bear. May we who are gardeners in the Lord's vineyard be wise in the heavenly art as well as in the earthly, that we may see around us the blossoms and fruits of the engrafted word, which is able to save the soul; and may we give ourselves earnestly to the work, lest the Lord of the vineyard cut down our trees, because having come and sought fruit thereon, he found none.

The mode of performing the beautiful and interesting operation of budding, or inoculating, is as follows.—To procure the bud to be inserted, cut off a shoot of one year's growth from an approved tree, and from the side most exposed to the sun. Slice off a little of the wood and bark containing the bud, and let the slice extend from half an inch above the bud to one inch beneath it; then separate the woody part from the bark and bud, and observe narrowly whether the heart of the bud, that is a small white

knob like the head of a pin, has remained with the wood or come away with the bark. If it adhere to the wood, the bud will be found hollow—it has lost its heart, and will not live. Make a few more trials, and if the event be still untoward, the buds are not sufficiently matured, and the operation must be delayed. This is a better rule to go by than the day of the month; but to avoid the trouble of too many trials, let the first be for cherries, about the middle of summer; for pears and plums, a fortnight later; and as much later again for apples. When you find that the bud peels right, choose a cloudy day, or an early hour, and let the operation be so quick as not to allow of a change in the colour of the sap by the action of the air. Have the shoots at hand; and before separating the bud prepare the place for its reception, by selecting a smooth part of the stem or branch to be inoculated, and making, with a sharp knife, a perpendicular incision two inches long and quite through the bark; near the head of this incision make a cross cut, so as to admit of freely raising the bark. The flat ivory handle of a desk knife, or a piece of polished wood so shaped, may be used for disengaging the bark without disturbing the sap. Into this aperture insert the bud, with its own bark attached to it, and slide all down till the upper extremity fall in with the transverse incision, taking care, at the same time, to have the eye of the bud so placed as to look out in the middle—between the two sides of the overlapping bark. Then apply a bandage of matting over all the incision, but not over the projecting part of the bud, and with such tightness as not to impede the circulation, but merely

to keep the inserted bark and bud close to the wood of the tree. As at this season, the tree being in full growth, the tying will in the course of two or three weeks become too tight, it must then be undone, and applied again more loosely. In any case where the operation may have failed—which will be determined by the shrunk and sapless appearance of the bud—let the bandage be altogether removed, and let the curled edges of the bark be neatly pared, that all may grow smooth as before, lest the vacuity, with its covering of mat, become a chamber in which multitudes of insects will seek a shelter, and revel on the core of the tree, enlarging their apartments as they increase their population. In the course of the winter pruning, such domiciles should be thoroughly erased, always cutting deeper, until no brown speck appear; for any remnant of unhealthy wood is unapt to take on a covering of healthy bark. When the bud has rightly taken effect, it will be found enlarged, and closely embraced in the bosom that received it. In some cases it will grow up during the season of its insertion; but more frequently it will wait the return of spring, and then show a growth as vigorous as any shoot of the parent tree. When it is evident, on the return of spring, that the strange bud has become naturalized, and is ready to commence its growth, it should be encouraged, or directed according to the design which you wish it to fulfill. If your object is to have a diversity of fruit on the same tree, and to produce from the bud one or more branches, make a notch above the place of its insertion, in order to impede the course of the sap, and direct it into the channel of the bud; but if you

would have the whole tree to possess only the quality of that part which you have inserted, cut off all above the bud, and if any young shoots appear beneath it, let them be rubbed off with the finger before they gain strength or diminish the resources of the wood which you wish to cherish. Care must be early taken, whether the tree be a standard or placed on a wall, to guide on their proper path, or to guard from the violence of winds, the young shoots proceeding from the bud.

Remedies for canker, mildew, green-fly, &c., may be reserved for a separate section, containing a general census of the garden enemies, and the mode of dealing with each. You are supposed to have done your work in the department of fruit trees; and it may be as well to leave your enemies for a time to do theirs, till you find out, by their works, who and what they are, and so learn how to hinder their operations—not expecting to get rid of the agents. For it is remarkable that man, once having dominion over all the creatures, is now so weak that he cannot, by any strength or skill of which he is possessed, extirpate or finally subdue the smallest insect in the universe. But as garden enemies are so different in different places, you might deem it loss of time to read of the hostilities which many of them commit, and with which you may have nothing to do. We shall therefore, noticing only the more prevalent as we proceed, endeavour elsewhere so to arrange a chapter of their offences that the reader may consult that part only in which he is concerned, it being probable that he will be content to leave the rest alone. War of any kind is indeed interesting to

those that must wage it ; but to others it is only attractive of notice when a certain greatness characterizes the combatants on either side—a circumstance that does not obtain in the interminable conflicts of the gardener with the green-fly, a creature of such slender make that it cannot bear the dew on its wings. Judging by this law of sympathy in regard to wars, there is reason to apprehend that no one will care for reading about the enemies of the garden, except in so far as they make assaults upon himself, at once deriding his skill and defeating his labours. I have a worm, for instance, that infests my carrots, and that root has had a finer relish since I found it so hard to rear. Sometimes I gain advantage over my foe ; but as often, wofully foiled, I own the power of the spoiler, and have to look with pity on labours lost and counsels turned to foolishness. Again I ransack all volumes of tactics, and feel tempted to call in whatever aid, be it wizard or witch, because the enemy is mine own ; but what others do with their ear-wigs or red-spiders I do not read, because that is not my affair.

Before leaving this department of the garden, there are some fruits which, though of a minor race, are well worthy of notice, and on which the skill of the cultivator will not be thrown away. Of the smaller fruits the gooseberry is the most important ; and considering its adaptation to various soils and climates, as well as its agreeable flavour and eminently wholesome qualities, it is perhaps the most important of all the fruits which the gardens of our country produce. It is amongst our luxuries what the potato is among the necessaries of life : being

easily reared, it is the poor man's friend, and so acceptable to the rich that none are willing to dispense with it. The gooseberry tree may be called the vine of the north, for many would hesitate which to prefer were the choice limited to one; and it is thus an instance of those compensations by which the Divine bounty is equalized to the nations. Italy has the grape, but there the gooseberry will not grow, or it will live only as an evergreen shrub, incapable of producing fruit; and it is further pleasant to observe, that in the large field of the world proper to the cultivation of our vine, its annual produce is less precarious than that of any other tree—a further proof that the things which are really best for man are also the most abundant and the most easily procured. Were the pine-apple, which sells at one guinea per pound, as easy to be had as the potato or the gooseberry no family would ever be done with the physician. The gooseberry is produced in almost endless varieties; and as all of them are good it is unnecessary to notice the different sorts or the qualities of each. The main thing is to avoid those neglects in the culture of this fruit, or to overcome those enemies, by which the tree is rendered unproductive. Unpruned, it grows after the manner of a bush of rushes, and is wholly fruitless; and by the attacks of caterpillars it is often seen without a leaf, in which case the fruit, though abundant, is utterly useless. If you have old bushes of the rushy form, you cannot have them too soon removed from the ground, as they are quite incurable; but if they stand on one stem, and are encumbered with old wood, lay the saw to the heart, and clear out

the large branches, bringing the tree to the figure of a cup; and then with a pruningknife take off so many of the young shoots as to leave those that remain a handbreadth apart.

Towards the end of May the caterpillar makes its appearance, and in a very short period completes the work of destruction; but if it be observed in time, a boy, hired at sixpence a-day, will in two or three days, by creeping under the bushes and gathering the caterpillars from the leaves, save the whole of your crop. If you desire him to put a notch in a small stick with his knife for every hundred he kills you give him an incredible stimulus to perseverance. His sole aim is to add another sum to the amount of his past achievement; and whilst this engages his mind by the supply of novelty, and the surprise of accumulating success, it frees him from the contemplation of a field too large for adventure, and of leaves more numerous than his eye can survey.

The principle in this case is not unlike that which prescribes small and separate tasks for a child, or portions of study, adequate to an hour, for one of riper years, without telling the one that the whole book must be read, or showing the other all the circle of science which his pathway surrounds. It is thus, when the acquisition is not oppressive, but such as to confer the pleasure which arises from progress, that the next step, without reference to the completed circle, is taken with desire and delight,—in like manner as the worldly, though they aim not at gaining the whole world, do not weary, all life long, in laying field to field. It is to be presumed, however, that

in furnishing such a motive to the diligence of your boy you have some dependence on his truth; for nothing could be more easy than, instead of killing his hundreds, to make his work look well by repeating more notches in his stick. Nevertheless the motive, true in nature, is calculated to work well; and if there be not truth, which remains to be considered in the Appendix, the want will be found in more ways than one, and the bad working will not be amended by any motive that either your head or heart can devise.

But whilst the writer is concerned for the morals of the boy, he is reminded that he has some need of looking after his own, lest he be judged somewhat hard of feeling when the reader perceives that all this stirring of motive to the youthful servant is for the work of death. The smallest creature is wonderfully made; and the shortest life is the Creator's boon, which, as man cannot give, he should be cautious how he takes away, lest God inquire by what right, and show the man that he is "crushed before the moth." Yet viewing the devastation caused by locust and caterpillar, it is plain, as it is humbling, that the highest creature is placed in a field of strife with the lowest, and obliged often to wage unequal war for the bread that sustains him. And hence, what mercy may not safely spare, justice may of necessity demand; but the Maker of all stands between the high and the low, and will discern the motive, whether wanton or needful, that inflicts either pain or death upon any thing that lives.

The philosophy as well as the right feeling and piety proper to this theme are best given by one who

lived much in a garden, where he caught, in the hue of its flowers, the polish of the hardest virtues, or drew out those softest threads of feeling which, like the floating gossamer, were faintly seen as they shone in purple light amidst the rays of his genius, or seen too well when wet and weighed down with the dew of tears that fell from a heart of deep and solitary woe, and who yet felt no breaking of such slender cords when, in love to the sinless beauties of creation, whether fruits or flowers, he put forth his hand to save them, by killing the reptiles that made them a prey.*

But though the above method of dealing with the caterpillar be sufficiently successful, it is much better for your gooseberry plantation to prevent as far as possible the breeding of that worm. And to this end let the bushes be pruned as soon as the leaf is down, and let all rubbish be raked clear off the

* " I would not enter on my list of friends
 (Though graced with polished manners and fine sense,
 Yet wanting sensibility) the man
 Who needlessly sets foot upon a worm.
 An inadvertent step may crush the snail
 That crawls at evening in the public path;
 But he that has humanity, forewarn'd,
 Will tread aside, and let the reptile live.
 The creeping vermin, loathsome to the sight,
 And charged perhaps with venom, that intrudes,
 A visitor unwelcome, into scenes
 Sacred to neatness and repose, the alcove,
 The chamber, or refectory, may die:
 A necessary act incurs no blame.
 Not so when, held within their proper bounds,
 And guiltless of offence, they range the air,
 Or take their pastime in the spacious field:
 There they are privileged; and he that hunts
 Or harms them there is guilty of a wrong,
 Disturbs the economy of Nature's realm,
 Who, when she form'd, design'd them an abode.

ground; then scrape with a hoe the surface earth from the stem of each bush to the depth of two or three inches, not exposing the roots; and let all remain in this state till the middle of winter. By this I suppose the frost reaches and destroys the larvæ lodged by instinct near to their future provision. In digging the ground make a deep furrow, into which the mound-like rings made by the hoe will be leveled, when a little fresh earth may be laid next to the roots in room of that which has previously been removed. For many years, since I have fallen on this expedient, I have had no caterpillar, or none to cause any trouble. Soapy water, which is best applied in soft weather, and when the earth has been drawn from the roots, contributes not a little to prevent the ravages of this insidious and abominable reptile. The suds are an excellent manure, and serve to accomplish your object, either by killing the larvæ or promoting in the trees a more healthy vegetation.

The sum is this. If man's convenience, health,
 Or safety, interfere, his rights and claims
 Are paramount, and must extinguish theirs.
 Else they are all—the meanest things that are—
 As free to live and to enjoy that life
 As God was free to form them at the first,
 Who in his sovereign wisdom made them all.
 Ye, therefore, who love mercy, teach your sons
 To love it too. The spring-time of our years
 Is soon dishonour'd and defiled in most
 By budding ills, that ask a prudent hand
 To check them. But, alas! none sooner shoots,
 If unrestrain'd, into luxuriant growth,
 Than cruelty, most devilish of them all.
 Mercy to him that shows it is the rule
 And righteous limitation of its act,
 By which heaven moves in pardoning guilty man;
 And he that shows none, being ripe in years,
 And conscious of the outrage he commits,
 Shall seek it, and not find it, in his turn."

It is a matter yet undecided, in many cases, whether the bad thriving of plants is the effect of those devastations which are committed by the various tribes of insects, or whether it is, that wherever plants are sickly from any cause they are sure to suffer by the more fatal and frequent assaults of such foes; and, therefore, though we may be ignorant as to the natural history of such creatures, our plain and practical rule is to promote a healthy vegetation, by the seasonable digging of the ground, the best manure, and the free admission of light and air; for if the growth be vigorous, the insect tribes will either desist from their attacks or they will make but little impression. But when, through our neglect of known duty or ignorance of what may be easily known, our crops languish, and are in no condition to afford sustenance to man, it seems to be the law of nature, that before they altogether vanish from the ground they shall at least serve for food to some species of beings; and thus in nature all fragments are gathered up, that nothing may be lost.

By all means have your gooseberries in a quarter by themselves, and not in single rows among flower borders or scattered all over the garden. Besides obtaining the advantages of the above mode of cultivation, you will thus avoid the unsightly aspect of ground every where trodden in the fruit season, and strewed with glaring and filthy refuse in every place. Should your bushes have grown too old, raise a sufficiency of young plants to supply a new plantation on other ground, keeping the old for a few years, till the young have come into plentiful bearing. It is not necessary to be troubled with a tally of the slips

which you raise: let them be selected of the best sorts, and of sufficient variety. The slips must be of the last year's growth, cut to the length of nine inches, and having every bud carefully cut off with the knife, except three or four next to the top or upper extremity of the slip; for it is better to have the natural top of the slip cut off by a few inches, as the buds are there weaker and too frequent. If care be not taken to extract the buds from that part of the slip which is inserted in the ground they will become suckers, which cannot afterwards be easily got rid of. Let the slips so prepared be set in rich border ground, to a depth equal to half their length, and in rows one foot apart. The sooner that this is done after the fall of the leaf the better: the ground should be kept clean and stirred up between the rows; and in the course of two years you may thus have an abundant supply for a new gooseberry plantation.

If the ground on which they are to be set require trenching, it should undergo that operation a year or two before, in order that the new soil which is turned up may be enriched and incorporated with the old: and well is it worth while to be at so much pains, as the making of such a plantation, if rightly done, will only once be required in a lifetime. The young plants may either be placed at their proper distances of four or five feet in all directions, allowing some low growing crops to occupy the intervening space; or they may be set twice as thick, with a view to subsequent thinning as they increase in size. In pruning, endeavour always to give the tree a proper balance on its own stem, and allow no branch to ac-

quire a greater length than is consistent with self-support. In this way you are freed from the plague of supporting the fruit with forked sticks, or seeing it laid along the ground and covered with the slime of snails. A gooseberry tree of the earliest kind may be trained on some odd piece of wall for the surprise of having fruit a month earlier than any body else; and a few may be fastened to poles, and carried to any height, lopping off all the branches, save two or three, which must be tied as they advance in growth, and which will thus yield a great deal of fruit without occupying almost any room.

Currants, black or red, do well either as standards or trained on a wall. On that of a north aspect you may have red currants so late in the season as the frost will suffer them to hang on the tree. It is worth while to train the red and white currant on a wall in the manner of other fruit trees, as they bear on spurs or snags, and the same branches yield a crop for many years; but the black currant, which requires a constant succession of young wood, if treated in this way would take as much nailing as a peach or apricot; and as it is little worthy of so much pains, it may be held to the wall with a line of tarred cord, which costs little, and is sold in the shops under the name of oakum. In this way the trees occupy little room, and it is easy, as the branches are all loose, to remove annually such as are effete, giving room to those which are in a proper state for bearing.

The red currant, as a standard, is rendered very productive by a mode of treatment that is nowise gentle or promising in appearance. In the season of pruning, let the whole tree be stumped down into

the figure of a hardworn birch besom, and let the young shoots which grow up in the summer be cut in July, within a handbreadth of the old stumps, and with as little discrimination as in pruning a hedge. Then in winter, what remains of the young shoots must be reduced to the same destroyedlike appearance as before. A method so unlikely is not a little ingenious; and which, being defended by success, may also be explained by the nature of the tree. Left to its own sprawling growth, the sap has too far to ascend, and the leaves are too scanty to exclude the sun, which the fruit does not love. When the branches are long the fruit will be found small, and hanging in single rows, each like a string of small beads; but in the reduced form the fruit is concentrated, and grows large and in bunches that fill the hand. There is a thick clothing of leaves, under which the fruit is cherished as to its growth; and for its ripening, the shearing of the young shoots admits the sun at the proper season.

Of rasps, the best are the red and the white Antwerp—the white for eating, and the red for preserves. Give the plants plenty of room, somewhat varying, according to the strength of the soil, say four or five feet between the rows and three or four between each plant in the row. The wood that bears one year must be altogether removed the next; and of the shoots that spring up in the summer, five or six of the strongest should be selected for bearing. These must be reduced to the height of four or five feet, and fastened to poles. The rest of the young shoots must be cleared away. Let the ground be well dug in the course of the winter, and manured

with ashes, which seem peculiarly appropriate to the fineness of fibre for which the root of this plant is remarkable.

Of strawberries there is an endless variety. Some of the Virginia or Roseberry should be had for the quality of coming early—some of the hautboy sorts for superior flavour—and of the Alpine, if you will, for lateness. But as new sorts are continually introduced, and as renovation from seed is a decided advantage, the best rule is to observe in any garden a good variety, and obtain young plants about the beginning of August. Set these in rows, eighteen or twenty inches apart, and one foot distant in the row. By planting at this early season, as the roots get established before winter, and are not liable to be thrown out by the frost, you will have a considerable crop the first year. Let the ground be well manured before planting, and every second year afterwards. In the course of five or six years a new plantation should be made. Towards the end of autumn the leaves should be mown, in order to give the young buds, which are then forming for next year's growth, the benefit of the free admission of light and of air. By the time that you require a new plantation, some new species will have got into vogue, and which, from its newness or change of climate, perhaps will be more productive than plants raised from those of your own garden; and thus it is unnecessary to particularize varieties, or to offer more than these cursory remarks on the cultivation of this excellent fruit.

PART SECOND.

VEGETABLES.

VEGETABLES are not good for food or profitable to the grower except they grow well; but the size to which they attain in a given time is not the only criterion of successful cultivation; for there is an overgrowth which, as well as bad thriving, is prejudicial to every good quality of potherb production. The pea, which cannot be too plump and large, may be judged an exception; but if the stalk be too luxuriant it will not produce the pea: an overswollen and consequently hollowhearted potato, is a further instance of the waste that is occasioned by overkindness to the plant, and a hard, stringy, ill rounded turnip affords an example of the bad quality of the vegetable from bad thriving, and of loss to the cultivator by poverty of soil. We club the interests of the whole of the vegetable tribes, then, when we consult first for the ground on which they are to be reared, keeping quality and economy equally in view, remembering that the great waste is the failure of a crop, and that crops will fail by either extreme of penury or pampering.

The most essential requisite to a good garden soil is sufficiency of depth. Eighteen inches may

do, but no labour or expense will be so well repaid as that which is employed in obtaining a depth of two feet. This may not be practicable at the first trenching, but let this be your aim, and your plans may easily be directed to its ultimate attainment. Suppose at the first you have only one foot of good soil, and a wretched clay, or till, or mere gravel, beneath; in that case put down all the good soil, and bring up only six inches of the bad. This being wrought, in the course of future digging, into combination with an equal part of the buried stratum, will be greatly improved. After a few years bring up, by a second trenching, other six inches of the subsoil, which, in its turn, will be incorporated with the remaining half of the surface earth at first deposited, and you will then have a soil of one character throughout all its depth of two feet, and adequate to all the purposes of good gardening.

Many resources may be had for helping the under stratum when first exposed. Besides the necessary and common expedients of dung and lime, a great deal of earth may be gathered without causing damage by its removal—as in the formation of gravel walks, in which case a very considerable depth of loose stones may be substituted for excellent soil, or in the clearing of ditches, or making an excavation for a sunk fence, or for some bit of road leading to a field, and where the surface mould, being generally kept in a puddled condition, is there an inconvenience and of no use whatever. A great deal, in most cases, might thus be collected, and often would be were its value justly appreciated. Such heaps, when mingled with lime in the proportion of one of lime to six of earth,

constitute a manure which, taking bulk for bulk, is equal in value to the best dung; and having this additional advantage, that as its substance cannot be consumed, it adds depth to a thin soil, and communicates an everlasting benefit.

The great advantage of a deep soil, besides the more obvious one of allowing the roots of plants to get well down, is its aptitude for equalizing the supplies of moisture. There subsists no sympathy between the surface and a hard subsoil. If the former is drenched with rain the latter refuses to have any thing to do with it, and if the former is parched the latter will yield none of its own moisture; again, if the subsoil be pure gravel it readily takes in the superabundant waters, but it soon squanders them, and then has nothing to give back to the surface in its greatest thirst. But when you acquire a sufficient depth of soil you have a large quantity of homogeneous matter which acts sympathetically throughout, and is all nearly alike wet or alike dry, and consequently not so liable to suffer injury by the too long continuance of rain or drought. This improvement, then, as it renders the elements of nature more subservient to the purposes of vegetation, is permanent, and cannot wear out or lose its effect, as that of manuring, at whatever expense, must certainly do.

But though permanent in this respect, it is not to be inferred that there is no further need of subsequent trenching. A repetition of this work, at any future period, gives the great benefit of rest to that part of the soil which has been exhausted by continual bearing. We are aware that some theorists decry the notion of exhaustion, and contend that

nothing more is needful to a vigorous growth than the proper supplies of heat and moisture—inferred, at the same time, that all manures are serviceable only in so far as they give the land an aptitude for the retaining of moisture and heat. But whilst they bury thermometers and hygrometers at various depths, for the purpose of experiments, they overlook those phenomena which take place above ground, and which are sufficient to establish the fact, that by repose the soil is strengthened for the labour of future production. Hence the well ascertained benefit of a succession of crops; hence the law, that when an old forest dies out, and nature is left to herself, trees of the same kind do not spring up in room of the decayed; and hence the fact now becomes appalling to the husbandman, that in many places where it has been too often sown on the same ground, though heat and moisture be in all respects the same as in former times, red clover almost refuses to grow.

A new trenching of the ground once in eight or ten years, in respect of giving newness and freshness to the soil, is equal to an eight or ten years' fallow—a mode of renovation which would be death to man; whereas trenching both renovates the soil and continues the supplies of human wants. There can be no doubt that some advantage is gained also by burying the larvæ of countless insects; for whilst the leaves of plants in other parts of the garden are eaten and decayed, every blade on the newly trenched ground is green and entire. Trenching furnishes an exclusive system of production, leaving nothing on the surface but what the cultivator designs. Annual weeds are scarcely to be noticed as an exception,

they are so easily destroyed, and all bad and deeply established roots are sent to a lower region, there to rot at their leisure. Worms, snails, grubs, and the like, share the same fate; and for a length of time show no families on the earth, which to them has suffered a ruinous convulsion. In this, your new empire, every thing favourable to production comes into your service, and every thing hostile is expelled. Animal bodies, formerly destructive, now minister to fertility by their decomposition: the earth, heaving and porous, like a fermenting substance, seems to borrow warmth from the very rains which chill and check the vegetation of the neighbouring grounds, and the intense heat which elsewhere burns upon a sickly growth seems here to cool, by drawing up a copious vapour, nourishing the roots and spreading a broad dark leaf as a cover from the sun.

As nature's best bounty is depth of soil, so trenching, which imitates that gift, is beyond all doubt the very greatest of all the improvements which man can make on the surface of the ground. Whether for garden or field, there is herein a secret virtue, which even at this late period is but little disclosed. Compare the millions of acres on which men have for centuries only scraped a few inches with the plough, and see how little of the land yielding bread has yet submitted to a more substantial cultivation. The same seeds are ever committed to the same particles of mould; some of them now scarcely vegetate, and crops of other sorts, but recently introduced, are not what they were. Man cannot create a new plant to diversify the labours of the earth in her productions, but man can bring up new earth to the task

of producing: this is the true power which nature has given him, and which he has yet scarcely learned to exert. When an acre of ground sells for fifty pounds, and its depth of soil is only six inches, it is certain that the same portion may be made as well worth a hundred pounds by doubling the depth of its soil; and one fourth of this profit would be sufficient to cover the expense of the operation. It is said that the man who plants a tree is a benefactor of his species—and so he is; but that man is more the benefactor of his species who trenches as much ground as a tree will cover; for the tree dies and the ground is no better than it was; but that which is trenched has received a benefit which it will not lose till the end of time.

As to the mode of trenching for the garden, it is perhaps advisable to put all the earth through a search or riddle of which the wires are one inch apart. This may appear too expensive, and may not be necessary for those portions which are designed for vegetables of the stronger and coarser kinds; but such method will ultimately prove the cheapest in regard to all those places which are used for flowers and small seeds. Stones must be got rid of; and if they remain to be gathered one by one with the hand as often as the ground is dug, it is manifest that instead of disposing of a hundred at once, as in using the search, the loss of time by individual liftings will be nearly as a hundred to one.

The next thing to be considered for the success of vegetable produce is the preparation of manures. The dunghill should be kept in two distinct portions, the one turned over so as to undergo the process of

fermentation and decomposition—whilst the other is in the process of being collected. It is wretched management to have the dung so little decayed when laid on the ground as to contain the live seeds of hay and oats, as if nature did not give you enough of weeds without those of your own sowing. To avoid the sluggardly sight of ryegrass springing thicker than a bed of cresses, as well as to give the designed crops the full benefit of their manure, it is necessary to have that portion of the dunghill which is to be applied previous to the winter digging made up into a fermenting heap six months before. As soon as this portion has been carried away, let the other, which has been added in the course of the summer, be turned over on the place of that removed, so as to make room for a separate and fresh accumulation.

All manner of weeds and refuse of the garden which are of the soft nature and easily decayed may be carried to the new heap, where they will soon be covered and prevented from wasting away; but all thick and hard stalks and roots, which cannot in a short time be sufficiently decomposed, should form a heap elsewhere; and to which additions may be made from a thousand sources. This new composition should not resemble a work that is finished and complete, having a beginning, a middle, and an end, but should rather have only the middle entire, without a finish at either extremity. From the oldest part of the lengthened mound something may at any time be removed for use, whilst new materials continue to be deposited at the opposite termination. When any garden rubbish is carried thither, let it be always covered with a sprinkling of earth, so as to prevent

the evaporation of sap and promote decomposition; and, for the supply of this heap, let it be a great and fixed principle that every thing is manure except stones, and let nothing be burnt for the sake of clearing either garden or glebe.

With great prodigality thousands of cart-loads of valuable manure are annually burnt upon the fields: the ashes amount to nothing—the main substance is dissipated in smoke, to the enriching of the clouds and the damage of a poor soil. *Quickens*, docks, thistles, hedge and gooseberry prunings, furze, broom, every thing of the wood kind not fit for fuel, if covered with a little earth, will rot down in one year and constitute a manure of excellent quality whether for garden or field. Keep clean doors, clean roads, clean entrances by every gate—the only luxury that enriches; for thus the unclean stepping which annoys both eye and foot will in time become gold in your hand. Wherever this plan of gathering from all quarters is pursued, the amount will be so great as to provoke the wonder whence it came or whither it would have gone had it not been collected. Evaporation on the surface of the earth is like the insensible perspiration—you see not whither the substance goes, but, by considering the *ingesta*, you perceive how much has been lost; and so, by viewing the *congesta* in this case, you perceive how much has been gained. But to make the idea of value more tangible, it may be certainly affirmed that every cubic yard of this *omnium gatherum*, when mixed with a small proportion of lime, is worth five shillings; and that with no sensible outlay you may acquire, in the course of two or three years, the invaluable treasure

of sixty cart-loads of the best manure, which will make all around you to flow with milk and honey.

After the above preparations, the raising of crops becomes pleasant and profitable, as the work is easy and the remuneration sure. We suppose the soil now to be in a good state, both as to depth and richness, and the first thing with regard to cropping is the economy of manure. Let one half of your garden receive a rich supply one year, the other half the year following, and so on alternately. Corresponding to this arrangement, let such crops as require immediate manure be distinguished from those which thrive sufficiently well or better without it, and let them be disposed accordingly. The following may be successfully raised on such ground as has been well manured the year before, namely, pease, beans, carrots, parsnips, radishes, curled kale, late turnips, sown in July; with these may be classed the potato, which in rich garden ground will grow a good crop without a fresh dunging and prove of better quality. But when the ground is less rich, a mere sprinkling in the potato drill will be sufficient; and thus it is still to be regarded apart from those vegetables which cannot be judiciously cultivated without a recent and liberal supply of manure.

Considering the varieties here enumerated, as well as the quantity of each that is usually required, it is obvious that you have plenty in this list to occupy one half of the ground which is allotted for culinary productions. In this method of manuring and of distributing the different sorts of crops, the pea requires a special notice. The borders, on account of the wall fruit trees, must be kept clear of it: it ought

not to be frequently on the same ground; it thrives best on that which is newly trenched; it requires a large space, say a fourth of the vegetable department. Wherefore let your crops be so arranged that the pea may be only once in four years on the same ground; and as often as you accomplish the trenching of any interior plot, lay a little lime on the surface and sow peas. They will not suffer by their worst enemy, the snail; they will present a strong stalk, with dark leaves and a load of delicious food.

By this attention to the system of cropping a great deal of manure may be saved, to the benefit of the purse and glebe, without causing any deficiency in any of the vegetable productions. The ground at the same time will be kept in better condition than it would be by an annual dunging; and the manure itself communicates far more benefit when applied at longer intervals, as when more frequently afforded it loses something of its effect by every repetition. By this method too you make sure of a rotation of crops, having no difficulty in remembering what portion of your garden has been last manured, and consequently of knowing what ought and what ought not to be sown or planted. The whole ground should be dug with a deep rough furrow and the dung well covered in before the winter.

For giving more energy to the soil, and avoiding an unnecessary expenditure of manure, if you have more garden ground than is requisite for the supply of vegetables, it is of excellent use to lay some part down in grass, to remain a few years. Sow red and white clover, about twice as thick as is usual in the fields, with the ordinary proportion of perennial rye-

grass and a small sprinkling of barley. The grass, besides proving a great convenience, is a valuable crop, and raised at no expense of labour; and the ground which it occupies will afterwards be far more sensible to the stimulus of manure, showing in the garden, as in the field, the benefit of rest from bearing in too long succession the same sort of produce.

Having offered these preliminary observations, with a view to the general success of the vegetable department, it remains now to consider the best mode of securing the needful attention, in due season, to its individual productions.

Season is the chief thing to be observed, as no art of man can make up for the loss of time, and the difficulty of redeeming it may be seen in a late sown and worthless crop. But it is not easy to the inexperienced gardener to recollect what should be done in the several months as they proceed. To meet this difficulty, some have arranged their directions for the garden by making the months of the year the heads of their chapters, and setting down in each the work appropriate to the time. But this, which seems a simple and perfect method, happens in reality to be the most confused and inconvenient that has yet been devised. The preparation of the ground for any crop is to be found in one month, the sowing in another, and the future operations necessary to its culture must be sought at a venture, under some of the twelve heads, and most probably will not be sought at all. How much easier is the process, if you are interested about the production of an artichoke, to go to that article, and find all you want in one page. Let the doing once follow the reading,

and then there is no more to learn and no forgetting of what has once been so acquired. But still the chance is that something which should be done in March will not be thought of till April,—and this leads me to recommend that horticultural treatise of most delectable brevity annually printed in the Edinburgh Almanac.

Whoever remembers that an account of every day must be given will see the importance of considering, before the day be far gone, what ought to be done; and whoever acts on this principle will think it no hard task to look five times in the year at the Gardener's Calendar. Suppose you find in the work for the month some notice of the artichoke, then, by referring to this book, which is designed to be no bigger than an almanac, you will find, as easily as looking out the letter A of a dictionary, all that you require for bringing to your table the rich pulp of that delicious plant. In alluding to the dictionary mode of finding what the reader wants, there is, besides the conveniency of the plan, this reason for its adoption, that the writer finds great difficulty in settling the claims of precedence amongst the members of the herbal family—so numerous, and all so fair and good; and therefore he throws the responsibility of setting one above another on some person or persons long since deceased, who arbitrarily, and perhaps unwarrantably, set A before B. Wherefore, to proceed with A,

The *Artichoke* is a delicious and wholesome vegetable, provided it be itself eaten rather than used as a spoon. It is propagated by offsets from the roots; and as part of the offsets require to be cleared away

from old plants, in order to leave no more stems for next crop than have room to grow, there is no difficulty in finding materials for a young plantation. Choose the deepest of your soil, keeping off the borders with this as with all high growing crops, in order not to shade the wall fruit; and in April, for each row of plants make a ditch two feet deep and three feet wide, on the bottom of which spread a layer of manure four inches thick. Then fill in half the earth, putting that lowest which was formerly on the top; and with the other half let more dung be mixed in the course of filling up the trench. Set the plants, three in a clump, eighteen inches separate; and let the nearest part of each clump be at least a yard distant from the nearest part of the next. The roots will grow like stakes, penetrating the under stratum of manure, and send up strong stems, with large heads, for seven years, without requiring any more trouble than a rough digging of the ground before winter and a slight covering of litter in severe frosts.

Asparagus is no doubt a good thing; but in point of produce it is to the potato or turnip, or almost any other crop, in the proportion of something like one to a hundred. If you are not hampered as to ground or other means, then it is well to have it; for of all luxuries those of the vegetable kind are the most harmless; but it is a good rule either to have it in plenty or not at all. No invidious dish should ever be seen on any table; for no good taste can relish that of which there is not enough for every one. The following is the mode of cultivating this herb.—Sow the seed in March, in drills six inches

apart and less than one inch deep. Cover the bed, in the end of October, with litter or short loose dung, to protect the seedlings in winter. In dry weather, next spring, raise the plants with a strong fork, which avoids cutting the roots, and transfer them to the proper quarter. This operation may also be done in summer, when the plants are a foot long, taking care to water them regularly after transplanting. The soil for their reception must be rich and light, and trenched two and a half feet deep, with a thick bed of manure at the bottom. Till, clay, or wet subsoil, is out of the question. Avoid the drying of the roots by sun or air in the time of transplanting. Make a trench perpendicular on one side, and of a depth equal to the length of the roots, which are to be set one foot from each other, and in rows two feet and a half apart. Onions, carrots, or cauliflower, may for a year or two occupy the intervening spaces. In October, the stalks are cut over, and the ground dug between the rows, taking care to avoid the roots: and the summer culture consists of weeding, and stirring up the soil with a fork. By the third or fourth year you begin to eat; but then only the stronger plants may be cut; and care must always be taken to leave beneath the incision a bud for the succeeding growth. A square pole of ground is the least that can be depended on to furnish a dish at each cutting. If your garden be near the sea, and consist much of sand, you have a twofold advantage for the rearing of this favourite vegetable—the soil is the most suitable and seaweed is the best manure.

Beans.—Of the many varieties of this garden pulse, choose at least two—the whiteblossom, having

the remarkable property, though black in itself, of not tinging the broth in which it is boiled, as the white varieties do, and the Windsor, or other large sort, which from its size renders the operation of blanching less troublesome. For an early production, sow a part of each sort about the middle of February, if the ground be tolerably dry; if otherwise, as the seed is apt to decay with too much wet, the sowing must be delayed. A later crop may be sown in April. This pulse has no occasion for manure provided it succeed a crop which had a sufficient allowance the year before. As the early sown beans vegetate slowly, the mice are apt to find them out, and may probably finish them before their growth is well begun. It is necessary therefore to adopt one of the following precautions:—steep the seed in train oil for a few hours; or wet it with water, and then dust it over it with a farthing's worth of pounded rosin; or sprinkle the sown drill with chopped furze before covering in the mould. Any one of these expedients will be completely successful. Avoid too thick sowing, which admits of no growth but straw. Let the drills be eighteen inches apart, and the seeds of the larger sort four or five inches separate—those of the smaller, three or four inches from each other in the drill. In the subsequent culture, to correct the hardness which the soil is apt to contract from heavy rains in spring, let it be well stirred up between the drills; and let the summer hoeings be so frequent as to leave no vestige of a weed, and to keep the soil well up about the stems of the plants, which greatly promotes the fruitfulness of the bean. If the summer prove wet, and the growth too luxuriant, the

tops of the stalks should be shorn, in order to admit more air and encourage the filling of the pods.

Beet.—Red beet (the white is not worthy of cultivation) is a very saccharine and wholesome vegetable, and makes an excellent pickle. Sow the seed about the middle of April, and on deep ground, manured for the preceding crop. Recent manuring causes the roots to grow fibrous and distorted, and too early sowing disposes the plants to run to seed. The drills should be eighteen inches apart, and the plants thinned to six or eight inches from each other. In lifting this crop, care must be taken not to break the taproot. The beet may be stored in sand or pitted in the garden before any severe frosts have come on. In making the pit, the chief thing is to provide for getting up the roots safely as they are wanted. If any cut or fracture ensue, the juice drains off in the boiling, and the pulp is rendered useless. Let the pit be made in dry ground, six inches deep, two feet wide, and of such length as the bulk of the crop may require. Lay the roots across the trench, in layers, with earth between; and thus, as their position is known, they are easily exhumated without inflicting any wound. The pit should be ridged up and beaten smooth, to turn off the rain.

Brocoli.—This is one of the best of vegetables, and comes in a season of no great plenty. It is now unfailing in many gardens where, half a century ago, it was as little to be seen as a pine-apple. It may be tried in any climate, even though it should often fail, as no loss of ground is sustained by the trial. The plants are set in good time after a crop

of peas or early potatoes has been removed; and the brocoli again is out of the way in due season for being succeeded by various summer crops. It is not necessary to be troubled with the many varieties of this plant. The sulphur is the best, and should grow, being well manured, to a circumference of from twenty to thirty inches of solid flower—one stock yielding a perfect feast to a whole family. For an autumn crop, the seed is sown in April; and for a spring crop next year, it is sown in the end of May. The winter sometimes proves too hard for this plant, and may cause the loss of half your crop; but plant on, as the ground is not lost, and in general you will have pleasant food instead of waste land, and enjoy a real luxury without the sin of extravagance. The purple variety is more hardy, and may be set thicker as it does not grow to half the size of the former. For the spring crop, which has the winter to endure, the warmest and most sheltered border is in general to be chosen; but as it will sometimes be found less injured by frost in the open quarters, it may be as well to give it both chances.

To keep the heart of the plant near the surface of the ground is the best security; and to accomplish this, let the seedling plants be early thinned, to avoid long stems; and in transplanting, give them plenty of room—the larger sort, twenty by fifteen inches, and the smaller somewhat less. In low and warm districts, it is found of advantage, about the end of autumn, to lift the full grown brocoli stocks, and plunge them up to the neck in the soil, or so to recline them that their heads may rest on the surface of the ground; but in higher places, where fresh root-

ing, late in the season, is more doubtful, it is better to avoid, by the above methods, the evil of long stalks than to depend on this second planting for a cure. At medium elevations, the spring crop will best stand the winter when the plants have been set about the middle of July. When the flowering advances more rapidly than the crop can be consumed, it answers well to take up a portion of the stocks, with all their roots and leaves, and hang them, with their heads down, on any back wall, out of the way, and in open air, but not exposed to the sun. In this position they keep fresh and good for some weeks: they suffer nothing from rain, as the flower is protected by the hanging leaves.

Brussels Sprouts.—So called from the numerous sprouting heads which arrange themselves in a pyramidal form around the stem. This is the most delicate variety of the kale tribe: it is easily reared, and comes in a season of scarcity, namely, from the dead of winter till well on in the spring; and as it neither requires a rich soil, nor is tender as to climate, it is difficult to account for its greater prevalence in the southern than in the northern parts of the island. As it occupies less breadth it may be planted thicker than common greens. Sow the seed in March, and plant after a shower in June.

Cabbage.—This is a principal, long standing, and substantial vegetable—excellent for a cow or such of our own species as have the like powers of digestion; and it is rather the consciousness of impotency than refined taste that will make any one turn away from the snowy flakes and flavorful mastication afforded by this queen of potherbs. To begin with that which

falls most within the reach of human capacity—the early sugar-loaf cabbage, which is a light and tender vegetable when taken at the size of lettuce and beginning to change its colour from green to white—the main fault of the early cabbage is, that it usually comes not till far on in May, when the sun checks its growth and hardens its fibre into wood. In March and April it is soft and juicy; and the cultivator has himself to blame if it be not then in abundance, constituting the chief wealth and luxury of the garden. Make a plantation on a warm border early in September, from seedlings two months old. In ordinary altitudes not one plant will die in winter: in spring some of them will show a disposition to run to seed; but cut before they run,—in the green leaf they are excellent. Those planted out a month later will succeed this first crop, and may be eaten in all states, from the half blanched leaf to the solid boll. The early cabbage is equally good in the end of autumn, and for a considerable period of the winter; and it is not a little preposterous, that the most common season of its use is just that in which it is least fit to be eaten. Manure should not be spared, as the quality of tenderness is in proportion to the vigour of growth.

The late cabbage is the most valuable crop for cows which the garden can produce. All summer the leaves are inexhaustible, and then the huge solid and savoury bolls cause the brutes in very gladness to overflow with milk. Cover the cabbage plot thick with the richest manure. Nothing on either garden or farm will make a better return. But the great thing is to have the plants right. Some bunches

are commonly purchased at the spring fairs: they come home yellow and pliant, having just acquired, by decay, the proper tenderness and saccharine flavour for the soft lip of the snail. Planted in this state, they all vanish, or the field is wretched with blanks, in a few days. More plants are afterwards inserted; but the ground has become hard, the season is gone, and the sickly crop remains to be finished by the caterpillar. This is nonsense. A pennyworth of seed and less wit might save all this vexation. Sow on the first of August, or earlier if your climate be cold; and two months after sowing, take up two or three hundred of the best plants and dibble them into a warm border, three inches asunder. Thus treated, they grow short-stemmed and thick-necked, with a bark which the snail can no more injure than that of an oak. Early in February the fresh green leaf appears, and the plant begins to gather strength for its summer's work. From the middle to the end of this month, when the weather is fresh and the ground dry, the plants may be taken up with the ball of earth which adheres to the many fibres pushed from the root in consequence of the previous transplanting, and transferred to a large open quarter duly prepared for their reception. Such plants never feel their removal. There is no heat to wither them, and slight frosts do not affect them. The ground, having been dug before winter with a deep rough furrow, mellowed with frost and swollen with rich manure, may be stirred from the bottom and well loosened, but not turned over, and the plants set at the distance of three feet by two.

The only objection to the advantage of retaining

a ball of earth is the gall-nut-like excrescence which is sometimes found on the roots of the plants. If such appear they must be pinched off; but the disease does not occur on newly trenched ground. Snails are worse in April than in March, and worse in May, if the weather be wet, than in April; but this enemy is altogether overcome by having your plants strong, early set, and so managed that their growth is never suspended. By attention to the above methods, you will see your cabbage field in ample foliage whilst your neighbours are only planting, or needlessly filling blanks, and complaining that the garden is a mere waste of money, as nothing can be saved from the snails. Of the cabbage crop, a few stocks, not of the largest size, but chosen for their firmness, may be sunk in a furrow with their heads down, and covered up to the roots; by which means they keep all winter, and may be used in a season when the garden yields fewest varieties. There is a red sort which is used for pickles and sour kroust. If you are afflicted with scurvy, and subject to no acidity of stomach, you may indulge in vinegar and cabbage leaves.

Carrot.—This root should grow eighteen inches long and nine in circumference; but for the table it is better at half that size. It is saccharine and nutritive, admirable for milch cows, and not bad food for horses. Well boiled, it may be eaten to the amount of three ounces by the sedentary, and by labourers as they please. The cultivation of it is in most places of this country the greatest trial of the gardener's patience and skill. When the plants have attained the thickness of a feather, are nicely thinned,

and have spread their finely picturesque and thriving leaves, a worm, with great prodigality destroying its own stores, cuts the only root the plant has, and it immediately dies. If any get further advanced before they are so attacked, they do not altogether disappear, but maintain a sickly growth, become stringy, and are unfit for use. The progress of the enemy below ground is marked by the withering of the leaves; but there is little fruit of the discovery save the intimation that the crop will all be destroyed.

Such noxious creatures, it would seem, are multiplied by our cultivation of their appropriate food. The carrot, it is probable, when first introduced, would have few enemies; but now the rearing of it is generally precarious, and the attempt often abortive. The turnip, too, of so great importance in modern husbandry, is likely to prove, by the disease called "fingers and toes," that the insect causing that disease has spread over the land, in consequence of being nourished by the very crops which it is now powerful enough to destroy. If this be the law of insect population, we must draw upon the bounties of nature for a new plant, or shift the old to a remote and altogether new soil. Were the carrot every where abandoned for a term of years, it might perhaps be resumed again with entire success. But as we are not patriots enough, by common consent, to consult for the prosperity of the next age, we must be content to feed the carrot worm, though it take all to itself, or so to moderate its ravages that we may have some share in what remains. No effectual remedy is yet known; but by various expedients it is still possible to raise good carrots; and it is a

remarkable fact, that the difficulties which require an increase of industry, or the ingenuity of a new resource, heighten the flavour of this excellent vegetable.

1. To annoy the enemy, trench the ground in October or November, mixing with the upper stratum a moderate portion of old manure, and give a fresh digging immediately before sowing. The larvæ, if such there be, are thus buried.

2. It will always be found that the worm is worse in some parts of the garden than in others. Sow in several places each season.

3. Sow at different times from the first of March to the middle of May. The insect, which has its season, will not hit the crowquill size of the different sowings, at which period of advancement the attack is ruinous.

4. Sow onions and carrots either mixed in broadcast or in alternate drills.

5. Water the young plants with a strong soap lee as soon as the insect makes its appearance, and repeat the operation so long as the plant does not seem to suffer by the affusion.

6. Manure the ground at the autumn or spring digging with soot or salt. The latter must not be applied in the proportion of more than forty bushels to the acre. In too large quantity it may kill the insect; but it will also prevent every kind of vegetable growth.

7. With the above adjuncts always adopt one grand rule—namely, that of putting the crop into the best condition for thriving, as it invariably follows that the dwindling growth of bad cultivation is

the most assailed by all manner of insect depredators. Have the ground deep dug or trenched and ridged up before winter. If the under stratum of the trench be too poor mix it with a moderate portion of old dung. Carrots will do well after onions or celery without additional manure; but in all cases the soil must be rich, though the roots must not be allowed to come in contact with manure recently applied.

About the end of April, when a great deal of annual weeds have begun to vegetate, and when the ground is very dry, break down the ridges, and dig afresh, killing the annuals and making the mould as fine as meal. Sow in drills about an inch in depth and eighteen inches from each other; and by several thinnings leave the plants ultimately nine inches apart, stirring up the ground at each weeding with a hoe or strong fork. The early-horn is the most delicate; the long red is the best for a late crop; and the Altringham, it is said, is the least liable to become the prey of worms. The seed requires to be well rubbed before sowing, in order that it may separate freely, and not occasion blanks or thick patches, which prove detrimental to the crop.

Cauliflower—Reckoned by many the best flower of the garden, is certainly the most delicate of vegetable food. To have this crop the earliest that your climate will admit of, the first care is the management of the young plants. Sow a quarter of an ounce of seed, or twice that quantity, about the middle of August, on a dry bed, the least likely to be infected with snails. About the end of September, dibble the strongest of the plants close to the foot of a south wall, where the fallen leaves of the fruit trees will

afford a considerable protection from the frost. Mats or the like covering may be serviceable in severe weather. But to make sure of plants in the spring, it is well worth while to have a small frame, say four feet square, with a sliding glass top, and which may serve also for other things. Set this frame upon earth, a little raised for the sake of dryness, and dibble into it a hundred plants, about the end of October. Keep the roof a little open, except in very hard weather. This slight attention is no task, as there is much pleasure in seeing the fresh green leaves when all else is buried under snow. In a severe storm, the frame, besides being close shut, may require a mat or other covering; but in few winters, at a medium elevation, is such care necessary, it being found that though the soil be hard frozen about the plants they never die when so situated; and indeed it is rather quick thawing, and frequent changes, than hard frost, that prove destructive to most vegetables.

About the end of March, when the weather is soft, take up a few of the plants with a trowel, so as to lift with each a little ball of earth, and set them on the warmest border ground, into which plenty of rich and well decayed manure has been dug before winter. A fortnight later, plant some more in the same way. So transplanted, these take root immediately, and bear the small spring frosts without injury. These advantages you have by raising your own plants: they are at hand, and you can choose your time to a nicety; they are short-necked and hardy, being not too crowded in the frame, and are lifted with earth adhering to their roots; whereas

those reared for sale, besides costing five or seven shillings a hundred, are wiredrawn and soft as grass, and half withered before you get them. They can endure no frost; they are long in taking root; and in some sunny day you find they have gone out of sight.

A spring sowing of cauliflower comes in time to succeed the crops raised from winter plants; and the succession may be kept up till November or December. At any time when the flowering advances too rapidly, the stocks may be retarded or preserved from frost in the manner recommended for brocoli. Some have transplanted the latest portion of the crop into earth deposited under the roof of a shed; and by sheltering, airing, watering, and picking off withered leaves, the cauliflower season may no doubt be prolonged; but this trouble will seldom be judged necessary, as other things come instead and in better season, and what is lost by the temporary absence of a friend is regained by the improved relish of next meeting.

Celery.—Of this there are several varieties; but the best for all purposes is the upright, not turnip-rooted, and that which has solid, not hollow stalks. Celery is the lightest of raw vegetables, and excellent in soups or stewed. To have plants in good time, a little artificial heat is necessary. The seed is sown on a decayed hotbed early in March; and the seedlings are removed, about the end of April, to a rich sheltered border, where they are planted a handbreadth apart, that they may become strong and fibrous-rooted. These qualities are perhaps better secured by wetting and beating a piece of ground, so as to be impervious to the roots; and then laying down wellwrought compost to the depth of four inches, and upon this sowing the seed in small drills,

to be well thinned as the seedlings advance. As the plants, on reaching the hard substratum, are prevented from making long taproots, they send out numerous fibres, a mode of growth which checks the disposition to run to seed; and by this method of rearing they also become strong enough, without transplanting, for being at once removed to the trenches.

These are made in June, for receiving the plants when they have attained to the thickness of a writing quill. The soil should be rich, at least two feet deep of good mould. The trenches are cut one foot in depth, something more in width, and three feet from each other. High ridges, of course, rise between. Into the bottom of each trench a good supply of old manure must be dug. Peatmoss is very congenial if mixed with dung a year before and prepared by several turnings. This trouble will be well repaid by the next crop of carrots. On the bottom of the trench, in a single row, dibble the celery plants five or six inches apart, having previously cropped any long roots and also the leaves. Watering is necessary for a few days in dry weather. As the plants advance the earth is drawn towards them, the intervening mounds become deep furrows, and the celery drill a high ridge. After the last earthing up about the beginning of winter, the soil must be beat into the shape of a roof, surmounted only by the leaves, to prevent the rains from rotting the stems and roots of the plants. It is by these successive coverings that the celery is produced in long leafstalks, and also thoroughly blanched—a quality without which it is not eatable.

Chives—A small mild species of onion. It is perennial, and grows wild in some parts of the

country. The leaves chiefly are used as seasoning or salad. It is propagated by parting the clustered bulbs, and may be planted so as to form an edging—not to flower borders, but along any of the vegetable quarters. In this way it will serve without removal for several years.

Cress—Plain or curled is of little consequence. To have the first green thing of spring, dust the seed thick into a shallow drill by the foot of a south wall: or take a saucer and teacup, cover the latter with flannel and invert it, fill the saucer and soak the flannel with water, and throw upon it as much seed as will stick. The apparatus set on a mantle-piece will be verdant in a few days. Any of the early sowings in the garden which happen not to be used as a crop will produce plenty of seed.

Cucumber—Though the native of a warm climate, is in this more easily reared than digested. It is downright bad for most stomachs, and certainly by no one who has ever had complaint of that organ ought this fruit ever to be tasted. It is less pleasant to detail the modes of cultivating a plant which to some is at best not noxious, whilst to others it is pernicious; yet as it is pleasant to see it grow, and being at least to some eaters harmless and desirable, whilst the fruit in its infant state is much esteemed for pickling, it deserves as well as many of its neighbours to have a place. In the manse garden, however, it were quite out of place if it must be treated with all that art which is requisite to present it in all its varieties, and in all those seasons in which with due care it is capable of being produced.

It is a very tender annual raised from seed, and,

which is singular, the seed is better for being some years old. As there are so many sorts—early short prickly, early long prickly, most long prickly, long smooth green, Dutch or white short prickly, long green Turkey, white Turkey, &c.—the simplest way is to save the seed of that sort which best suits the palate. The fruit must be thoroughly ripe, and its seed washed from the pulp and dried in paper. The proper soil is light rich black earth, manured from a heap of decayed vegetable matter, with a moderate portion of old and well decayed dung. Early crops can be raised only by the artificial heat of flued pits or hotbeds; and this of course must require a constant gardener to regulate the heat, dissipate the vapour, admit air, and exculde a five minutes' breath of frost. In the south of England large cucumbers are abundantly produced from drills in the open air, and hence their cheapness in the market; but in the northern parts of the island, the most that can be done without forcing is to raise fruit of a smaller size, by sowing under a handglass in May, and planting out on a sheltered border in June. The male and female flowers are on the same plant, but under glass some movement by the hand is necessary to effect that mixture of pollen which in the open air is made by the breeze or the wings of the bee.

To save the time lost by transplanting, to have also a quicker growth and larger fruit with the least trouble, pits are made in the ground eighteen inches deep, at the distance of four feet from each other; they are then filled with manure in fermentation, and which is covered over with six inches of mould. There the seed is sown in patches, and the seedlings after-

wards thinned; a small frame or box, having the top covered with oiled paper, or cotton cloth at nearly as little cost, anointed with wax dissolved in turpentine, is set over each. This last apparatus, of remarkable cheapness, is for many garden purposes nearly as good as glass. The covers remain, night and day, till settled warm weather in June; and thus a good crop may be raised without much trouble or expense. The young plants require to be checked in their growth, by pinching off the bud of the runner at the first joint; whence lateral shoots will proceed, and which are more given to fruitbearing. The shoots are commonly pricked to the ground to prevent tossing; but the plant, having tendrils, proves its adaptation to climbing, and by giving it a few stakes, low branching or laid on the ground, it will raise its fruit from the damp earth, presenting it free of spots and better flavoured. The vacant spaces of the sloping trellis, or gravel fruit bank, previously described, could not but afford to this plant such a field as would delight its rambles.

Dandelion—Is used as salad, chiefly by the French. It is said, when well blanched, to lose its extreme bitterness; and it has got, by the ceaseless greed of new things, into the garden books and cultivation of this country. Those who desire to feed on it may find plenty by the wayside. It is the most troublesome of all garden weeds. It is perennial, flowers early, and has winged seeds. The light down skims along the ground till it is interrupted by the box edgings or the stems of fruit trees. In such places, finding shelter, it takes root, and there is no getting it dislodged. The best implement for the manage-

ment of this plant is a blunt chisel with a long handle. By working this carefully down, the root may be extracted without uprooting the box or inflicting canker on the fruit trees. The next resource is industry to prevent a single plant from ripening its seed: and to match its perennial virtue, let no piece of ground be dug without first scrutinizing every inch for this delicate salad herb, in order that its roots may be carefully gathered and stored—in the bottom of the dunghill.

Endive.—The curled leaved sorts of this are the best,—namely, the white for earlier crops, and the green for standing the winter. Late sowing, by the end of May or beginning of June, prevents the nuisance of running to flower. Sow thin, and when the plants are three inches high, set them in good soil, newly dug, and in drills one foot asunder. In dry weather, tie up the leaves for blanching when they have grown a foot high. As it is pleasant to have things fresh from the garden in the storms of winter, a few plants, in the beginning of November, may be set in a trench and earthed up nearly to the head, by which means they will get white for use in six weeks. All that is further necessary to observe is to sow at intervals, according as you wish to prolong the eating of endive. This plant must be worthy of some attention, having kept its place in our gardens for two hundred years: and as quick eating is necessary to prevent flowering, there can be no difficulty in procuring seed.

Fennel—Is a perennial plant used for sauces. One variety is named sweet, another azorian, and a third common. The azorian is the most delicate as to

climate; the common will grow anywhere, and needs no skill for its cultivation. Reaching to the height of four or five feet, it is very ornamental; and it is readily propagated by offsets.

French Beans.—See Kidney Beans.

Garlic—Not designed for food to man in a state of society; and hermits, if they choose, may find enough of it growing wild in the woods and glens which they naturally frequent.

Kale.—Nobody could be troubled with all the varieties of kale. Some tall sorts, yielding a succession of leaves, while they grow to four or five feet in height, are good for cows; but the dwarf curled is the only one which it is worth while to plant in the garden for the use of the table. It is remarkably tender, and has this quality in proportion to the paleness of green and the degree of curl which adorns its leaf. Such is the plaiting of its edges, that the leaf of the best specimens resembles a sponge, and is fully as thick as it is broad. Choose such a stock, and save the seed, which will serve for many years. As this vegetable loses much of its delicacy when raised from plants that have stood the previous winter, it is soon enough to sow in April or March. As soon as the seedlings show the curl of the leaf, thin them well out, or transplant a portion, setting them a handbreadth asunder, in order to preserve the dwarf quality and avoid long stems—taking care also to select the plants, for the parent stock does not uniformly yield seed after its kind.

Nothing can be easier than this attention to the growing of kale; and there is nothing in which the advantage of high breeding is more discernible.

For though kale be of universal cultivation, and though the species be the same, yet it is rare to meet with good greens; and of no two edible substances is there a greater difference than subsists between the pale, soft, and deep-fringed leaves we have described and the dark green or dingy red, hard-ribbed, and leather-apron-like foliage of a common *kale-yard*. After early potatoes or peas have been removed, set the plants, prepared as above, in rows two feet wide by eighteen inches. The ground being well dug will require no manure after potatoes, but a little after peas or such crops as have been raised without previous manure. Should the stems, from the proximity of a wall or scarcity of air, get too high, the whole crop may be lifted in October, in order to be plunged up to the neck by a fresh digging, or laid in a slope, so that the heads may rest on the ground. This prevents the subsiding of a snow-wreath from carrying the leaves before it, which it does in the case of tall stocks, leaving nothing but bare poles. By this method the kale will stand any winter, and may be dug out from beneath the snow entire, and so tender as to melt in the mouth. Salt to kale is proverbial; and at a season when powdered meat is not heating to the nerves, its union with well boiled pulpy greens gives a relish which nothing at a king's table might improve.

Horse-radish—is as facile of growth as docks; but even docks, if they were useful, would require some care to have them good. The proper sets are either whole roots or the upper half; and the main thing to know is the depth at which they should be placed. One inexperienced in the ways of bad weeds

might be surprised to find from how great a depth a buried dock will set up its face; so is it with this stimulant and stomachic root. The sets should be put in deep rich earth, and, if not too clayey, the tops of the sets should be at least a foot below the surface. From these, numbers of upright roots will arise, and all, of course, a foot long before coming to leaf above ground. Of these the strongest may be at any time selected for use, and cut down to a good length without injury to the parent root. A single row, in any out-of-the-way place, may be sufficient; and which will continue in good bearing for five or six years. A new plantation, however, must be made one year before removing the old.

Indian Cress.—This plant, so well known to children as a principal ornament in their little gardens, is a native of South America. There it endures several seasons; but as it cannot stand our winters, it appears in this country only as an annual. It is remarkable for the long period in which its fine orange flowers* are produced, and for the great height to which they are reared. Favoured with shelter and support, it will grow seven feet high, and blossom from midsummer till it is killed by the winter frost. The leaves hang curiously by the centre, and bend their stalks in such a way as to catch any object for support. The pods are used for pickles; the leaves and flowers for salad; and the seed is gathered ripe in September. Manure added to the soil increases the growth, but lessens the beauty and fruitfulness of this plant.

Jerusalem Artichoke.—There are few corruptions

* There is now also a beautiful dark variety.

more dishonourable to our language than the name of this plant. Artichoke, from the resemblance of flavour, is all well; but what has Jerusalem to do in the matter? The plant is a species of sunflower, (*Helianthus tuberosus*,) and therefore the Italians have properly called it *girasole*; and we, having learned their name, of which they pronounce all the four syllables, making the *g* soft, have innocently thought they were speaking of Jerusalem. This plant flowers occasionally in our climate, but never ripens its seed: it grows eight or ten feet high, and yields a good crop of tubers, buried in a mass of small fibres, at the foot of each stalk. It is an excellent vegetable, and in a place of moderate shelter is as easily produced as potatoes. The cutting of the sets, the mode of planting, manuring, and hoeing, differ in nothing worthy of notice from the respective operations of potato culture. Some complain of the difficulty of getting the ground cleared of the roots, and, sloven-like, resign a portion of the garden to be overrun with the tubers year after year, and thus gather what they can, of the worst quality, from the confusion of chance growth and the just sterility of lazy cultivation. The potato, long treated in the same way, and for the same reason, was bad and unprofitable; and hence, from sloth or wrong judgment, founded on ignorance, this invaluable boon was retained in the country a hundred years before it reached the families of the poor! To get rid of stray roots, whether artichoke or potato, do not sow onions for the next crop, as the seedling beds will be sadly defaced by the strong growth of the lurking roots, but wait for a late crop: and when all that is alive of the

ungathered bulbs has come to light, in May apply the spade, and make an entire extirpation, and the cleared ground will be in good time and good condition for a full crop of turnips, cabbages, kale, or brocoli.

Kidney Beans.—The dwarf varieties are the best, as they bear well and need no support. The scarlet runner is worthy of notice as a beautiful flower, and useful, by its rambling growth, for ornamenting any object which in itself might be a deformity. The low growing sorts are sown towards the end of April, in drills two feet asunder, three inches separate in the drill, and covered in with two inches of mould. Earlier sowings are apt to perish with frost: if a succession of crops is wanted, more seed may be sown any time in May or June. When eaten young and tender, the pods are delicious, but if not taken in time they become like tow in the mouth, and the crop is entirely lost.

Leeks.—It is often questioned whether hare or leek soup has the preference; and the decision which is usually given in favour of that one which happens to be present shows that both are esteemed good things, and that the leek makes one of the best soups. The Scotch leek, as it endures the hardest winter, and is the better for all the frost it gets, is undoubtedly the best variety for this country. Nothing can be worse than a small, hard, ill thriven leek; and few things are better than one that is fully grown to the thickness of a cane, blanched to the whiteness of snow, and which falls in the boiling like stewed apples. The first thing is to have seedling plants in due season. In high situations, where they do

not spring early, it is better to procure plants from a warmer climate, and which is the more convenient as they do not readily suffer by carriage. There is no advantage in very early sowing, as the seed waits for heat. The first of April is soon enough: and it is a good rule to sow pretty thick for shelter, and at more breadth than is necessary for a supply of plants; for it so happens, that out of the greater multitude of chances, plants of a good size are more early procured. This principle ought to be noticed in garden competitions—as a larger field, without better cultivation, has, for an extraordinary production, the advantage over one that is smaller. In the beginning of July, on the removal of some early crop, dig plentifully into the ground old black well decayed manure, and in soft weather take up the seedling leeks, select the largest, crop them at both ends, and throw aside all that have suckers; make deep holes with the dibble, in rows one foot by six inches, and let the plants drop in nearly up to the head. Leave the holes open, sending down only as much earth as may serve to cover the roots. The open space encourages the swelling of the stem, and answers perfectly for blanching—while the slight covering is of use, partly to prevent withering, and partly the strange vexation of finding your plants lying full length on the surface, being hauled up by worms.

It is no bad plan, if you cannot have your plants early, to avoid transplanting altogether. With this intention, gather the ground into small ridges eighteen inches apart, and sow the seed in the furrows between each ridge. Thin out, and let the plants grow where they have been sown; and the interven-

ing mounds will serve for earthing up and blanching the leeks. A great part of the best growing season, which is lost by the sickness of transplanting, is thus saved to the still growing and vigorous plant; and in this way very large and excellent crops may be raised, though at somewhat greater expense, the ground not yielding, as by the former method, two crops in the season. It is of advantage to raise your own seed, as you can make sure of having it a year old, from which the crop is less liable to suffer by shooting. Let a few of the largest leeks be set any time in October or February, within a foot of a south wall, to which, as they grow up, they may be held by a string. They will ripen their seed, in common years, at a moderate elevation. Should the season be unfavourable, a few of the heads may be drawn together, and placed behind a handglass well fastened to the wall, which will exclude rain and frost, and admit, till late in autumn, the benefit of the declining sun.

Lettuce.—Of it there are many varieties; but two or three of the best may suffice. Of the tall-growing sort, named coss or ice lettuce, the green is the fittest for this climate. To have it early, it may be sown by a south wall in February, or, for convenience, along with onions or carrots. The seed cannot be too lightly covered. When the seedlings are three or four inches high, they may be transplanted in showery weather, in rows one foot apart in each direction. By tying the leaves together near the top, when well grown, they soon become beautifully blanched and delicate. Of the cabbage kind, the brown is the best for standing the winter, and

eats very tenderly in spring. It may be sown in drills on a warm dry border in August, and must be well thinned and cleared, in order to get hardy before the frosts come on. Another cabbage lettuce, which has obtained the name of drumhead, blanches well of its own accord, and is the most tender of all the tribe. It does not stand the winter, but is excellent for summer and autumn use. To have lettuce at all times, no other rule is necessary than to make successive sowings, keeping pace with the eating or the shooting of the crops. The milky juice common to this family is an opiate, and has been used medicinally.

Mangold, or *Mangel-wurzel*—a species of beet. The French, probably from mistaking the German name, have called this “root of scarcity”—a great misnomer certainly, as it will grow by good management to the amount of forty tons per acre. As it begins now to be largely cultivated, it is more properly allied to the farm than to the garden; but as some part of the latter, both for the sake of economy and the benefit arising from a change of crop, is fitly allotted to the feeding of cows, this new plant is well worthy of a place. It should grow to the size of a sturdy leg; but if it attain only to the thickness of your wrist, either your ground wants trenching, or you have admitted some error in the cultivation; and it will be important, therefore, either to acquire the needful art, or to abandon a crop which, without proper management, will prove indeed the “root of scarcity.” If your soil wants depth, rather choose for it a plant that grows above ground: this must get down; but it will not, like an iron pike, force

its way through rock or till. It must not only have an easy road, but something good beneath to invite it downwards.

With regard to transplanting, though recommended by respectable writers, it may be observed, that in a climate where all the growing season is needful, no loss in this way ought to be sustained. Where a single root of this mangold may grow to the weight of thirty or even fifty pounds the grower cannot easily go wrong; but here, as there is a loss of time by transplanting, so the loss to the crop is irreparable—as is the case with the Swedish turnip, though it agrees not ill with the like operation. To have the benefit of transplanting, without sustaining any loss, its proper use is merely to fill any blanks that may occur; and for this purpose a small bed should be sown a week earlier than the main crop.

For the principal sowing, let the ground be dug or ploughed with manure before winter; for this plant, like radish, carrot, or red beet, does not agree with dung newly deposited. Let the soil be deeply stirred up in spring, and, if too shallow, drawn into high drills two feet apart. In plough management, first make a set of drills, and then reverse them. This double operation is only equal to one ploughing; but it leaves the ground in drills, and every inch has been turned and loosened. In the dryest weather, as near the beginning of April as may be, slightly rake or smooth with the harrow the tops of the drills, on the summit of which sow thin and regular, in small ruts two inches deep: the drills to be afterwards thinned out to the distance of one foot or fifteen inches, according to the strength of

the soil. In preparing seedlings for transplanting, they may be cropped as to the leaves; but the tap-root must not be touched, but let down at full length, leaving the upper part of the root a little above the surface of the ground, according to the natural growth of the plant. The fittest season is in showery weather, and when the seedlings are the thickness of a writing quill. From this crop a profusion of leaves may be gathered for cows in the course of the summer without injury to the growing plants.

Marjoram.—Three sorts of this are cultivated. That called pot is perennial, and is propagated by cuttings or slips. Of sweet marjoram, the seed, which is imported, not ripening in this country, must be sown every year, as the plant is biennial, and not ready for use in the first year of its growth. The flowers are gathered in July, and dried in the shade. Winter sweet marjoram is perennial. It is propagated by parting the roots in autumn, and requires a dry bed and good shelter. All three belong to the trashy tribe of culinary articles used not for food but pernicious sauce.

Melon—Great chieftain of the fruit race, though usually ranked with the productions of the kitchen garden. The varieties, it seems, amount to nearly a score, of which three fourths are cultivated and variously recommended. To the less knowing they are nearly all one, having still the flavour and form peculiar to the melon. No sooner is the crust broken than the red gold appears, and the sweetest perfumes are exhaled. The odour is itself a feast to the nerves of the delicate who may feast no further; and to the strong a premonition that they are in danger. The

seductions of this little world of pleasure are generally feared; nevertheless, as in the greater instance, "bit by bit the world is swallowed."

Whether the melon ought to be admitted into the manse garden is a question which the following may help to solve:—The author once had thoughts of cultivating this fruit, and of giving its process of culture a place in this manual. The breadth of glass seemed not very formidable, and the requisite heat is not that of actual combustion. Nay, there arises from this very thing an argument of beautiful economy. A dunghill must ferment somewhere, and its heat is dissipated. Instead of giving this warmth to the unthankful winds, why not apply it to the production of the rich odour and nectarine juice of the melon? Full of this argument, the next thing was to get the needful science; and proceeding in this search, the title of Chap. I, "Melon Garden," proved not a little staggering. Then came something about the convenience of a cart road leading to the interior, namely, of the melon garden—another staggerer. But still a wheelbarrow road might do; and melon garden, after all, might signify only a part of the garden separated from the rest by a holly hedge. But next came the various sets of hotbeds and hot ridges, the one-light and two-light frames; the thermometrical trials; the decay, the revival, and the preservation of heat; the opening of the glass for air and the hazard of a shower; the awnings for the sun and the mattings for the frost; the constant waterings, with the cautions not to wet a leaf; the drying of the seed by animal heat, that is by carrying it in the pocket, and keeping it till five years

old; the cautious turning of the fruit, like a patient in bed, with this greater care, that whereas the patient may at any time be turned either way, the last turning of the melon must be remembered, in order that the next may observe a contrary direction, lest by several turnings in one way the head should fall off; and with this care of turning the fruit, the contrary caution is necessary with regard to the leaves, which must not be permitted to turn by the casual breeze, but must all have their faces set full to the sun, and be kept in that position, for which purpose a liberal use of pegs is recommended. How much further such lore must be carried the writer is not aware, as at this stage he was arrested by a considerable commotion of disgust, not only with the pains necessary to produce the fruits, but with the fruits themselves, and scarcely failing to include the eaters. But as disgust is no argument to those whose head is happily unaffected by the liver, the sounder reasoning for them may thus proceed:—

The melon is not a crop of which the expense of rearing is in proportion to the quantity reared: the constancy of care is the main cost; and that required for a single fruit is as much as that required for a hundred; and as it is by hundreds that the market is supplied, when you buy one, you pay only in the proportion of one to a hundred; and therefore it is a hundred times cheaper to buy than to rear a melon. To which add, that comparing the multifarious recipes of cultivation with the resources of the manse, it is ten to one that, with much toil, but failing in some point, even a single melon should not be reared.

Mushrooms—May be cultivated by those who desire to study the artificial production of their spawn; for all other ends it were better to leave them alone. These mushroom beds require as much attention as a porter brewery, without yielding its profit; and withall this fungus, nursed under filthy straw, in the dark and dryrot atmosphere of a shed, has neither the fine flavour nor the wholesomeness of those which are sprinkled by nature and shine like the galaxy on azure pastures. It is true that in some years the mushroom is not produced; but it is also true, that as it furnishes a most delicious but somewhat dangerous feast, there is safety in long periods of restriction; and for its better use—that of the savoury and not hurtful sauce which it yields—it may be gathered in some seasons to the amount of cart loads; and the produce will keep, like the corn of Egypt, till plenty return.

This plant, like the best of virtues, has its counterfeits; and let neither man, woman, nor child, gather, stew, broil, eat, or sip of any fungus without a discriminating knowledge, gained by sight, and smell, and locality, which no paper description can possibly convey; and let not those who have the spawn of their own manufacture, without such knowledge, confide in their artificial productions. “Excessive moisture,” says the most experimental of gardeners, “is not only apt to destroy the spawn,” (and what sort of spawn may come instead?) “but it debases the flavour of such fungi as are produced under it.” And such excess of moisture, he observes, is supposed to render the “salutary sorts less so, and to make the *unwholesome* kinds more acri-

monious.” Hence it would appear that the scientific produce is not absolutely safe, but may in certain cases be as dangerous as that which is gathered from the stumps of old trees or from under a hedge.

Onions—Is the most precious crop of the garden, and precious just because the highest cultivation is requisite for the attainment of the highest produce ; and more art being necessary, there are more failures, which serve to enhance the price. It is needless to attend to all the varieties of the onion. The cultivator who depends on new sorts is like the invalid who is always changing his medicines, but who had much better apply with more exactness the common and well known rules of health. One sort of onion differs far less from another than the degree of skill in different hands or the degree of quality in different soils. The best sort for keeping is the Strasburgh, and for a large crop the white Spanish : the silver-skinned is beautiful, and the dwarf-grown of that sort are the handsomest for pickles. The soil cannot be too light, if it be rich with old manure, incorporated by digging about the end of autumn. It is of advantage in the course of the winter, after the manure has become amalgamated with the soil, to ridge up the earth like potato drills, which, by pulverizing and drying, prepares for early sowing. As the seed may be ill ripened, or mixed with what is too old, it is of use to prove it, in order to avoid blanks, which in drilled crops are never to be tolerated, as well as to guard against sowing too thick, which gives weakness to the plants, and much trouble of thinning at a time when the ground ought not to be touched. To try the vegetative powers of

the seed, put a few grains into a flowerpot, which place on a shelf of the kitchen, and observe how many of them spring up.

In February, or as soon as the ground is dry, prepare for sowing by leveling down the ridges,—not by digging, for it were wrong to bury that part of the soil which is in the best condition, being dry and mellowed by the frost; and as the roots seek but little depth, they will not encounter the less favourable soil which lies beneath, and will derive no benefit from the best if it be put lowest by the spade. When the ground is finely raked, make the drills half an inch deep and one foot apart. It is of great consequence to have an hour or two of sunshine before sowing. To form the drills, it answers well to lay down the handle of the rake, where its length may be nearly equal to that of the drill, and to walk along it, which will make an equal impression of the proper depth, and save a good deal of time and of poaching about in shifting and setting the line. Having sown the seed, make no further use of the rake than merely to obliterate the drills.

Drilling is greatly preferable to broadcast, as the former admits of the hoe, which both saves trouble of weeding and promotes the growth of the crop. Of the seedlings make two thinnings, the first to give air to the plants as soon as they can be handled, the second to be final, leaving the plants a hand-breadth apart; and that those which are extracted may not be lost, they may be planted in close drills, on any spare piece of ground, for occasional use. Thus the main crop has fair play, and suffers no molestation by unskilful intruders till ripe for gather-

ing. After thinning, the ground should be hoed and watered; and it is easy to conduct the hoe in such a way as to leave no footmarks. The maturity of the crop is known by the withering of the leaves; but as some individuals will prove refractory in not decaying along with the rest, it is convenient to have their necks broken or twisted a week before reaping, that the ground may be all cleared at once. Much wet after ripeness is injurious: should a few dry days occur, the whole crop may be spread along the side of the gravel walk and exposed to the sun; but if there be a threatening of much rain, the onions had better be spread in a single layer on the garret floor. A selection should be made of such bulbs as have small necks for keeping longest. Tight tying in strings, to be hung up in the kitchen, is some trouble, but effectually prevents growing.

One or two ounces of seed may be sown in August, for a spring and early summer crop. At a medium elevation, the middle of August is the proper season; and sooner or later, from the beginning to the end of the month, according as your situation is near the mountains or on the level of the sea. The exactness of season is in this case important, and is best learned by trial: if too late, the seedlings are thrown out by the frosts in winter; if too early, the plants all shoot in summer. Some in any case will shoot; but by pinching off the pruriant bud, good keeping bulbs may be secured.

There is a tree sort, which bears its bulbs at the top of a long stalk; and another, called the potato onion, which bears below ground, according to its name. This last is capable of producing well, but is

only to be preferred where the raising of a crop from seed is found to be precarious. A worm or maggot is the main enemy. Observe the rule of manuring as above; do not sow again for a time on the spot that has once been infected by the worm; try ground that has been long under a different sort of crop—as strawberries, artichokes, rhubarb, or seakale. It is not probable that any remaining scent of the removed crop offends the maggot; but very likely it is, that the foresight of the parent judged the places bearing such crops unsuitable for the deposition of her larvæ during the previous year. Transplanting may also have a good effect in saving onions from the destructive maggot. With this intention, very early sowing must be observed; and the roots may be soaked in a solution of soot mingled with earth. By sowing a small bed about midsummer, very thick, and on the poorest soil, either that which is gravelly or under the shade of trees, an immense number of small bulbs, like beads, may be raised, and kept through the winter, to be planted out in spring. It is said that they grow very large and excellent onions: and the method certainly ought to be tried in cold and wet climates, where early sowing is impracticable.

Parsley.—That you may not be tempted to dig up what you have sown, it is well to be apprised of the fact that the seed of this plant will lie in the ground five or six weeks before springing. The curled variety is the prettiest for an edging in the garden, as well as for a garnish upon the table; it has also this advantage, that it prevents all risk of mistaking for the salutary kind, that herb called fool's parsley, which

is poisonous, and very like the common or plain-leaved sort. Sow early in March. The seed is readily procured from any plants that remain uncropped the second year. As it is pleasant to have green leaves in a long winter storm, a drill may be covered by laying down some pea stakes, and sloping over these in hard weather a few branches of spruce, such defence being preferable to straw, the sight of which is hard to be endured in the garden.

Parsnips—Once much in vogue, now falling into disuse. The whole fact it may not be easy to explain; but the present decline of parsnip cultivation is not wonderful to the writer, who, having great benevolence toward all the tribes of culinary vegetables, and wishing none to be excepted from the highest proof of love, namely, that of eating the object, has long tried to acquire a relish for this plant, in which however he has not been able to succeed. The parsnip agrees with a deep and rich but not recently manured soil. It may be sown in March, either broadcast or in drills one foot apart and thinned to half that distance. It is not injured by frost, and may be taken up as required; or to have the ground properly cultivated, the whole crop may be gathered in October, and pitted like potatoes.

Peas.—Nothing can be more idle than to study the endless varieties of peas. To collect parcels, label, sow in patches, keep tallies, boil in several pots, and write the taste in separate pages, is scarcely consistent with the use of ordinary intellect, or with the idea that life has other ends than eating. But as there are always some minds which have a predilection for such science, the result of their experi-

ments, which they have no unwillingness to communicate, is one of the things which may be safely taken upon credit, to the saving of one's time. But with all this trouble of nice distinctions there is no great profit; a law of nature is perpetually against the trifler; for by the intermingling of pollen his catalogues are soon confounded. Get seed from a respectable merchant and raise a good crop, and you will never eat a bad pea.

For the first crop sow early-frame or Charlton; the former is so named because, being the earliest, it has been used for sowing under glass frames. For late crops sow dwarf marrowfat or blue Prussian, both of which are excellent, and grow only to a moderate height. Those sorts which require staking seven feet high are a pest, as they shadow so much of the ground, or become, if not duly supported, unfruitful by falling in heaps over the stakes and choking one another. The early-frame may be sown about the end of October, along a south wall or on a warm border, to stand the winter. As they generally prove but thin and low, and are soon removed, little injury is done to the trees. As the crop is precarious it is as well not to be troubled with more than a pound of seed sown in this way. The pea agrees well with transplanting; and for the earliest crop it is much surer to raise seedlings in thick rows under a frame, to be planted out in the end of February. For a later crop, seed may be sown on the open ground at the same time; and onwards to the first of July you may sow for a succession of crops, according to your demand, observing to make the last of an early sort.

The chief thing in the management of peas is to

divide the ground used for such crops as are cleared off every year into four parts, allotting one to the pea in succession. It becomes unprolific when too frequently on the same soil. By this method you avoid the ugliness of stakes in all places of the garden; and make the remembrance easy as to the application of manure, which is of importance, as peas grow only to straw on soil that is too rich, and ought not to be sown except on ground that has been manured for the previous crop. Begin sowing the pea quarter at the side remotest from the sun, that the subsequent portions of the crop may not suffer shading by those more advanced. Sow two drills six inches apart, and the next two at the distance of four feet. This wide space may serve for a crop of spinach. A very simple art in staking is worthy of notice:—shape the branches flat like a wall tree; insert the largest, one to every yard; and fill the intervals with short ones having branches near the ground. By this means the peas have more air, and a fourth part of the wood commonly used will be quite sufficient. Small twine is better than nothing where stakes cannot be had. There is a dwarf sort of pea, not otherwise to be preferred, which needs no support. Frequent hoeing, whilst it promotes the fruitfulness of the crop, has an excellent effect in disturbing the slug. This enemy, when very troublesome, may be further treated with quick lime, which, adhering to its slimy skin, disposes the creature to rub itself below ground and to travel less on the surface. Some have supposed that the mouse will not find out your newly sown peas unless, through carelessness, some straggling seeds be left uncovered; but

careful hiding will be no security, as the mouse has an excellent nose; and it is better to meet its delicate sense with that which it cannot relish.—See the harmless use of rosin for that purpose, as previously stated under the article, Beans.

Potato.—The introduction of this invaluable root to our island—the prejudices which were long entertained respecting it—its culture carried on by the most defective process for more than a century, and the consequent slowness with which it reached the families of the poor to enrich them, (whilst the impoverishing tobacco plant, brought from America at the same time, spread with rapidity over Europe)—its now almost universal cultivation, affording the chief subsistence of so many human beings, and producing so great effects on the physical and moral condition of the empire—might constitute the materials of a history due to this plant more than to any other production of the vegetable kingdom as yet known in these realms or perhaps in the whole world. But how to have the earliest and how to have the best crops are the only objects at present in view. The former is promoted by very early planting, as may be judged by observing the appearance in spring of such stray roots as have escaped the severity of winter. But this advantage of an early start is not without certain hinderances: when the leaves are frost bitten, the plant is more than retarded—the nature of its growth is changed; and again, the soil, exposed after early planting to the spring rains, gets too hard for the very delicate fibres of the roots, and becomes also much colder by reason of its compactness. To have, then, both the advantage of early growth

and freedom from these evils, in January lay some cuttings or whole potatoes, of the ash-leaved sort or of the early-frame, on boards covered two inches deep with moist sand, chaff, or sawdust, in a place where there is light and some heat. The loose covering encourages the growth of fibrous roots, which may be lifted from the board entire, with the chaff or other matter adhering, and in the best condition for transplanting. In the beginning of March, on ground newly dug, by the foot of a south wall, where small frosts have little effect, set the well grown plants in a drill four inches deep, with a sprinkling of dry old dung both above and below. Branches of spruce fir or rough-twined ropes of straw, held a few inches above the drill, may be used when needful as a defence from hoarfrost. The planting must be later according to the climate and to the degree of frost usual at that early season. It is needless to mention, that planting under cover in a hotbed is a surer way to the early production of a few handfuls of indifferent potatoes; but it is somewhat curious, and perhaps less known, that potatoes covered with earth on a cellar floor, without the access of light or air, though they produce no leaves, may be taken up in winter with pretty large young tubers, which, however, have little of the mealy quality and as little of a good flavour.

It is far easier, however, to have old potatoes in good condition than to contend with nature for the production of new ones; and as those raised by forcing are neither palatable nor wholesome, we shall turn to what is more useful—the obtaining of a good early crop in due season. The sorts that have been

named, as they have little profusion of leaves, may be planted before a south wall, without injury to the trees, and will thus come very early to maturity. An ingenious friend has assured me, on his own experiment, that if early potatoes, designed for seed, be taken up not sufficiently ripened, and left exposed on the surface for some weeks, *bleaching* in the weather, (to use an Irishism) till they become *green*, will produce a much earlier crop next year. The middle of March, at a medium elevation, is soon enough for planting, when the safe conduct of the crop is to be entrusted to the elements; and even then it is better to put the dung above the sets; for so placed, as it excludes the frost, it admits of a shallower covering of earth, and thus favours the fruitfulness of the potato. The drills may be two feet separate for the ash-leaved, and a little more for those sorts which grow more luxuriant.

Of late potatoes, one of the best varieties now in use is that called the don; it is dark, with white spots, high flavoured, solid, nutritious, and keeps long. Though not so numerous at the stalk, it yields as much weight per acre, as any other sort—as it produces very few that are not full sized. It is convenient however to plant some of the white varieties, which are better for eating in the early part of the season. The drills for late crops should be thirty inches asunder and the sets nine or ten. In the garden, the most careful gathering is important on account of the succeeding crop.—See Jerusalem Artichoke.

The worst evil (at least till of late years) incident to the cultivation of potatoes has been curled leaf. The nature of the disease is not well known; but it is

pretty certain a remedy may be found in saving for seed a portion of the previous crop before it has come to maturity. For this purpose, either plant late, or take up as soon as the leaves turn yellow—at least a fortnight before that ripeness in which the tubers fall easily from the stalks, or, which is better, procure potatoes for seed from a high district, where perfect ripening is incompatible with the climate. Exhaustion of the vegetative powers is the probable cause of curl; hence the advantage of premature gathering, and the propriety of cutting off the flowers before the seed-berries begin to form—the ripening of which goes far to diminish the strength of the root. It is supposed, and not without good reason, that every variety of the potato propagated by cuttings, as well as every species of fruit trees not indigenous and renewed by engrafting, have only a certain age to which they can attain; hence no favourite sort continues long to flourish, and hence new varieties must be sought by sowing the seed.

But a more recent evil, and far more ruinous, being already of considerable extent and still progressive, is the perishing of the seed or *sets* before springing up. This prevails both in Britain and Ireland, as well as in the smaller islands along the coasts; and though only of a few years' duration, yet as the malady has been met by seasons differing from one another in dryness and moisture, heat and cold, it becomes more alarming, as it goes on notwithstanding such variations and is gaining ground from year to year.

The first thing the mind does in such a case is to seek out the cause of the disease, in order thence to deduce the cure. But the multitude of causes which

continue to be assigned is proof that no sufficient one has as yet been discovered; hence the remedies, as in all such cases, are perplexing by their variety, and wearisome because of their doubtful or hopeless application. To account for the disease by the state of the soil, the character of the season, the heat of the manure, the preparation of the *sets*, or the period of their exposure to the sun, must be vain, seeing that all such causes have occurred in the course of a hundred years without producing the effect that is now deplored.

The author, though he cannot boast of bringing forward a cure, is yet led to the humble task of recording the malady, in order that his book may not be inconsistent with the events of history belonging to the things of which it treats, or seem guilty of a glaring anachronism, as it would, were he, in writing of the potato, to take no notice of its failure, at a time when the subject is under debate, and greatly interesting not only by the loss which the grower sustains, but by the progress of an evil as yet unremedied and threatening the food on which millions of our race depend. It may not be without use, however, to remark, that though we have had the experience of a hundred years without such failure, yet is the event not so anomalous as its novelty and importance would make it appear. The diseases of wheat have, from time to time, been as threatening; and had we as much depended for our food on red clover or carrot or turnip as on the potato, the loss to the grower had ere now been as deeply felt, and the hopes of the consumer had been as darkly clouded.

The whole circumstances of the potato failure fall

in with the course of general laws which men must study for their life, and in which it will be found that no quarrel with the arrangements of providence can be justly entertained. It may seem indeed like a snare laid for mortals, that first a prolific plant should increase the means of subsistence; that next the population should multiply according to the enlarged provision; and that lastly the plant, having led to the increase of population, should itself dwindle and leave the people to die. But who laid the snare? Providence is too bountiful in the rich variety of its productions to countenance the supposition that the Giver of all good ever designed any portion of the human race to live on potatoes alone. The fact of ill health resulting from such fare—the very structure of man's frame—and the varied bounty of nature's gifts—conspire to prove that disorder has been introduced into the economy of nature, when human beings have laid their plan of life so low as that which befits only the lowest of the brute creation.

Let this plan be carried a certain length, and there proceeds an excess of potato cultivation. But this is none of nature's plan; and with this the laws of vegetable production will not agree. Let it be remembered with what vigour any plant new to the soil takes the earth, and how kindly the earth gives welcome to the stranger, if at all there be a fair adaptation of climate; and let it be remembered too, that this mutual understanding of soil and plant continues uninterrupted only till there be an undue interference with the law that insists on diversified productions, and then it will be judged no anomalous thing that the potato at a certain period should be reduced, as it now is, to a precarious growth.

Yet in all this, while we find nothing to blame, we will find much to admire. The Creator, who abhors idols, will not suffer one plant to be the sole dependence of rational creatures; and if they will so depend for their life they must be poor and sickly and see their idol broken before their eyes. Not that any plant must cease to grow. Turnip, carrot, and red clover, still live:—so will the potato: but its cultivation to excess will not do; it must be content with a more limited field, and allow of other things, in fair proportion, agreeably at once to the constitution of man and of the ground on which he lives.

The moral part of the Almighty's scheme ought not to be overlooked. It is not the feeding of man's body alone, but the exercise of man's mind, that the Deity promotes by his beneficent arrangements. When men first begin to cultivate the ground they are weak and ignorant like infants at the breast, and the earth gives her abundance solicited by little labour or skill. But there is given to the soil a law of decreasing fertility, which must be met by an increase of science; and for this attainment men have time whilst they are nourished by an easy bounty, and must proceed, by new inventions of art, to compensate the diminishing fertility of nature. But there is another law of decrease similar to this, and leading to the like effects—there is the decreasing aptitude of the plant to the soil, in consequence both of less favour shown by the ground and of more worms fed by the plant; and which, being at first dependants, become at length so numerous as to assume the attitude of foes and the power of destroyers.

And here also ingenuity and industry must be stimulated both to discover the way of the spoilers and to give to the ground a more laborious tillage. Thus it is so ordered that the moral part of our nature is advanced by the necessity and difficulty of providing the things on which we depend for our physical subsistence. The law is good, and the effect will be still to produce the potato, but at somewhat more of cost—and to introduce slowly, and therefore safely, a change to a better state of things in the condition of those to whom the potato has been the only *staff of bread*. The plant is indeed excellent in its proper place; and there is no fear for its production to the amount that is really beneficial. But out of its proper sphere it is a curse; and now, as might be expected, the intimation is given that it shall not remain to occupy the only place in man's eye to the exclusion of other gifts, and shall not go on to be the too easy and sole subsistence of millions, to perpetuate their generations in the misery of physical weakness and moral degradation.

Before this new malady occurred there appeared a vast amount of human life thrown into abject dependence on the thriving of a single root—always surpassing by their numbers the limits of its largest supplies, and either learning the patience of famine or being tempted to steal, and, under the one engrossing care of maintaining existence, unable to look higher for the consolations of a salutary affliction or the hope that purifies by a heavenward aim: and hence neither will piety nor patriotism complain though no specific or effectual cure of this malady should be found; for then it will appear that in the

very laws of vegetable production there is laid a check to the worst of moral evils, as well as an incentive to the virtues that adorn humanity and prepare for a world to come.

With regard to the storing of potatoes out of doors and their safety in winter, the progress of frost ought to be observed. As soon as it has got to the depth of seven inches in the ground the potato pits are in danger, and may certainly be saved by covering them with a thick coat of litter or a plentiful supply of *whins*. The other difficulties are incessant growing in spring, or shriveling when the growth is checked by dry air. Some recipes that have been given to the public are quite fallacious. A dip in boiling water settles the question as to growth, but the potato soon decays; salt prevents all vegetation, but if to such an extent it be mingled with soil for covering potatoes it destroys them. The extraction of the buds, though it impedes the growth only for a time, is the most common and for general use the best remedy, together with clean sweeping, thin spreading, and occasional turning in an open well aired place. This, however, cannot prevent shriveling; but the following though somewhat troublesome operation seems to answer all ends, and may be tried with a few, for very long keeping, after the more common methods have failed. Make a pit two feet deep, in a shady place, as on the north side of a wall; drench the pit with water; then tumble in the potatoes, previously cleared of their shoots, and drench them also; lay over them a green turf with the grass downward, to be also watered; and heap up the earth, beating it as hard and compact as possible. The *rationale* of

the process is excellent, the evils both of growing and shriveling being equally provided against: the coolness secured by shading, depth, drenching, and solidity of covering, prevents growth, whilst the moisture supplied, instead of causing injury, only serves to counteract the drying influence of the season. It may be necessary to repeat the operation, with a frequency according to circumstances; and with such care potatoes may be kept fresh and good till September—a period to which it can scarcely be expedient to continue their preservation, although it cannot be unimportant, at least for some time after the recent crops come in, to have the power of choosing between the ripe mealiness of the old and the green saponaceous consistence of the new.

Radish.—There are more varieties of it than are worthy of notice: the salmon radish, which is long-rooted, and the red or white turnip-rooted, are sufficient. The long-rooted may be sown in January by those who will take the trouble of protecting it from frost. Any of the sorts sown in February or March, by the foot of a south wall, will do without further shelter. They are all useless in the heat of summer, as they grow hard and hot; but from the middle of August they are again as good as in spring. The ground should be deep delved and rich, but not recently manured. The seed is sown in drills no deeper than to admit of being covered, and the plants may be thinned to two or three inches. As radishes are soon removed, it does no harm, and saves ground, to sow broadcast a little of the seed along with any drilled crop, such as onions, carrots, or spinach. The turnip-rooted is a neat pretty little

bite; and of the long-rooted it is remarkable, that if it be sown in holes made with a small dibble and left open the plant will grow thicker and more tender. This accords with what was observed in regard to leeks, and may perhaps be true of some other plants. The young seed pods of the radish afford a substitute for capsicums.

Rhubarb—Excellent for tarts in the early part of the season, before gooseberries make their appearance. Two sorts of it are cultivated; that having the pointed and palmated leaf springs earlier, but does not sooner get ready for use; the other, which is rounder, and not so deeply cut in the leaf, has a thicker leaf stalk, and is best for the table. The roots of both are medicinal, but it is not certain that either sort is the same as that which yields the Turkey rhubarb. To have a good supply for tarts, set a dozen or more of cuttings of the roots, reserving to each a part of the crown or top on deep rich ground, in rows four feet apart and three feet distant in the row, taking care to have none less than a yard from the walk or box edging. As soon as the leaves have decayed, dig, with plenty of manure, between the plants, avoiding the roots, and taking care not to crush the buds, which are scarcely visible, but on which the crop for next year depends. It is by such culture and good feeding that the leaf stalks are numerous, ponderous, and full of juice. The flower stems, in order to preserve the strength of the roots, should be all cut off as soon as their height declares their intention. In moist weather, towards the end of autumn, the young leaves become as tender as those of spring. By putting large wooden boxes, coarsely

made of slabs, over a few of the roots, and heaping stable litter over them to remain all winter, tarts may be had very early: the leaves are blanched, but the flavour is not impaired. The same plantation will continue productive for seven years; but a new one should be made a year or two before removing the old; and in the mean time some light crop may be raised on the new ground which is but thinly occupied by the young plants.

Rosemary—Of which the best things are the name and its being used as the emblem of remembrance. A slip of the root may be set in a dry sheltered place. It is aromatic, and used medicinally and for flavour. If the frost be not too much for it, it remains ever green; and, like a nettle, it likes to get its roots under an old wall, where it is not easily molested.

Sage—One of the trash tribe, a perfect abomination—used for stuffing ducks and fools who feed for apoplexy.

Savoys—Seen in the melting hoarfrost, with little pools on the crumpled leaves, and the whole figure not fairly balled, but like a half unfolded rose, provoke a watering of the teeth in the anticipation of a pulpy and reeking mouthful, when the winter sun has set. The cultivation of this excellent herb differs in nothing material from that of curled kale, save to promote a freer boll it requires a soil somewhat richer. To have large and solid bolls, which are preferable only for cows, it is necessary to sow the seed in autumn, and plant early in spring, after the manner of late cabbage.

Seakale—A delicious vegetable, little inferior to

asparagus, and ten times more abundant, with less of cost. For this, as for all crops that are deep-rooted and stand long on the same ground, the soil must be well trenched and made good to the depth of two feet. It cannot be too light: an addition of sand is necessary to a soil that has too much clay; but few gardens that have been trenched and under crop for some years will prove faulty for the production of seakale. Seedling plants may be procured from the nurseries;—if not, sow the seed very thin, in drills two inches deep and two feet asunder. This sowing of a continuous drill is merely to secure enough of plants, for ultimately they are left eighteen inches apart in the row. In winter, when the leaves have vanished, dig between the drills, and spread over the plants a light covering of loose dry dung to shelter them from frost. No crop is to be expected till the second winter after sowing; but things of slight growth—such as spinach, early turnips, or lettuce—may be raised between the drills during the previous summers.

To blanch the seakale, without which it is not fit to be eaten, procure pots, made for the purpose, with moveable lids, and place them over the plants in the end of the second autumn; then heap up stable litter till the pots are covered a few inches overhead. The moveable lids are very convenient for observing whether the plants are ready for cutting, without turning and cooling their warm bed: and few sights are more interesting than the opening of their dark abode in the dead of winter, and the extracting of the ponderous curled shoots in full vigour of growth, white as snow, and glossy and fragile as spun glass.

Blanching may be attained with less trouble if forcing be not required. You may have excellent sea-kale in April from drills ridged up with earth; in which case, every pair of drills must have greater distance for the convenience of mounding, and the plants may be so much closer in the bed. Straw, in contact with the plants, is unsuitable to blanching, as it communicates a bad flavour; but raked leaves do well, perhaps fern, sand certainly: coal ashes are recommended, but the idea is abominable. Where the plant grows wild, as it does by the seashore in several parts of England, it is gathered in the finest condition, being whitened by the sand which the waves throw out, and which the winds pile gently over its head in the manner of a snow wreath. As the earthen ware of the flowerpot kind is expensive and liable to be broken, the author has long used coarse wooden boxes, or bars of paling along each side of the drill, for keeping the dung from contact, and which at no cost answers perfectly well: loose boards, laid on the top of the boxes or across the bars, admit of inspection; and light is easily excluded by having the litter more copious. It may be observed, that the art of cultivating this plant is an invaluable acquisition to a high climate, where the garden yields so little in winter and spring, and where the coldness, so hurtful to other things, is no hinderance to this, as more or less stable dung will compensate all the varieties of temperature from the seacost to the height of a thousand feet.

Spinach—As convenient to the sower as it is agreeable to the eater. It comes early in spring, when there is no great plenty. It is not nice as to

soil, and suits all seasons. It fills up odd corners ; and as it soon arrives at maturity, it serves to occupy for a time those blanks which necessarily occur in crops of larger growth and longer duration. It is sown in shallow drills as wide between as to admit the hoe. The summer crops do no good after the first cutting, and may therefore be allowed to grow as thick as grass ; but plants that have to stand the winter, and sprout again after the spring cutting, must have a certain strength of root and thickness of stem. The sort having prickly seed and a triangular leaf, being the more hardy, is the fittest for winter ; that which has smooth seed and a blunt round leaf is the best for summer crops. The winter crop is sown in the beginning of August, and by the end of autumn so thinned as to stand in single plants,—a fresh hoeing and further thinning of the drills, to the distance of a handbreadth, being reserved till spring. The round-leaved variety may be sown any time from the first of February, when the ground is dry, till the season for sowing the winter crop. There is a wild sort, which grows every where as a weed, and may be known by a beautiful purple meal—of changing hue like the dove's neck—with which the heart of the leaf is sprinkled : it is said when cultivated to be nothing inferior to the garden spinach. Plants designed for seed should be thinned to the distance of eight or ten inches. This is the only vegetable in common use that has the male and female flowers on different plants—a circumstance which causes no trouble in the raising of seed, as it is sure to happen that of a considerable number of plants there will be some of both sexes.

Tansy—Used for puddings, &c., is propagated by parting the roots. Care must be taken not to place it near to any box edging or gravel walk.

Thistle—Needlessly brought into gardens, as it is ready enough to come of its own accord. Several varieties have been cultivated, and of course have not been spared the labours of the pen as they have engaged those of the spade. It is said of the milk thistle, which is a native variety, that its stalks, in the second year of its cultivation, being peeled and steeped in water, lose a portion of their bitterness; and of the cotton thistle, another pest of the fields, that with due attention to thinning, hoeing, blanching, peeling, and boiling, it may also be eaten. As there are more members of the same family, which still flourish in memorial of the curse, those who delight in them may be regaled with greater variety; but to such persons one of the tribe is particularly recommended, namely, the sow thistle, which has this additional aptness, that it may be eaten either boiled or raw.

Thyme.—This sweet plant, were it not cultivated for kitchen use, ought rather to be ranked among the flowers. The broad- and narrow-leaved and the lemon-scented are the chief varieties which are cultivated. Used for making a border, if it be regularly cut over, it will last for many years. Seedlings, where the plants have not been cropped, grow up of their own accord, and may be transplanted, or the seed, which is gathered ripe in autumn, may be sown in spring; but the plant is more easily propagated by slips or by parting the roots. A dry and rather poor soil is the most favourable to its growth and the strength of its fragrance.

Turnip.—The ambitious, who by early sowing strive for the earliest turnips, reap, after a season of fair promise, the futility of their scheme in a crop of shot stems, with bulbs no bigger than a radish. It is difficult to say whether the turnip is annual or biennial: the season of sowing, the state of the weather, the richness or poverty of the soil, may determine the issue—whether the growth shall immediately proceed to the production of flower stalks, or go only to the swelling of the root and leave the operation of seed-bearing to another year. There is room for much speculation as to a procedure apparently so sportive and arbitrary; but, which is more important, the fact is certain, that in every case of too early sowing, as in February or the beginning of March, however well the crop may appear for a time, there will be no useful produce at all. Late crops will shoot in consequence of standing too long after having formed their bulbs; but these will shoot the first thing they do—a circumstance not easily accounted for, but its being known is enough to direct the sower.

To have turnips early, then, the rule is to promote a rapid growth. Let the ground be well pulverised by winter digging and ridging, dry, and full of rich and well decayed manure. Sow about the beginning of April, in drills of the least depth and one foot apart. Drilling is the best mode for all crops of this kind, whether late or early, in garden or field. The early Dutch is the best to begin with; the stone for the next crop, and the yellow bullock or the late Dutch yellow for a winter crop. For an autumn crop, when it grows to a good size, the Malta turnip, remarkable

for its beautiful orange shape and colour and thin skin, is much to be recommended. The slug and some fly are troublesome; but sow thick that there may be enough for all; and make frequent use of the hoe, which both annoys the enemy and delights the young plants. Successive sowings may be made throughout the summer till near the end of July, when the ground, after potatoes or peas, (in the latter case requiring a little manure,) may be economically employed in raising a large and valuable turnip crop for the winter and spring. Too much strength of soil for autumn growth, when the season itself does so much, is injudicious, as the turnip gets cleft in the root and becomes unwholesome.

The Swedish turnip, of excellent use in husbandry, is scarcely an acquisition to the garden, as it rarely grows without strings, and as the yellow Dutch, which is more palatable, stands the frost sufficiently well. The young leaves of the winter crop, which begin to unfold in March, are extensively used as a market vegetable in the south of England, and are really good though their flavour is scarcely known to the northern inhabitants. It is to be observed, however, that such sprouts quickly deteriorate the bulbs, a few only of which ought to be left in the ground for yielding a supply of greens. The spring growth may be checked, and the turnip preserved a little longer in good condition, by storing amidst dry sand on the cellar floor, or by deep pitting in a dry soil.

For winter use the turnip is never so good as when freshly taken from the ground—though not growing, yet in a state ready to grow. A moderate

degree of frost, when the turnip is required for use, may be disengaged by steeping in cold water; and as frost proves destructive rather from quick thawing than from intensity, the following method of preserving is the best for all purposes:—Injury is rarely sustained before the middle of winter; at which period take up the crop, separating for the table the well shaped bulbs—which by that one argues all other good qualities—and consigning the remainder to the cows. It is immaterial whether the taproots be cut off or not, but the leaves must be kept entire. Make a rut with the spade six inches deep, into which place the turnips in close order, and cover them an inch or two overhead, allowing the leaves, which serve both to exclude the frost and to maintain the growing powers of the plant, to spread above ground. The covering of the first drill prepares for the second; and as the order is nearly as close in the one direction as in the other, very little ground is occupied, and the work is not tedious. In the farm the like operation is quickly performed with the help of the plough.

With regard to the enemies of this crop, a sprinkling of quick lime, which must be repeated after rain, has been found to check the ravages whether of slugs or of the fly. Should these spoilers, however, continue till the appearance of vegetation is almost gone, it is yet surprising, if there be plants, how soon they gather strength and cover the ground; and though no remnant should be spared, it is yet seldom necessary to want a crop. Dig the ground afresh, and the second sowing will in all probability advance unmolested: the snails are put out of the way, and

drier weather may impede their travels. The fly indeed will but rarely renew its attacks, either because its short life, in the interim, has come to a close, or because it has been driven by the famine of its land to seek a subsistence elsewhere.

But a much more untractable difficulty, and in all likelihood caused by an insect of another race, is encountered in a disease of this root known by the descriptive name of finger and toe, of recent origin, now spreading over the country and sparing neither garden nor farm. It has already rendered the cultivation of turnip in many fields abortive; and in some gardens, to the regret of their owners, this most wholesome of roots has been necessarily abandoned. Not being able to prescribe a cure, it is of some importance, as it may save the trouble of experiments already made, to tell what will not be a cure. Neither liming nor trenching will; neither remote nor recent manuring, nor sowing without dung, is of any avail: and there is no distinction of Swedish or globe or yellow or green-top or red in respect of this disease. And whilst it is true that if the crop has suffered one year it will, tried on the same ground the year following, prove worse or altogether nugatory—it is equally true, that the disease has shown its worst type where turnip had never grown before since the creation of the world. I allude to a piece of road, time out of mind a highway, taken up, trenched, and added to the adjacent field. The field was in turnips, and the disease was more or less over the field; but on the line of old road the crop was ridiculous.

Much might be said in the way of reasonable conjecture, but nothing is more useless. Let pre-

miums be offered; let the microscope be called in; let many experiments be made; and if nothing will do recourse must be had to a plant of some other kind, till the new insect, or rather till the insect that has found in the turnip a new supply of food, and has multiplied according to the extent of its provision, be starved by the change, and compelled to draw in the boundaries of its empire, leaving some other creature to grow great in its turn by feeding on the new and substituted plant. Thus it would appear, that agriculture, without any clog appended by unpropitious laws of the state, or ruin inflicted by Gothic invasions, has in nature certain restrictions which deny to her a course at once surely and indefinitely progressive—that whilst the territories reclaimed from sterility are yet held, and the wealth they have produced is yet unimpaired, the knowledge that has been slowly and laboriously gotten must needs be abandoned, and the cultivator must turn back, with childlike effort, to get new skill of things yet unknown and untried. Thus there will never be a time in which it may be said that nothing new has to be learned; thus industry is stimulated, whilst pride is repressed—repressed, in the present instance, by the discovery that the labour and science of an age, which have been carried so far in the turnip husbandry as to change the face of the country, and to affect all its economical arrangements, may be marred by an enemy, keeping pace in the progress of its power with the progress of man's improvements, and by the very help of man becoming so great as to drive him from the field, yet all the while so hardly visible as to require the use of the microscope that we may learn the fact or manner of its existence!

Vegetable Marrow, or *Succada*—A species of gourd, the pulp of which, from its richness and flavour, has been called marrow—a more harmless luxury than the animal sort, as being cheaper and less productive of vapours and vertigo. In lower situations it may be sown in March under a hand-glass, and planted out in May before a wall or trellis, the one or other being requisite not only for warmth and shelter but for the support of the runners and fruit. The reader may be reminded of the gravel bank for fruit trees, previously described, which cannot fail to have the most perfect aptitude to the training of succada on the vacant spaces between the trees.

It may here be remarked, that for the implement handglass, with very little skill of the hands, may be substituted an article that costs almost nothing. Let four boards, each twenty inches long and four broad, set on edge, be nailed together in the form of a square; insert on the upper edge a few willows, and tie them together at the top, making either a dome or pavilion roof, which cover with strong white cartridge paper. This, rubbed with linseed oil, turns rain, admits plenty of light, is better than glass for striking all manner of slips, and as good for tender seedlings in the months of spring. In higher situations a little help of warm dung will be requisite; but as the trouble of making a hotbed might be judged too much to be exchanged for the privilege of eating marrow, the author defers the process till speaking of certain beauties and curiosities of the flower department, when it will appear that the same apparatus which serves for succada will serve also for amaranths

and marigolds, and prevent the foolishness of continual sowing what does not once in ten years yield the recompense of a flower; and when it will further appear, that by a new construction of the hotbed frame, a cover of varnished cloth, at sixpence a yard, will answer all the purposes of expensive glass, supplying at little cost all that requires artificial heat, so far as use or ornament needs to be consulted for the manse garden.

PART THIRD.

FLOWERS,

WHICH may not be overlooked, seeing that every garden will have them; but as rules of utility are demonstrable, whilst those of taste are merely arbitrary, there is less to do with this than with either of the preceding departments. And as all agree in having flowers, but differ most widely as to the extent to which the fancy ought to be carried, the following method is adopted in accommodation to these circumstances:—First, to make some general observations, by attending to which, every one may cultivate flowers to what extent he pleases; and then to give a small list of some of the principal ornaments of the garden, set down in alphabetical order, with particular directions for each. Such method, it is apprehended, will suit the taste and convenience of most persons for whom this little work is designed. To none, perhaps, save the idle, the curious in botany, who plant to gain a science, or the apprenticed, who must know their calling, can the enormous lists of plants and flowers, grassy and fibrous, bulbous and tuberous, annual, biennial, and perennial, hardy, semihardy, and tender, indigenous and exotic, be otherwise than frightful and sickening. The sight

is a source of melancholy, always bringing the littleness of our time into contact with an infinity of little things craving the attention that is due to other matters in hand; and may not lady-florists, whose neat fingers take pleasure in tying a carnation, enjoy the beauty of flowers without shuddering at the Greek with which they are aspersed? Surely in their eyes such garden catalogues of unmeasured length and dead language have all the sterility and the ugliness of a Hebrew lexicon.

It is supposed, though the manse be not in the garden, that around the doors are other things than oats, potatoes, or pasturage:—we suppose shrubs, agreeably to what has been previously written; and with these we associate the flowers, as having, in their juxtaposition, the same agreement as of sisters, of whom the elder cherish and help to rear the younger. Of shrubs, many are to be regarded as flowers developed on a large scale: nothing can exceed the soft beauty of the rhododendron, spread over a large space, or, flowering at an opposite season, the pink and snowy laurustinus, fit to fill a room with its clustered blossoms. These I would not clip for the best eyed polyanthus. It is supposed, as formerly planned, that the outer wall of shrubs, dense and high with hollies and laurels, is already furnished. And here it may be proper to mention some of the more delicate sorts which may be selected for growing within the defence: phylerea, of several varieties; alaternus, gold and silver variegated, grows by layers certainly, by slips pretty well; arborvitæ, easily propagated in the same way, and which will grow a large tree where it has room, but having no beauty except in good

shelter; of the same character the yew, glorious for its country's defence, and though venerable in years, looking young with berries of brighter hue than polished coral; the evergreen thorn, which, with the help of a wall, though it can stand alone, will glow all winter with an incredible profusion of scarlet fruit—it agrees ill with lifting, but is easily propagated by layers; various kalmias, pretty, but tender, requiring shelter and peatmoss, which last is not thrown away on the rhododendrons, or on the aucuba Japonica, of olive green and spotted leaf, very foreign and tender looking, but growing surely from slips, and more hardy in the spring frosts than common laurel; the arbutus, having red bark, a beautiful evergreen, to which a fixed place should be assigned, as it cannot endure flitting; the sweet bay, requiring the best of shelter, and not very patient of removal; the ilex or evergreen oak, not remarkably beautiful, but interesting on account of the difficulty of getting it to grow; the pyrus Japonica, of sorts, that having scarlet flowers being as worthy of a piece of wall as a peach,—when well grown it abhors transplanting; the box tree, variegated and plain, raised from slips, by layers, freely, and having a turfy root, cares nothing for transplanting. These, with some of the junipers, and a few hardy exotic heaths, with Irish ivy for every bit of cold dark wall, where fruit is out of the question, may serve to clothe the space between the outer defence and the flower borders, giving shelter to the house and to all manner of flowers, and from perpetual verdure making winter more cheerful than summer can be to a tasteless and uncultivated abode.

In transplanting any of these beauties—often requisite, and the most interesting of garden operations—success may be insured any time in summer by using mats for a shade, and regular watering; but the best seasons are the beginning of September, in moist weather, and of May, when the young shoots are commencing. The main care is the lifting: any ordinary workman is sure to murder your plant. Take the spade and mark out a ring as wide as the branches; and then order a trench, without the slightest reference to the lifting of the tree, and see it straight down as deep as any roots can be. Then, for the first time, let it be understood that the pick may work in beneath towards the centre. The more earth that can be got to adhere the better; but failing that, let the roots in their new stance be spread in successive tiers, with layers of fine mould interposed—watering, staking, and tying, as noticed in the planting of hollies.

The following, not ever green, may be added; for though the former list may afford enough of beauty for the winter, it will always be found that the best assortment of evergreens have a certain dullness in summer, unless relieved by deciduous plants, which have brighter blossoms and livelier tints of green. Wherefore have roses without number—the Ayrshire for sprawling over anything that ought to be hid, and the Indian, once the tenant of a flowerpot, now the hardiest of garden roses, bringing forth its sweet buds till they are nipt in December. It is of the easiest multiplication by slips: of a hundred inserted in light soil with a mixture of peatmoss, few will fail to become trees. The mizereon, of pink or

red or white blossom, yielding the most delightful odours, but which must be extirpated before infant hands have access to its berries: the azelia—of many sorts—remarkable for the brightness of its flowers, and deserving the best shelter, with a soil aided by sand and peatmoss: white broom, of spraylike figure, and almost as white as snow in a good summer—the seed may be gathered and sown in a flowerpot for safety, but neither slips nor layers do well: lilacs, of different colours, to be kept remote from the flower borders; the Persian, as it grows low, may be nearer, and the Siberian, lately introduced, having a better leaf than the Persian and a richer profusion of blossom: laburnums, which cost nothing, growing up everywhere like ash seedlings, must not be unlimited, as they show too much yellow, but appear well at intervals towards the outer boundary—the seed is poisonous: a purple beech may have a place where it can get up as a tree; in like manner, a few services, the under side of the leaf, like frosted silver, being most beautiful in a summer wind; and the walnut, worthy to be preferred for its sweet scent and fruit, perhaps, some future year; the dwarf almond may be admitted to the verge of the walk, as it rises to no height: its blossom is that of the peach, but its fruit is never seen except in low situations; and the tree-peony cannot have too good a place; it is, as yet, scarce and costly, and of slow growth; near a south wall it thrives well, at least three hundred feet above the level of the sea, and is the most gorgeous of all shrub flowers.

Nothing more can be done for the comfort and beauty of this department without due attention to

the formation of walks: and judging by what may often be seen, as well as by the trouble of cleaning those that are ill made, few things connected with the garden are worthy of a more particular notice. In making walks amongst shrubs and flowers, dryness and variety of edging are the chief things to be promoted—there not being here, as along a fruit wall, for the sake of the trees, any scruple as to the burying of stones; and there ought to be none as to the trouble of a two feet excavation; for every cart load of earth so saved is worth money, and the convenience of depositing stones in place of the earth will save a great expense of carriage. Box, though tiresome if there be no other, is by far the best edging for general use; but the planting of it is often bungled or done at a needless expense. Take up with a spade a portion of the edging that has grown too old, and part the roots: one yard of the old will serve for ten of the new—a supply that is not obtained from the nurseries without cost. In parting, tear all the old bush down into the smallest shreds; throw away every one that is thicker than a crowquill; and cut off all the roots beneath the uppermost tier of fibres—a single fibre is enough; with none the plant may do, but it is not necessary to try it. The plants so trimmed should be about four inches in length. Having filled the excavation with stones, all to four inches left for gravel, on either side of the walk, dig the surface, set the line to a nicety, using many pins at every turn, to make the windings easy, bring the level exactly to the line, and beat all smooth and firm, so that the earth may stand cutting. With a trowel, cut by the line

to the depth of three inches, pulling the earth towards the walk; and lay the green tops of the plants to the line, setting their heads above it, not more than one inch, and all touching one another. The roots will vary a little in depth, but let a few plants be held exact at the top with one hand, whilst the earth is applied to the unequal roots with the other. The reverse rule of evenness, providing for the roots and not the tops, is frequently adopted; hence the straggling appearance that ensues; some leaning out, and others in; some set like a tree, having a stem from which branches proceed, and others having branches sunk up to the middle. The effect is a strong feeling of indignation; and remarkable it is, that though correctness of lining be of small repute in matters of taste, yet where a line ought to be and is designed few things are harder to be endured than unmeaning deviations—as in the case of ill set teeth, or the attempted dash of a clumsy handwriting. Box may be planted in September, October, or November; in February, March, or April. To wet clay, brought up by new trenching, coal ashes may be added; and to avoid rotting by long moisture without growth, the plants may be set in May or June.

For other edging seapink is very good, but it soon gets deformed with blanks, unless taken up and replanted; whereas box, annually clipt in autumn, will serve for the half of a lifetime: London-pride admits of paring, and will last for five years: coarse polyanthus or primrose does well beneath trees. Should the root of an old tree come in the way, it is easy to keep up the green line by planting peri-

winkle, which needs little soil, or ivy at some distance, and leading the runners past the tree, where they will take root all the way, and, being clipped, make a handsome appearance. The propensity of ivy to run up the tree is easily counteracted; but should it be indulged, few things are more beautiful, and the tree is there rather for ornament than for the value of its timber. Double-daisy and cowslips may be used, and may be kept any length of time by occasional lifting and parting of the roots. Hepatica—blue and red mingled make a beautiful edging, and will last an age; but the most brilliant of all is dwarf-gentian: it lasts long, but must have half a foot in breadth to secure plenty of its skyblue dazzling flowers. The pansy or tricoloured violet is also fine, but must be replanted every year. For any place where the walk gets amongst high shrubs or trees, or where a sloping bank is of difficult keeping, there is nothing so fit for a low hedge as butcher's-broom; it suffers no injury by drop or shade, and grows immoveably strong; and not agreeing with the shears, it is in such a place more suitable in the natural sluggishness of its growth.

In the graveling of walks, any rule for the avoiding of unnecessary expense, and the subsequent trouble of weeding, must be a desirable object. Let the top stratum of stones be such as are raked from the surface of the garden in dry weather, and made perfectly clean by sifting, which is by far the readiest way of getting quit of them in clearing the ground. By such method, the top stratum being of small stones, much less gravel, which perhaps must be brought from a considerable distance, will suffice.

To have no unnecessary carriage, the gravel at the pit or river side must undergo one sifting with a search one inch between the wires, disposing of all large pebbles. Of stuff in this state walks are commonly made, and the result is evil continually. The small sand is a seedling bed for all manner of weeds, and the coarser part compacted with it renders hoeing almost impracticable; nor is the work well over till in showery weather there is need to begin it again. Thus the coarse and fine work to each other's hands, the one giving birth to weeds and the other protecting them. Divide and govern—dissolve the compact and the conquest is easy. Use a quarter-inch search for a second sifting, and apply the coarse to one part of the walks and the fine to another. The coarse, it is true, does not bind; but that is the beauty of it: it will not grow one weed for many years. No feet are idle on such a walk: every one who comes into the garden does some good: the gravel is continually shuffled about, and an immense deal of work is saved to the hoe. For dryness it is admirable—a property which makes the roughness a pleasure, as every one feels in walking on the sea-beach, though much rougher and not more dry. And now for the small sort, which is almost pure sand, and in most cases will be three to one of the gravel: it binds and grows weeds; but the Dutch hoe pares it as easily as moss is scraped from a tree. For the wheels of a little coach such walks have the smoothness of marble; and as to the raking of leaves, on gravel the work is imperfect—on this as neat as the sweeping of a floor.

Where a walk, having plenty of gravel, has got

foul in course of time, by awkward gardeners or by pretty pattens stepping off the vegetable grounds, there should still be no endurance of the mixture of stones—to prevent the killing of weeds—with garden mould—to encourage their growth. In the season of haymaking, from the solid bottom rake all the gravel into ridges, to be turned over once or twice, and lie till the soil with which it is mingled become dry as dust, and every vile plant be reduced to powder; then apply the small sieve—the expense of which operation would go little way in bringing fresh materials from a distance;—and having saved, by this sifting, a good deal of top-dressing for grass, replace the gravel; and you will have no more to do with it for some years.

On the farther side of the flower walk, that is next the garden fence, there will be, according to the mode of planting already recommended, a gradual declivity in the bank of foliage from the higher, hardier, and outer rows, to the lower, inner, and more delicate. Such arrangement is good for shelter and beauty, as well as for promoting the health and vigour of whatever is planted; and to complete this outer screen, it will now be proper to mention a few of those flowers which fitly mingle with shrubs, giving liveliness to the dark evergreen, and combining with those that blossom to diversify and prolong the gayeties of summer. The chief is the hollyhock, not over nice, majestic, long flowering, and of many colours. The black, not truly named, is rich as it is rare; and for this reason some notice of the hollyhock shall be given in the alphabetical list. The giant sunflower, too coarse for beds or borders, is ex-

cellent to the amount of a dozen, at long distances, amongst laurels. It must have air, that it may branch out, and carry many heads on a treelike stem. More of this also will be found in the list above named. The most convenient thing for filling all vacuities, and giving a honey sweetness to the garden, is wall-flower. Late in autumn, or after the spring digging, proceed all over the ground with choice plants, very dark, called bloody, some double, and the whole as plentiful as a crop of greens. Not individually fine, this plant owes its good effect to extent, and to the quantity of breeze which it perfumes. To have it good of its kind may be worthy of a separate notice. Several of the larger species of iris agree well with the neighbourhood of shrubs, and thrive in the shade. The lily-of-the-valley, shooting early its fine dark leaf, rolled like a cigar, and shortly after its modest snowy flower, may be allowed to run thickly over a square yard or two, beneath a spreading laurel, which may be slightly pruned for its bower. Queen-of-the-meadow, double or single—the latter only is scented—agrees with the shade; and also sweet woodruff, remarkable, when dried in paper, for the time it retains the odour of newmown hay. Soldago or golden-rod, with some of the hundred varieties of campanula or bellflower, monkshood—yellow or blue, columbine, and perennial larkspur—growing seven feet in height, may serve at distances, according to their size, for foreground to the shrubbery.

Verging towards the walk, a strip, say five feet broad, running betwixt the gravel and the shrubs, and perhaps an equal breadth on the other side, for fibrous perennials and bulbous roots, with spaces here

and there for the admission of annuals, deserves particular culture. If the soil has too much clay, coal ashes will give it porosity and serve for manure: They must be sifted, a labour that is not lost to the economy of fuel; and nothing is more useless to the ground than a cinder, or uglier on a bed of flowers. Trenching is in all cases to be understood; and if the soil be dry, as stones cannot be tolerated in the sowing of annuals, there is no harm in sifting with wires one inch apart. It must not be supposed that a sieve of such width transmits stones of any thing like a corresponding bulk; neither does the acquired fineness cause any damage, save in clays, which with raking and rains and heat take on a coat like the plaster of a wall—a fault which a few cart loads of sand will correct. A mixture of peatmoss is of service to the beautiful varieties of rhododendron, the kalmias, and all manner of heaths.

With regard to a selection of flowers for the borders so prepared, it were needless to give a thousand names and descriptions; the mere name serves not the cause of botany: and no description on paper conveys any idea of a plant as it grows. The only rule, then, is to pick up at intervals, according to your fancy, and to stop when you have no more ground.

As the summer has plenty of riches, and as the shrubbery makes the most of winter, it may be proper to notice a few flowers which give beauty to the spring. They are not numerous as to kinds, and for effect, therefore, there must be many of each. The crocus—tiresome if only yellow—cannot be too abundant if its various hues are blended. It is easily raised from seed; its bulbs quickly multiply of their

own accord ; and they may be bought at sixpence a hundred. It is not agreeable in beds or patches, but fine when set as a fringe to the flower borders, and perfectly beautiful as studding to a piece of smooth green sward. For this purpose have a long stick with a dibble point, and to regulate the depth insert a cross bit of wood, to set the foot on, three inches from the extremity. Let one person perambulate the ground, making holes, and another follow with two baskets, one containing a thousand bulbs, and the other sifted earth or sand to cover them. Hepatica or liverwort is the next in value as a flower of spring. The double blue is rather delicate ; the other sorts—single blue, red and white single or double—are hardy. The root is a solid turf, and the only art of propagating is to divide by cutting straight down. Plant at intervals along the flower border, taking care to alternate the colours. The Christmas rose, flowering so early, as the name imports, has still something to add to this more genial season. The snowdrop is fine upon grass, along with the crocus ; on the borders, if abundant, it must be in small spots well distant. Different species of Narcissus are valuable before summer comes with her full hand : namely, the daffodil, which needs no care ; the jonquil, of sweetest perfume, but more delicate, requiring shelter and a free soil, rather rich, but not with recent manure. Add for spring beauty, primroses, single, double, and of various hues ; a large assortment of the auricula and polyanthus, not the highly cultivated of either, which will be noticed in their place, but such as are hardy and show plenty of colour ; some patches of anemone, raised from

seed: and various exotic heaths, giving early food to the bee and anticipating the glow of summer.

Omitting the endless list of bulbous and fibrous perennials, which may be collected by degrees, as hinted above, the names of a moderate assortment of annuals cannot fail to be useful. Annuals are not to be picked up as other flowers may be; the seed must be ordered, and the names may either not be known or may not occur; besides, mistakes might arise from not distinguishing between such as agree with common sowing and those that require the help of a hotbed. Of the under list, which are hardy enough for ordinary shelter and elevation, ten or twenty, according to the means of accommodation, may be chosen for one year; for the next a like portion, proceeding further in the list; and so on till the catalogue be exhausted—getting in this way both the pleasure of new things, and an easy acquaintance with such as are fairer to the eye or better suited to the climate.

- ✕ Adonis-flower—several varieties: pheasant's-eye the most showy.
Agrostemma-cœli-rosa.
Allyson—sweet-scented.
- ✕ Amaranths; greater, or love-lies-bleeding—lesser, or prince's-feather.
- Antirrhinum, or snapdragon: many varieties; the best are large flowering, and bicoloured—properly biennial, but if early sown it will flower the same year.
- Atriplex, called also red spinach.
- Balm—blue, red, white, hoary.
- Balsum, yellow, or Touch-me-not; so called from its capsules exploding on being touched.
- Belvidere—resembling a cypress tree.
- Bladder-ketmia:—see Ketmia.
- Borage—purple, red, variegated.

Candy-tuft—white and purple.

Catchfly, Lobels—many varieties and very ornamental; the red and white are beautiful when mingled.

Caterpillar plant; the pods give rise to the name.

Cayanus or Blue-bottle—of sorts.

x Clarkia-pulchella.

Clary—purple and red topped, of fine appearance.

Corcopsis-tinctoria—brown and orange.

Gilia-capitata.

Globe-thistle.

Gourds; some one of about forty varieties may be tried in a warm sheltered place. See list for hotbed frame.

Hawkweed—red and purple; the yellow is paltry.

Heart's-ease or Pansy; properly a violet—common tricoloured, large Dutch, yellow, purple. They flower the first year, but may be continued by parting the roots in autumn.

x Hollyhock,—Chinese, variegated, double, single.

Honeywort—greater, small, purple.

Indian Cress—a new dark variety.

Kaulfussia-aneloides.

Ketmia, Bladder, or Flower-of-an-hour. Its blossoms cannot endure the sun, but are produced in long succession.

x Kidney Bean, Runner—large scarlet, large white.

Larkspur—of many fine varieties, which may all be had from the same parcel of seed.

Lavatera—red, purple, white.

Love-in-a-mist or Fennel-flower—blue, white, yellow, double.

y Lupine—common, yellow, blue, white, sweet-scented.

v Lychnis—dwarf-annual and purple.

Mallow—curled, scarlet, Venetian.

Malope-grandiflora—crimson and purple.

u Marigold—common large double, orange-coloured, lemon-coloured, red, ranunculus-flowered.

y Mignonette—the sweetest of all—ought to be sown largely and at different times for a succession. The earliest will yield ripe seed.

Mulberry-blite.

Nigella:—see Love-in-a-mist.

Nolana-prostrata.

Oenothera-Lindleyana.

Palma-Christi; remarkable for large palmated leaves; tall, dwarf, red-stalked.

Pea, sweet-scented—of which there are many varieties—may be sown on very dry ground about the end of February, to give early flowers and ripe seed; afterwards at any time till the middle of May.

Poppy—many sorts—bad enough weeds, that need no sowing; the carnation and dwarf-corn are worthy of a place.

Russian stock.

Scabious, sweet—starry-flowered.

Schizanthus-pennatus—of sorts.

Snail Plants; taking the name from the form of the seed-pods—perhaps a dozen varieties.

Snapdragon :—see Antirrhinum.

* Stockgillyflower, Ten-weeks'-stock—red, purple, white, scarlet, variegated—each double, wallflower-leaved, of various colours, single and double: well worthy of a place in the alphabetical articles, which see.

Strawberry-blite; the fruit resembling the strawberry, but not eatable.

Sultan-flower, or Sweet-sultan—yellow, purple, red, white.

Sunflower; giant, dwarf—each double—yellow, pale yellow. See notice in alphabetical order.

* Tobacco Plant—long- broad- narrow-leaved. Once sown in this country in the fields for a crop, but requires management to bring it to flower.

* Venus'-looking-glass—blue, purple, white.

Virgin-stock—purple and white.

Xeranthemum or Everlasting-flower—white, red, purple, and blue; remarkable for keeping its colour and form when dried.

For the sowing of the above, the last week of April (but earlier according to climate) or the first of May, when the weather is fair and the ground in the finest state of dryness, is the proper season, although some sorts may be sown at different times for a succession of flowers. Too little earth can scarcely be given for a covering, considering how many annuals,

self-sown, get none at all. Those seeds which are almost invisible may be laid on a smooth bed and merely sprinkled with dust after the manner of powdering hair. A common garden basket, with a few handfuls of loose earth, answers well for sifting over the seeds a dust as fine as themselves. There can be no doubt that many beauties are lost by coarse hands that make their bed a grave. The lightest powdering is to the amaranth as much as a plough-furrow is to the bean. To mark the seedbed and save it from the hoe, it is usual to adopt the spell of drawing a circle around it; others sow in a ring, on the principle of the argand lamp, admitting air into the centre, and causing the flowers to burn with a clearer light.

The following less hardy annuals, whether for beauty or curious growth, are worthy of the help which they require in a small hotbed frame; namely, the marigolds, African and French; amaranths, or love-lies-bleeding and prince's-feather;—all of which are of uncertain growth in ordinary seasons; balsums, of many varieties; tricolor-chrysanthemum; Indian corn; some of the huge gourd family; the tobacco plant; stockgillyflower, for an early blow; to which may be added many others according to fancy or convenience.

ALPHABETICAL LIST OF SUCH FLOWERS AS REQUIRE A PARTICULAR NOTICE, WHETHER WITH REGARD TO THEIR PROPERTIES OR PECULIAR MODES OF CULTIVATION.

Anemone—Broad- and narrow-leaved. As soon as the downy seeds begin to fall off they may be gathered and sown in drills four or five inches apart, and slightly covered. Next year the bed will be pretty for a length of time with many and very bright colours; but there will not be one double of a thousand flowers. It happens, however, in the course of cultivation, and in the multitude of chances, increased by all varieties of soil and climate, that double flowers do occur; and as the roots of these send out tubers, which also give double flowers, they may be increased to any amount, and are to be had of sufficient fineness and variety at no great expense. The principal colours are—red, pink, crimson, rosy, white, and blue, with various shades and mixture of colours. It is a good property of these flowers to have the plain colours brilliant, and the mixed colours distinct; and in planting a bed it is of great consequence to have the colours duly blended, to have some breadth for effect, and to have such juxtaposition of the roots as may cause the leaves to meet, clothing the ground with soft green, whilst the flowers, as it were, catching fire at each other's light, dazzle and burn in varied brightness. The width of planting is determined by the meeting of the leaves, which will vary according to climate and richness of soil—say four, five, or six

inches between the drills, and one inch less between each plant in the row. The best manure is turf from old pasture mixed with half its bulk of cow's dung, kept and frequently turned till the mass be well rotted and pulverised.* The bed must be manured and dug before winter, and, when finely reduced by frost, as early in February as the soil has sufficient dryness, the roots should be planted an inch below the surface, taking care to place the buds uppermost. Free watering is requisite in dry weather; and when the blow is full, a few mats, supported by hoops, may be used to screen the sun and prolong the period of beauty. When the leaves have decayed and the soil is very dry, the roots may be taken up, and either rubbed free of earth or washed and dried in the shade. They may be kept in a box or drawer in any apart-

* The author feels reluctant to introduce amongst pretty flowers the coarse word for manure in the absolute; and, being aware that a work on matters of taste should be itself also tasteful, was willing throughout to have avoided the above name, which, as he understands, is not pleasant to readers of the town. But being obliged to write of such a thing, and finding it impossible to do without the offending term, he takes refuge in the conviction, that wherever the garden reader becomes also the garden cultivator, (and that is the author's aim,) the antipathy will wear off, by that law of our nature which makes things, unseemly in themselves, look well when viewed in their seemly effects. As an instance of this kind, at least similar in some respects:—No eye ever loved the angular and uncouth hieroglyphics of a dead tongue, but the sight is endured till they get incorporated with the soil of moral cultivation; and then the deformity altogether disappears, and the virtue springs up on the rich field that glows with the flowers of Grecian poetry, and the fruits of Hebrew piety: So amidst laden trees and flowery walks, that which at first offends loses all power of offence when seen in its beautifying effects, and familiarly known as the source of all that is fair and fruitful in the scene. And of all the manipulations detailed in this treatise, there is none the author values more than the art of augmenting and economically using the *pabulum vitæ* of the garden—the very heart of its living frame.

ment, avoiding the roasting heat of a garret or the rotting damp of a cellar.

Auricula.—Nature has given such a finish to the finer specimens of this plant that art may well be required to furnish them with the shelter of a roof. Some of the family are hardy and beautiful as spring flowers on the open borders; but the more delicate cannot endure the pelting of the rain which falls in April, the season of their beauty. A glass frame is therefore essential to the saving of the fine meal with which the flowers and sometimes the leaves are dusted, and which seems designed to moderate the heat of the sun, but which has in itself no defence against the washing of the rain; and hence those plants which are brought to great fineness by cultivation soon perish or grow poor when neglected. The best specimens at first raised from seed are quickly propagated by offsets from the roots; and as cultivators have great tenderness for such offspring, though more numerous than they can rear, you have only to open an asylum and it will soon be filled.

It were vain to attempt particular descriptions of five hundred varieties. As to the general properties of a good plant, the stem should be of such length as to carry its head of flowers erect and raised above the foliage. About seven or eight pips, or single blossoms, make a rich and close umbel of flowers. The circumference of the border of each blossom should be round, the anthers large, the eye smooth, white, and circular; the ground colour should be equal on all sides, defined next to the eye, and only broken where it blends with the edging. The favourite ground colours are black, purple, dark

brown, rich blue, bright pink, crimson, or glowing scarlet. A green edging is fine; but that combined with a crimson ground colour, being very rare, is probably on that account prized the most.

Florists have given recipes for composts with the trifling exactness of invalids who pore upon dietetics and weigh their food. Sound earth, vegetable earth, peat earth, decayed willow-wood, and wood ashes, are recommended in proportions from a half down to twelfth and twentyfourth parts. No doubt such a commixture may be very good, but some other will do just as well. Let the compost be rich and light, consisting of one half of old rotted cow's dung, either from a spent hotbed or gathered from the fields, and the other half black mould from the garden, adding more or less of peatmoss and sand according as the soil is light or heavy—the whole mass to be so blended as to assume a uniform consistence. With this fill the flowerpots within an inch of the top, taking care to cover the hole in the bottom with a piece of slate to prevent the intrusion of worms. The pots should be six or seven inches wide and about the same measure in depth. Smaller ones may be used for bringing forward young plants, whether seedlings or offsets. The proper time for planting or repotting is in August. Strip every plant of its decayed leaves and of all stumps of roots beneath the young fibres, and, having firmed the earth with the hand, give a plentiful watering. The pots may then be closely set together in the frame, which should be half filled with sawdust, in which the pots are to be immersed to the lip. The glass cover may be put on at the first to encourage striking,

and then kept on or off according to the weather, using the help of a bass matting in every hard frost. Before winter, fill up the vacant inch left on the surface of the pots with old dung gathered from the fields, which replace with fine mould about the time of flowering. To destroy green-fly, with which the plants are apt to be infested, a slight cloud of tobacco fumes, closed for a few minutes under the glass cover, is all that is necessary.

Should any reader be surprised at the trouble, whether of writing or of observing the above directions, it may certainly be inferred, that he has never once seen a choice and well managed collection of auriculas. Other flowers in congregated array may be more dazzling, but the auricula so exhibited has no rival in soft, rich, and diversified beauty. It has more of dignity than gayety; it has not the tinsel of a theatre, but the jewellery and grandeur of an assembly of nobles and high dames, in broad ruff, powder, crimson, purple, and ermine. The sight justifies the art. Art cannot make the purple of the auricula; but without art the auricula has not the purple; and the finest forms, left to the common fare of earth and skies, soon become the spectres of what they were—the gorgeous velvet dwindling to the meanness of hawkweed, and the crownbroad disk to the dimensions of a daisy.

Carnations—Of which the technical names are, 1. Flakes, having one colour on a white ground, and which appears on both sides of the petal; 2. Bizarres, having two colours on a white ground; 3. Piquettees, ground white or yellow spotted with other colours, and the edges of the petals fringelike or serrated;

and 4. Painted-ladies, the colour being only on the upper surface of the petals,—the sarcastic name, it is hoped, may soon be banished. The carnation, according to critics, should have a strong three-foot stem, like a cane arrow; the flower three inches in diameter, and opening equally on all sides: the burstlike appearance, owing to defect of constitution, which it often assumes, is ruinous of all character; and hence the vile trick amongst competitors of tying the neck with a thread up to the very day of exhibition. Any thing like fringe on the edge of a petal is not to be looked at. If polling might pass for natural roundness, the scissors would as certainly be applied to the fringe as to the feathers of a game cock before fighting. The petals should be as thick as to give the richness of a double flower, but without the crowding that causes weakness, and should regularly decrease in breadth as they approach the centre, forming an elegant crownlike figure, rolled in at the circumference and almost level on the top. The colours should be bright and distinct, the stripes narrowing with the petals towards the base, and leaving one half to the ground colour without spot or mark.

The best soil for carnations is good loam enriched with well rotted stable dung and quickened with a little sand. The quantity of manure can only be determined by the previous strength of the ground; if made too rich the flowers will lose their fine colours, if left too poor they will want vigour. No recent manure should ever come near any fine plant. Let the ground be prepared before winter with dung, and a rough furrow laid up to the frost. In April give a fresh digging, and plant in rows three feet by two.

This width is to make room for layers, without which a fine blow of carnations cannot be maintained above one year. As the plants shoot up, they must be tied to neat green rods; and in order to have a fine blow, superfluous flowerbuds must be pinched off, leaving only three or four to each stem.

The young shoots near the ground which do not run to flower are denominated grass; and from these the layers are selected. The operation is somewhat nice, but when rightly done is always successful, and good flowers are thus preserved and multiplied from year to year. Towards the end of July stir up the ground about the plants, and mix with the soil a little old well wrought compost. Have at hand a sharp penknife, a trowel, and a number of small pegs with an angle at the head: pieces of fern will do, or wood of no more strength than to bear pushing into the ground. Scoop out the earth in the form of a basin around each plant; select the strongest grassy shoots for layers, and remove such as are in the way; crop the top leaves an inch from the heart, and pinch off all the rest, taking care not to peel the stem. Begin an incision on the under side of the shoot a little below the second joint from the top, and cut upwards till the joint is slit in the middle. Set the pointed extremity made by the slit into the bottom of the excavation, and there fix it with the peg; place the head of the shoot erect, fill in the earth, make it firm, and finish the work with a good watering. The young plants will be ready for removal by the end of autumn, when they may be set in flowerpots if the soil is too damp and apt to cause rotting in winter; but if sufficiently dry the layers may remain till

spring, and it will be of use before winter to earth them up, sloping and beating the mould about them so as to throw off the rain.

Although the propagation of this plant by pipings (as the grass shoots taken off and stuck in ground are called) is by no means so sure as the above method, yet of a number some will take root, and as pipings are more easily procured than plants, the experiment may be made. If carried to some distance, steep the slips in water till they swell to their proper size; trim them as above directed, and set them firm into old elastic compost; water plentifully and set over them a handglass, first throwing water on the glass and then earth to darken it, and let it not be stirred for some days, it being found that a deficiency both of light and air promotes the striking of slips—probably on this principle, that the sick, having no appetite, must avoid the exertion which requires food as well as that which food requires.

Dahlia.—This is really a vast acquisition to our gardens; and having come amongst us from the sunnier skies of South America, and suffered much to accommodate itself to our climate, it seems to have gained the affection which highland hearts bore to Prince Charles. For a length of time it blossomed only in October or November—a most unlucky period for the flowering of a plant whose very leaves cannot endure a breath of frost. At first many arts were tried to bring its fine flourish to an earlier perfection: it was set in pots, and forced for a time; or it was planted in gravel to lessen its luxuriance; or the stronger shoots were amputated. But by successive sowings from seed raised in this country, it

has learned to anticipate its disasters by flowering in August; and there are few garden ornaments that present so much beauty for so long a period. The root is as bulky as the largest crab with all its claws, the stalks and blossoms occupy a yard square. This is enough to suggest the rules of planting; but the plant is not the worse of being a little confined—say three feet by two in the rows. Select specimens should be so arranged in the bed as to give diversity and contrast of colour. Single plants at intervals amongst shrubs have a fine effect. A few having only single flowers are worthy of being preserved, but the double may be found in almost infinite variety, and possessed of the utmost beauty of colour and form. Seed yields new varieties, and the plant is also propagated by parting the roots, taking care that each section have a portion of last year's stem; for it is around the foot of the stem that the next bud appears. Plants may also be reared from slips. In May the young shoots are set in flowerpots filled with sand and well rotted manure. The pots must be placed in a covered frame or under a handglass, and must be well shaded and watered, admitting air on the first symptoms of new life. The following is a list of the most celebrated varieties now cultivated:

- Acme—white, edged with crimson.
- Adelaide—white, edged with pink.
- Agrippina—white, tinted with rose.
- Amanda—rosy lilac.
- Apollo—scarlet, with cupped petals.
- Ariel—white and lilac.
- Augusta—shaded purple.
- Black Prince—crimson, with black stripes.
- Bronze—fine form.

- Beauty of Camberwell—rosy lilac.
 Countess of Liverpool—fine scarlet.
 Criterion—white spotted, with lilac—fine.
 Cedo-nulli—yellow, edged with red.
 Clio—primrose, tipped with purple.
 Desdemona—white, edged with pink.
 Donna Maria—rosy crimson.
 Erecta—shaded crimson.
 Enchantress—cream, edged with cherry.
 Emperor-of-yellows.
 Glory—fine scarlet.
 Granta—dark crimson.
 Honourable Mrs. Harris—carmine and white—very
 fine.
 Invincible—dark crimson, with black stripes.
 Iris—dark purple, shaded.
 King-of-dahlias—white, with crimson edge.
 King-of-whites.
 Lady Fitzharris—large—rich crimson.
 Lady Grenville—rosy lilac.
 Lilac-perfection.
 Lord Althorp—dark puce.
 Lord Liverpool—superb purple.
 Magnificent—pink and white.
 Metropolitan-blush—delicate rose.
 Metropolitan-perfection—very dark puce.
 Miss Pelham—fine rose.
 Newick-rival—rose—finely formed.
 Othello—dark puce.
 Peerless-white.
 Perfection—beautiful rose.
 Picta-formosissima—orange, with red stripes.
 Polyphemus—sulphur and lilac.
 Queen-of-dahlias—white, with purple edge.
 Rising-sun—long—scarlet.
 Springfield-rival—purple—finely formed.
 Yellow-perfection—very fine.
 Village-maid—white and pink shaded.

The preservation of the roots during winter is

attended with some trouble, which perhaps some cultivators will not bestow till by a fatal negligence the whole live stock have perished, and either the price of replacing, or the sad privation felt next summer, rouse the mind to the safe but necessary precautions. The first thing is to secure the ripening of the roots. A slight frost blights the foliage and flowers, but it does not follow that the roots afflicted in the vigour of growth are so instantaneously ripened. The potato is allowed to stand after the leaves are gone; and so ought the dahlia for a time, leaving the pith of the stalk, as a sponge, to absorb and exhale the superfluous moisture—whilst the sun helps that process by getting at the ground through defect of the foliage. Wherefore, though the beauty of the flower is gone, nature ought not to be hindered in her work of ripening, that there may be beauty for another year. After the stems are well decayed, they may be cleared away; but the roots are not to be taken up. Having removed the stalks by cutting two or three inches above the ground, let the earth be gathered from both sides over the roots, into the form of a potato drill, and beaten smooth, so as to turn the rain and save from frost. Towards the end of November the roots may be taken up plump and ripe from their dry bed, and shaken clear of mould, like potatoes gathered with clean skins—a good sign of safe keeping. The roots are too succulent to keep well by lying on the floor, as any bruise thus sustained is the commencement of decay; but those that are large and strong agree with suspension from the ceiling of a room inaccessible to frost. But stored in boxes, with alternate

layers of dry sand, barley chaff, sawdust, or the shellings of oats from the mill, they will be as fresh on returning to the soil in spring as when taken up in winter. The last named substance, being kiln-dried, has in a high degree the aptitude of being absorbent and antiseptic, not liable, on drawing moisture from the tubers, to take on and propagate decay. The boxes with their valuable deposit, if the cook be not stormy, cannot be better placed than in the kitchen. The garret will do, but not the stable loft—for the hay is suffocating—nor the damp floor of barn or cellar.

As some of the finest varieties are not prolific of young tubers, to secure their propagation slender shoots from the stems may be taken off early in the season, when three inches long, and planted in pots as above directed. Well tended in summer, they will produce small tubers capable of yielding the finest flowers next year. * This tender offspring may be preserved during winter, either in the pots where they grow—not to be watered however dry, nor exposed to frost—or they may be cleared of mould, and stored like the stronger roots, with a little more delicacy in favour of their youth—as in a drawer of the study, where they may be occasionally seen.

Feathergrass—On account of its curious appearance and extreme resemblance to plumage, is worthy of a particular notice. Being of slow growth from its hard and spiky seeds, it is often lost or destroyed before coming to maturity. This is the sole reason of introducing here a plant which afterwards needs so little care. Sow the seed in a flowerpot, and when the grass has got strong and turfy in the root it may be

safely committed to the border. By the third year it will yield a profusion of feathers.

Hollyhock—Is properly a biennial plant, but may be continued a number of years. In deep soil with shelter it may reach the height of fourteen feet, but half that measure is enough for beauty. The long duration of blossom, the length of stalk in flower at the same time, the richness of the double sorts, and the great variety of colours, render this plant a chief ornament of the garden in the months of autumn. Save the seeds of the best plants and sow in April or May. Thin the young plants, removing the more forward to other ground, in order to get strong short stems, and in the beginning of October plant them out where they are intended to flower. The chief beauty of this family is one that is double and almost black, and this being also the most rare the method of preserving it is worthy of attention. About midsummer cut over by the ground some of the flowering stems, which will cause buds to spring up beneath for next year's flourish. When this will do no longer, perhaps in the fourth or fifth year, take off some buds in autumn, the nearest to the ground that can be got, and extract part of the bark along with the bud. Treat these in the manner of carnation pipings; some of them will take root, and your fine plant will be renovated. The writer has now a specimen reared in this way from seed, and in its eighth year, growing six feet high, and clothed with dark purple.

Hyacinths—Grow best in light sandy earth with manure placed a foot beneath the bulbs. They are planted in September, and a covering of leaves or

tanner's bark well decayed must be applied in winter to protect them from frost. After the flower is decayed, the roots and stems are first partially raised, and then extended on the surface in order to dry gradually. The bulbs, in such numbers as to have any effect, are expensive, and, with whatever care, they degenerate every year from the period of their importation.

Iris—Of which there may be fifty varieties, are all beautiful, and some remarkable for the sweetness of their odour. If placed in a bed it is necessary to arrange their colours, and to choose bulbs which have the same period of flowering. The iris does not love much sun, and the heat of a south wall is to be avoided. If the soil be inclined to clay, mix it with peat earth, but the best thing for a fresh and good blow is decomposed turf from old pasture. No care is necessary in keeping the roots—they may remain in the ground, but for the sake of the soil they should all be taken up, and like tulips they do not suffer by frost though placed in an open box in the garret.

Lychnis—Of which there are many varieties. The scarlet double is one of the finest flowers, and should not be lost sight of. It will keep in good order for many years with no other trouble than that of parting the roots and replanting after the flowering is over, but the surest method is to renew the plant by slips. In July take a number of cuttings, six or seven inches long, of such stems as are not carrying flowers, and insert them, leaving two joints above, in well pulverised earth, and give at first a copious watering. A handglass darkened, as noticed

in the treatment of carnations, will promote the striking of the slips; but they will do if in any way sheltered and shaded.

Lobelia, or *Cardinal-flower*.—That variety called *fulgens* is of the brightest scarlet, and perhaps the brightest colour of the vegetable world. This fine plant is perfectly manageable at moderate elevations. Slips will do as above, but in general plenty of rooted offsets may be procured. Place them in fine earth manured with old compost, and in a spot completely sheltered but open to the sun. Before winter cover up the roots with light short decayed dung, which rake off in spring, when the young buds will be found appearing beneath.

Lily—Of which there are many varieties, but a few of the best are the large common white, growing four or five feet high; (the small white flower, not unfrequently called lily, is a *Narcissus*;) the orange lily, which takes its name from its colour; the fiery lily, which may be known by the bulbs it bears on the stalks; the martagon or Turk's-cap lily, of which there are many sorts, and which are named from the turning in of the petals, presenting the figure of a turban; the tiger; and the crown-imperial. The bulbs are scaly and do not agree with the treatment of hard bulbs. If kept long out of the ground they must be placed in sand to prevent drying. The proper season for planting is September; planted in spring they are apt not to flower that year. But the best rule with all the tribe is to observe when the leaves begin to decay after the season of flowering, and then to take them up, whether to give more room or fresh soil. They are too monstrous for beds and

do best either in single plants or in patches at intervals. The crown-imperial, though not the most showy of lilies, is a grand and elegant flower, and remarkable for its rapid growth at an early period of the spring. At that season of all food it is the most enticing to snails. Being horribly olefiant and juicy, it is probably to their palate what garlic is to a Spaniard. But unfortunately for the plant, being fistular, the snail perforations, resembling those of a flute, admit the air direct to the heart, and death is the consequence. Early in spring scoop out the earth around the stems, and with it the slimy people sleeping beside their banquet. Put a roll of stiff paper round each stem, not tight, and fasten it with a pin; then draw in the earth, leaving the paper two inches higher. The snails do not find their way over.

Marigold—Only to be noticed for this, that the exquisite sorts, African and French, are very frequently sown in vain. See conclusion to the list of annuals.

Narcissus, or *Daffodil*—Of which there are upwards of thirty varieties: the sweet-scented, major, minor, poeticus of various sorts, polyanthus or many-flowered; various sorts of yellow, of which the jonquil, one of the rush-leaved kind, is the sweetest. The fading of the stalks indicates the season for gathering the bulbs—which being not scaly but hard may be dried in the shade and kept till September or October. The rush-leaved sorts seem to like moisture, but that of loam, not clay. In order to have fine flowers the roots must be taken up every two years. Without this care of the finer varieties, the leaves fall down like rank grass, the flowers are few, and the stems weak and sickly.

Pinks—Are much more easily propagated than carnations. It is needless to sow seed except to have plenty of trash. Cuttings or pipings taken from good plants, when they come into flower, grow freely, on being treated in the manner of those taken from carnations. Pinks are divided by florists into classes : namely damask, cobs, and pheasant's-eye. The first are white, and flower early ; the cobs are red, and flower late. The following are the characteristics of a good pink : to be very double, and to open freely without bursting ; to have the petals round like a rose leaf, not ragged in the edge ; to have the body of the flower a clear white, and the lacing, as the colours displayed on the white ground are called, a rich black, shaded towards the centre with red ; a scarlet or purple lacing, being more rare, is also more admired.

Polyanthus.—From long cultivation and the mixture of pollen the varieties of this fine species are without number. There is really something in the rules of critics with regard to flowers. For though the inexperienced would judge differently, yet cultivators come generally to esteem the same properties—a fact which vindicates the rules of criticism in other departments. In the polyanthus the tube of the corolla above the calyx should be short and well filled with anthers ; the circular of a clear yellow, and distinct from the ground colour ; the ground colour shaded with a light and dark crimson, resembling velvet, with one stripe in the centre of each division of the border, distinct from the edging, and terminating in a fine point at the eye ; the petals large flat and round ; the edging, resembling a bright gold lace, should be distinct, not joined to the colours

that mark the petals, but the nearer to the hue of the eye and stripes the better. In raising seeds choose, according to the above properties, the finest flowers and keep them apart from others. Sow in February and transplant in September, in fine beds rather moist and shady. The main thing in subsequent cultivation is to part the roots every year, and transfer the plants to new and well dug ground. Snails must be watched in spring; and if the leaves prematurely wither in summer, it will be found that red-spider or some other insect is at work. Infected plants, in order to save the rest, should be instantly removed—a rule as needful in this case as in plague or cholera; the diseased plants may however be cured by steeping for an hour in a weak decoction of tobacco leaves.

Ranunculus.—This is one of those flowers of which a great number must grow together to give effect to their beauty, as well as to have the advantage of a cultivation which would be troublesome in detached portions. The varieties amount to some hundreds; the colours are brilliant, and when well mingled they dazzle the eye. Each double flower has innumerable petals ranged in a form exactly hemispherical; and when duly cultivated the ranunculus bed will show its nodding golden heads as large as a watch of the ancient form. With less art, the appearance is as poor as possible, presenting many blanks, and here and there a few bachelor's-buttons. Grudge not to trench and sift a sheltered bed to the depth of three or four feet, putting a good layer of old manure at the bottom; for the tubers send their fine fibres to no less depth when they are so

encouraged; and it is by getting deep root, and finding nourishment, that they are beyond the reach of drought and able to expand so large a blossom. It is indispensable to this plant, its fibres being like silk threads, to have a soil not only free but finely pulverised with frost; and to be set as early as the ground can be got dry—namely, in February or March, in order to have its roots well down before the heat of April and May. Plant in small drills, four inches by three, and giving not more than one inch of covering to the tubers. Weeding must be done with the hand. When the foliage withers the roots may be taken up in dry weather, and kept in a box to prevent shriveling.

Rocket—Of which there are two fine varieties, the double white and double purple. They require cultivation, of which they are well worthy, being remarkable in their mingled colours both for showy appearance and sweetness of perfume. If allowed to remain permanently in the ground without transplanting they will certainly die; but by timely transplanting and parting the roots they will last long without a renovation from cuttings. The mode of rearing from slips may be exactly taken from that given in the article *Lychnis*.

Rose—Of which there may be three hundred, or with future care, any number of varieties. For beauty, odour, and long succession, there is nothing in the garden equal to a moderate collection of roses. Every one ought to have a few varieties of the principal species, such as the red rose, exquisite for the simplicity of its beauty; the hundred-leaved; the damask; the provance; the moss, very common as

a double flower—the single is nowhere to be seen; the white moss, also double, and which is becoming now general; the white; the single yellow, serving, the best of all flowers, to indicate an early or late season, as its opening is not gradual, but at once and decisive; the double yellow, which may be tried on an east wall at a medium elevation: it is remarkable for blowing seldom, and for not blowing well above once in a lifetime; hence its excellence both as creating expectation and constituting an era; the Austrian, remarkable for having petals red on one side and orange on the other: it is as yet only found single—a double variety would be splendid; the Scots rose, of many variations; the sweet brier, having double and various coloured flowers; the musk, so named from its odour; the China, and the Indian rose, formerly confined to flowerpots and to the house, now the hardiest and longest flowering; the Ayrshire, remarkable for its rambling growth. As there is no finer object than a rose-tree, some of the more woody species, as the white, the single yellow, the Austrian, or the wild brier, grafted with one of richer flowers, should be allowed to get up and expand its branches. But in general, the finest flowers are obtained by cutting down the young wood every year and keeping the blossom low. A fine effect is produced by laying the branches beneath the ground, and erecting only a few inches of the top, thus covering the parterre with a carpet of rose bloom. What are called rosebaskets are no beauty; but along the side of a walk, a piece of lath rail of invisible green, planted thick with China roses, which blossom all the year, and having along the

top a branch of the Ayrshire rose grafted at intervals, and dropping down all the varieties of rose tint, has an effect not to be described. Young suckers should be removed in October, and set apart, to become good plants. Several sorts, as the China, Indian, and Ayrshire, grow from slips; but the sure way of propagation for all the tribe is to make layers, which, especially of any rare sort, ought not to be neglected, as some are not prolific in offsets, and all old roots cease to yield good flowers. Dig the ground about the roots early in spring or in autumn, if not troubled with wet, in winter; and with hooked pegs, fix the branches of one year's growth three inches below the surface, paring off a little of the bark, or giving the branch a sharp twist at the place where the peg is inserted; then raise the head of the layer, and firm the soil about it. Of such as make roots but slowly, it is proper to continue the layer in its place for two seasons, having it detached from the parent stem one year before removal. By such care no good plant will be lost; and a succession of good flowerbearing trees may be kept for any length of time. To have late flowers, transplant a few bushes in April.

Stockgillyflower, or *Ten-weeks'-stock*.—Though set down in the list of annuals, this is a much finer flower when treated as a biennial. If seed procured from nurseries has been raised in warmer climates, the plants uniformly run to flower too early, and the biennial treatment becomes impracticable. Home-grown seed should be saved in higher situations; in lower, the Brompton stock is more favourable for keeping over winter. In sowing the seed,

attention should be paid to the scarlet sort, which is by far the finest; but the care to have the seed stock in the neighbourhood of a double flower is a mere fancy, as the double yields no pollen. The virtue of being double is accidental, or perhaps the effect of cultivation in a soil more rich than suits the nature of the plant. Sow the seed towards the end of July, or so late, according to the climate, as to avoid shooting for that season. Transfer part of the plants to any spare room in the cauliflower frame, where they will certainly be saved, and afford a most beautiful blow next summer. Part of the plants also may be committed to the open air, some under a north wall and some in the heat and shelter of a south; for in some seasons the one will prove safest, and in some the other. In this way, manage to have a hundred good plants, which set in spring about twice as thick as common greens, and on ground lightly manured and prepared by digging before winter. When flowering begins, observe such as threaten to be single, or of inferior colours, and draw them out, making room for the better sorts, which will thus make a splendid appearance and yield the sweetest perfume for a very long period. By sowing very early in a warm place, a fine blow may be had in autumn. But in the common way of giving this plant the same treatment as other annuals, it is as commonly lost; the flowering comes to nothing the first season, and before seeing another the plant, having begun to shoot, is sure to perish in the frost.

Sunflowers.—Sow the seed in a warm dry border, much earlier than the general sowing of annuals; and when the plants are two inches high, lift with a

trowel and set them out, at wide intervals, along the shrubbery or flower border. In rich earth, the giant sunflower will cover a square yard, and bear twenty or thirty heads of flower; and thus early sown, such as have the best exposure to the sun will perfectly ripen their seeds.

Sweet William, or Bearded Pink.—Sow a good breadth, and there will be a great variety of colours; some remarkably beautiful,—the double purple and rose-coloured varieties are valuable. When a good sort occurs remove it from the rest and save its seed. Though there be no rule as to seeds, yet the better sorts give a better chance. A fine double plant need not be lost for a long period, as it may be propagated either by slips, layers, or offsets from the roots.

Tulips.—Of which there may be a thousand varieties. The early sorts are little cultivated. One of these, a distinct species, is sweet-scented and known by the name of van-thol. It flowers in April. Bulbs of the late kind are to be had at all prices, from five shillings per hundred to five guineas per bulb. Prices have been infinitely higher in the days, not of finer flowers, but of tulip mania. The properties of a fine tulip are, a strong stem two feet high, the flower large, with six petals opening at the base almost horizontally, and forming a cup only a little wider at the brim than at the bottom; the three outer petals broader at the base than the three inner ones; all the petals entire at the edges, broad at the top and well rounded; the ground colour at the bottom of the cup, clear white or yellow, and free of stain or tinge; and the various rich stripes, which constitute the chief ornament, should be regular,

bold, and distinct on the margin, terminating in broken points elegantly feathered or pencilled. It is remarkable that in Turkey and Persia, of which countries the tulip is a native, the flower is principally of a red colour, whilst each petal has a black spot at the bottom, and that this is nearly the description of the worst appearance which, according to florists, a tulip can present; from which it may be judged what cultivation can do; for there can be no doubt, that without ever having seen any of the technical rules, the most inexperienced eye would prefer the finer tulips now reared to those blackhearted natives of the east. If the soil be moderately rich, no manure should be added; if too poor, only old compost should be applied; for any sort of rank and recent dung has the effect of deforming the figure, confounding the colours, and destroying the fine feathering of the stripes in which the chief beauty consists. In planting, which is best done in October, rake off the earth from the bed both ways to the depth of three inches; set the bulbs apart nine inches by six, taking care to place on the middle of the bed the larger, which can bear a deeper covering of earth; replace that soil which has been raked off, and add from a furrow on each side as much as to give a little elevation to the middle of the bed, for the sake of dryness and to cover all the bulbs from four to six inches deep. Tulips require no watering. As soon as the flowers have decayed, remove the seed pods; and when the foliage withers take up the roots.

Wallflower.—Having sown pretty largely, and obtained some fine specimens of very dark flowers,

with broad petals, get all others out of the garden, and plenty of good seedling plants, self-sown, will be annually obtained. But to insure a succession of the best breed, (and the method applies to the double flowering, which yields no seed, and cannot otherwise be preserved,) about the beginning of July pinch off a hundred slips or young shoots of five or six inches in length, taken only from the finest stocks; crop the leaves and strip the rest of the stem bare; dibble the slips, so prepared, into a bed newly dug, and shaded by trees or a north wall. Sprinkle them with water and shade any part to which the sun has access. Not one will go back; and in this way a bountiful profusion of one of the sweetest flowers, and the best of its kind, may be had from year to year.

For the critical description of certain flowers, and some other items not familiar to his experience, the author has made use of the excellent article, *Horticulture*, of the Edinburgh Encyclopedia.

APPENDIX.

GARDEN-BOOKS commonly terminate in a description of garden-tools; and something indeed, as to the best means of accomplishing the end their authors have in view, may very naturally be expected. But as the dealers in tools, as well as others in trade, are usually quicksighted enough to discover what sorts have the readiest sale, and as that sale soon comes to progress in the ratio of merit, the writer of the previous treatise is quite satisfied with the market as it is, together with the law which, without checking the multiplicity of inventions, circulates only the best. Instead therefore of describing the shape, size, or otherwise improved construction of spades, rakes, mattocks, and mousetraps, he proceeds to consider only one implement of the manse garden, and which truly needs no little attention to its proper use and amendment—namely, the minister's boy.

In former years the minister's man was a functionary of some note in the parish; but whether of late servants have risen in rank, or ministers fallen, certain it is that the minister's man has now very generally dwindled to a boy. It may be however that a better economy, without supposing either a rise or fall in the rank of either, may account for the change. Descending from feudal times, when ser-

vants did nothing but kill and steal as they were bid, we find their wicked, and in the long run ungainful employments, substituted by a system of field labour, which for a long period had indeed its busy seasons—those of sowing and reaping, of collecting hay and fuel—with comparative idleness all the rest of the year. But now the dead of winter has less of leisure than the stirring summer had then; and the farm, more like a factory, finds work for all hands at all times. The fields, it is true, differ from the factory as to the matter of a roof for shelter; but the genius of the farmer compensates the deficiency by suiting the work to the weather; and the gleeful toil goes on as steady as in a house full of spindles and cards. Such an arrangement, if it do not cheapen provisions, must raise the rent of land as well as the labourer's hire; and hence, as an idle day is now rare upon the farm, so an idle man, whether about the farm or the manse, becomes a nuisance to be no longer tolerated.

But a man with a pair of horses is equal to the task of cultivating seventy or eighty acres, whereas the glebe, consisting only of twelve, may have nine under the plough; and whilst the expense of such an equipment cannot be less than seventy or eighty pounds per annum, the whole proceeds of the glebe crops will probably not do more than cover half that sum. And if to diminish the cost of management only one horse is kept, then is the power inadequate to the plough, and the next resource is a good neighbour, possessed in like manner of a little farm and a solitary beast. But the neighbour is not long good in a ticklish time—when the dust is on the harrow and the turnip seed has the promise of a shower.

Another expedient is to keep two horses, and rent fifty acres to be wrought along with the glebe. But then, alas! no work is ever right, whether as to *time* or *place* or *quantity*, without the constant eye of the master; and the result is one of two—the minister either sinks his calling, or loses his substance and becomes bankrupt. Such disasters, whether from neighbourly quarrels or ruined affairs, have led to the better resort of letting the glebe or of hiring a plough; and hence the man is no longer a necessary appendage to the manse. But the minister is not fit for the parish without a pony, and the pony cannot be kept without a boy, who will be *half* and consequently wholly idle if he have not other work to do:—Such is the garden implement now under consideration.

Whatever may be the outcry as to the uselessness of this official, let it be remembered, in the first instance, that he is indispensable to the pony, as the pony is to the minister; and further, that he is, if an idle boy, a substitute for an idle man—a spectacle less easy to be looked at. And as an encouragement to choose the least of two evils, the author avers, that the boy under proper direction is fully equal to all the work of the garden, with the exception of three or four days in the year, when better hands, whether as to strength or skill, may be required to lay up a winter furrow of deep digging, or to train a fruit tree round the stalk of a chimney—a height too great, it may be, for the minister's nerve, and perhaps for the decencies of his calling. This sufficiency of the boy, however, presupposes on the part of his master the possession of "My Book,"

together with such work of his own hand as, giving health to his frame, shall be found also a pleasure to his heart. But it is further to be understood, that the following directions, with regard to the improvement and use of the boy, are made some matter both of care and of conscience.

In general boys are plagues. Something above what is usually denominated an urchin, and beneath a varlet, they are of the most impracticable age—an age when wit is the weakest and will is the strongest—when independence, as an end, is desired the most, and character, as means, regarded the least. They have escaped from school at a time when, conscious of strength, they began to despise the master of a lowly seminary; and the parental authority to which they are required to submit is rarely good. The father being himself a servant, his children, by an instinct that needs to be amended, fail of respect; and he, most of his waking hours abroad, can do but little with the authority he has; whilst the mother, not careful of training at an early day, and used to the issue of uncertain commands, has recourse to persuasions or condescends to entreaty. Boys so reared come home, as their instalment to office is termed; and though at first shy and dumb as a sheep, yet no sooner has a small command by a superior servant been imposed than it provokes a loud defiance, so naturally, in their new yoke, do they slide into the wonted rut of their ill made roads. Trained to no habits of industry, they like no sort of work. Their pleasure lies in idle companions; and their haunt is not yet the tavern, but the smithy, where they may spend the long hours in bartering a knife, in arrang-

ing a gallop, or marveling at a gun-lock, with longing eye to the possession, but with no liking to the labour that might purchase the manly toy.

So constituted, a boy cannot fall into worse hands than those of the minister, or enter upon work he is more reluctant to than his. On the farm the crack of the whip is music to his ear; the assemblage of labourers, the jibe, and the jest, have the liveliness of a camp; whilst the yoking and unyoking of horses, the plunging of one unbroken to the yoke, and the upsetting of a cart, are a perfect Waterloo to his soul; and being there under authority, he is also surrounded with examples, which rouse his ambition, or soothe the toils of the day. But the scene is different at the manse: the boy works alone, if he work at all; he is depressed by solitude, and the eye of his master is seldom upon him; he hates his task, and spends his time in thinking which of a thousand lies will serve the best for an excuse. It ought to be a serious consideration with ministers, that boys, bringing to the manse the seeds of corruption, should find there the best soil on which to sow them, and the best leisure for tending their growth. And this they will do if not narrowly watched, and submitted to a treatment answerable to their nature; and freely it may be asserted, that neither catechising, nor reading the Bible, nor family prayer, will ever produce the least salutary effect, if idleness be allowed and lies go unpunished. Let the reflection be added, that as six months are the probable period of an ill-doer's service, it may happen that the minister, in the course of his life, has sent out to the world half a hundred youths, who at the manse have been en-

dured merely as useless, but have gone somewhere to be endured as blackguards; whilst it may not be so certain that, of all that number, one convert has been made in all that time.

The author claims the privilege of one old in experience; and begs leave to offer to his younger brethren some hints as to the methods of making the boy good, and of turning his service to good account.

Let the chance be favourable. Never hire a boy at the market, as farmers may, who can do better with a bad one. Treat with the parents in presence of the boy—that you may know whether they would encourage him to run home—whether they abhor lying and swearing—and whether they have been at pains to bestow some moral training on their children. The remembrance of such a conference, to which an appeal may be made, is never lost in the giving of subsequent admonitions. Have nothing to do with one that has been at no sort of work before; for, except the worst of idlers, all have been doing something, such as herding cows or hoeing turnips, before they have grown fit for taking care of a horse. Unless well recommended, rather have one from a country place than from a town or village, especially the neighbourhood of an inn-stable. Lose no good chance for a slight difference of wages; for what are a few shillings in the year in comparison of killing a horse, or any sort of annoyance which is repeated every day?

Make great use of the law of kindness: a boy should not feel on his first outset, that on leaving home he is without a friend. Fail not to instruct

him in the fear of God. Appear thus in the character of a guardian, not of a taskmaster: he has no way of avoiding the impression that your admonitions are solely for his good, and when spoken kindly and earnestly, they fail not to reach his heart; whereas his ill taught selfish spirit always suspects a selfish end in the issue of every precept that concerns only the quality or the amount of his working. Angry threats provoke hatred and tempt to lying; but gentleness, urging the necessity of truth, will lead to the owning of a fault. It is a capital rule never to charge your boy with any crime without making sure of conviction. If you have begun the charge, spare no pains to make the conviction complete; for if you fail in this, and the accused be really guilty, you have, designing good, done incalculable harm: you have strengthened, all the time of examination, his hardihood of denial; you have allowed his lies to pass off triumphant; and have increased at once his sulkiness, self-esteem, and hatred of your person. But the moment that proof comes home and conviction is wrought, shame and perhaps tears show the good that has been gained, and give hope of future amendment.

Make your boy to understand that you want diligence, not hard work; and indeed compassion ought always to be had for a frame that is but little matured. It is of great use to know what it is reasonable to expect of such an age. A boy at fourteen is not equal to more than one fourth of a man's work at any thing heavy; but in lighter tasks, such as picking up stones and weeds, he may be equal to a half. Give him all the benefit of the common

rules:—a full hour of rest twice within the ordinary period of labour; and if you have a message to any considerable distance, let the requisite time be taken from the working hours. This adds greatly to willingness, which, if it be gained, will make all right; for the physical powers are quite adequate to all that you want; the difficulty is to enlist the moral powers; and with regard to these there is as often a mistake on the part of the master as there is a failure on the part of the servant. Your boy wants to go home to see his parents; and his idea is that you cannot grudge him the Sabbath for that purpose. But give him rather any other day. He will be surprised that you do not value his work so much as you do his morals; he will carry, by his visit, a lesson to his brothers and sisters—it may be to his parents also; and whilst you prevent as much Sabbath profanation as might spoil a whole week's instructions, you are effectually making more useful hands by providing first for a better heart.

The want of something to do in leisure hours is a perpetual cause of running to idle companions. The poor boy has learned to read; but it is only in the best schools, and of late years, that children have discovered any connection between the words of a book and the ideas which they are meant to convey; and the probability is that your boy has never read a page either for his instruction or amusement. To what a flood of light might his mind be at once opened by giving him a little book, and requiring him to tell what he had read of. He has learned to write and do accounts by rote, but has no notion of the use of either. The gift of a few sheets of paper and

a slate, with as much intelligence as might be communicated in half an hour, might, by exercising his mental faculties, attach him to his abode, save him from bad company, and prevent the annoyance (of ridiculous frequency in all like cases) of not knowing where to find your boy when a friend arrives on horseback.

Of petty faults stealing fruit is likely to be one, as the opportunities are many. In the heat of the sun make your boy lay down his hoe, and refresh himself at the fountain of gooseberries. I have never seen any other effect of this than greater modesty and better work. Give liberty as to this fruit, the best of all, and which it is easy to have as plentiful as an ocean. Tell your little man that you will give him other fruits when ripe, but that he must not take with his own hand, as all theft is bad to the value of a pin; and your word of kindness, together with the word of God's law, will do far more than spring-guns or man-traps.

A further rule of moral discipline, and one most essential, is to provide for working hours a constancy of work, and so arranged that the boy may know at all times what he has to do. This alters the natural current of his ideas, and cuts off at once a perpetual fountain of falsehoods. The great object of the youngster is to get done and away; but he sees by this plan, that it is of no use to do a thing ill in order to have it soon over; and he is afraid to run off to idlers, for the ready excuse of not knowing what to do will in no case serve. The most unmanageable part of his duty is that of going messages. Two or three that might occupy as many half hours are sufficient to consume the day; new

attractions are formed, whilst old ones, as with a re-touch of the magnet, are refreshed; and there is no willing return to work after a conversation. To mitigate an evil which cannot be prevented, let the missions of the unfittest person about the house be few—not on the spur of the moment, and at the bidding of every body—otherwise the solid day, broken in pieces, is thrown away like the fragments of a jar not fit to be mended, but for such loved excursions allot such hours as are followed by a better inducement to return than that which the spade presents. All house work will be found bad for the boy; though trifling as to time, such jobs are great as to pretence, and all out-of-doors work is by them rendered nugatory. Get up early some mornings, and see the stable duties sufficiently well done; mark the time that may be requisite; make a liberal allowance for less activity in your absence, and point out the allowance; then fix the hour at which the garden work must commence, and see that the hour is exactly observed, though the work of the broom should be left unfinished. This neglect may be noticed at the breakfast hour of rest. There is no harshness in this, but merely what is felt to be just; and such strictness is essential to moral discipline; for what is neglect or idleness but a species of theft? The reasonableness of this even a stubborn youth cannot resist, and he will be brought by a little patience to see that regularity is a saving to himself, and a little perseverance on your part will add to the value of his discovery the force of a habit.

But if you would have reason and conscience to rule, avoid every thing that is not reasonable.

Show no passion; for that always makes the youth think that, whilst you profess to aim at mending his conscience, your zeal is to make the most of his labours. Avoid bad names, lest you appear in his eyes to forget what he has read about "Raca" and "Thou fool," and never threaten dismissal without a true purpose to effect it should the offence for which it is threatened be again repeated. If dismissal be spoken of lightly, it is of none effect; and if not put in force after a serious declaration, good cause is given for casting off the respect that is due to your word. It may be, too, that the boy, not daring to run home of his own accord, desires nothing so much as to be sent away, in which case a threat to that effect is the best sound he can hear, and a strong inducement to do worse—resting as he does in this, that he can contrive what to say for himself when he gets to the ear of his mother. But as compassion is due to one of so little discretion that in the eye of the law he is not held fit to conduct his own affairs, and whose bread yet depends on the character he attains, it is the most humane as it will prove the most successful method of dealing with him, to explain before one or more of his fellow-servants the loss which, in his early career, he must suffer by a dismissal from his place; and to assure him that you will not inflict so much grief on his parents, without first sending for them, in order to make known his faults, and to try the effect of their admonitions on his subsequent behaviour.

The above observations, the author is persuaded, will not be judged unworthy either of a place or of perusal, when the frequency of their use and the

importance of their objects are duly considered ; and though they are merely superficial and of the readiest occurrence to all, yet the fact is, that no one cares for adverting to them, till the circumstances which call them forth prove that they ought to have been known before, and till the mischiefs which such observations might have prevented stand in the room of those advantages which the earlier application of them might have secured.

Next to the means of improving the boy, a few things may be said to the effect of rendering his work sufficient so far as it goes. It is a fact, that being well disposed, he will, by a few lessons, rightly given, be perfectly fit for all plain garden work without further superintendence ; whilst at nicer jobs under your own eye, his nimble and willing hands will afford sufficient help, and add pleasure to your occupation. But then it is as true that the simplest things, without suitable directions, will be entirely bungled. Thus, if weeding be ordered, the result will be more of the nature of grazing than of extirpation ; or if a piece of digging be required, the spade will be set at such an angle as suits the work of a shovel, and the surface will present a series of undulations, which on a large scale are beautiful in the lawn, but not in their diminished proportions on the small field of a strawberry plantation ; and should the rake be applied to reduce the inequalities it will discover the dock and the de-nettle, transplanted, not with ceremony indeed, but so that those roots, like the outcasts of society, though ill used are yet willing to live and to dwell in the land—and before they can be extracted the rake brings to light more of a ver-

dant deposit, of which the attempt to pull all out is like the spinning of a rope—an operation that is without end; or if hoeing be the work to which the youth is applied, the soil, it will be found, is rather scraped than stirred; and the weeds, replanted with the foot, only look sick till they are visited with a shower.

Let the lessons be one at a time and amazingly simple. As to cleaning a piece of ground previous to digging, teach so much of the botany of three or four of the worst weeds as that each may be known in a crowd or at any distance. Let it be a rule that these are to be taken up as carefully as a crop of beet and laid aside, that it may be seen how little injury they have suffered in the act of up-rooting. The ground being thus cleared, let it be understood that digging means lifting earth to the depth of fifteen inches and laying it upside down—the common substitute for which is a mere disordering of the same surface that was uppermost before; hence the wetness and coldness of soil, the late sowing and little reaping, together with the waste of manure, which occur in the gardens of the peasantry—a loss sustained through life for the want of a single lesson. To secure good digging, see that a furrow or trench of the specified depth be opened on the one side of the plot to be dug, and the stuff wheeled to the other. Let this furrow be two feet wide and cut straight down, and let the boy understand that when it is filled in the process of digging he must leave another as wide and as deep, and maintain such openness of trench all the way through the plot. Point out the different colours of the soil that comes up, and show that his work, if rightly done, will all the

way present the same appearance. If such a colour is exhibited, the depth is good, the annual weeds fall, of course, to occupy the lowest place, and neither the rake nor the genial sun will bring them to light any more. The manure is by this means also duly deposited, and not wasted by frost and evaporation.

In all cases where not much may be trusted to discretion, the only thing is a rule which has no relative terms, such as "well or ill done," but which, being exactly understood, may be as exactly fulfilled. Such may be applied to hoeing and cleaning as well as to digging the ground. Let the hoe be inserted the full breadth and pass in regular furrows beneath the roots of weeds; let one basket be used for gathering stones and another for weeds; let the rake follow, and prove the exactness of the rule by leaving nothing but red earth, and the crop if there be one. The youngster cannot avoid taking pleasure in work that is so executed—a secret of his nature that he would never have found out if left to himself; because he would never aim at the perfection on the sight of which the pleasure depends, but would work slovenly, hating the labour as well as the look of what he leaves behind.

The wire riddle makes a rule for itself, and is admirable for giving exactness of idea to the worker as well as of finish to his work. You want a piece of ground made fit for small seeds, and you give orders to have it well cleared of stones. But your words do not convey your idea—the boy takes his notions from a clover field. Show him the riddle, and say that the soil to a given depth must pass through its wires. They have no latitudinarian

notions, and your boy so furnished is as perfect a workman as the first in a palace garden. The work is a masterpiece, and never did hand of thrifty wife print with more pleasure her store of newmade meal than you will a mould of such aptitude, whether for receiving the fine fibres of a flower or the fairy beads of the amaranth. At such a work your boy is a treasure; you have him at any rate, and the work, though slow, is sweet to the eye when done; but it might lose some of its sweetness on settling accounts with other hands at the rate of two shillings per day.

I shall notice little more than one other sort of work, to exemplify the methods of turning your boy's hands to good account. I allude to one which he can do perfectly—which will never fail in supplying fair weather employment, and by the perseverance of which the manse garden will show the best crops in the parish. Let no prejudice as to inadequacy of strength prove a hinderance. Nothing but ignorance of the spade and of muscular exertion can make the name of trenching sound harsh as work for a boy. The work is in fact as easy as any other: severity lies in quantity, not in kind. A man to make two shillings must trench twentyfour square yards; and if your boy do one fourth of that number, neither is he overwrought nor do you keep him for nothing; and even at this lowly rate it is surprising—so little do we notice the progress of time—how great the amount will appear after a long period! Supposing you have a trench opened, and the work proceeds, the progress, though marked by small additions, is still an object in dreary winter. But a snowfall has shut all up, and yet the sky is delightfully serene. For

want of management in such a season, your boy, having nothing to do, would certainly be off, spending his pence on gunpowder, and joining a group of rascals about the hedges, idly shooting at birds—swearing either at a hit or miss—and contracting an intolerable itch for a life of poaching, and hence of drams, to be had by the easy won price of a pheasant, or, failing that, by other acts of theft. Keep your boy from such associates, as you have to answer for his soul. Let the snow be no hinderance to his work. Desire him to cut for you a road to the trench, as you may wish to walk that way; and it will serve to keep his own feet dry and make his work look comfortable. The removal of the feathery load from road and trench is not the labour of an hour; and when you look at the red earth rising above the snow, and visited by the robin—at the clear sky, and highways unfit for riding or walking—at the dry and broken subsoil thirsting for the riddle—it is scarcely possible, in the bracing air, to resist the temptation of pick or shovel, one of which is sure to be at leisure; and surely worse might be done than to spend in such a way one or more such hours.

There is a peculiarity of the boy's age which ought not to be overlooked. He approaches manhood, and is ambitious of the various working implements that are proper to a man—the hedgebill, the scythe, the saw, or the joiner's plane; and as he thus has the willingness, certain it is, if you have the tools and can show their use, he will on a few trials do tolerably well with them all; with the sythe, not for a hay crop, but a handful of grass; or in hard weather, if restricted to the upward cut, he may prune a hedge;

or, besides preparing firewood, he will dress with a plane the pieces of an upright paling, which take long time, but need no fineness of polish. Should your boy grow an adept, a little rise of wages, well bestowed, may keep him for another year; but the probability is that shortly after you have made him useful, he is off to farm service or some trade. But the better he is, you are the surer of another as good. His fame is in your favour; and your patience with a novice, as well as your art of instruction, remain. Character, whether of master or of servant, is like volatile salt; and term-days are but the stir that makes the odour diffusive. There is no narrower view of life than to suppose that any thing good or bad, however trifling, is unnoticed. Every thing that every man does or says is known, is talked of, is commented upon, far and wide; and characters made up of grains of sand and some larger pieces stand out in the landscape of the district, as distinctly seen and rated, to a degree, as all manner of buildings, from a hovel to a tower. Mothers have more boys to dispose of, and have seen how others fared with you—their station as well as their morals improved, and their service sought; they come with a younger brother of your former boy, or with one somehow connected, and to whom every thing about your place is as well known as to your own family. Such a one is predisposed to do well, and comes to his service with a mind suited to the circumstances of his calling; ambitious to thrive, and fearing to come short of those who have done well before. Thus on the true principle, that if comfort, not necessity, be considered, masters are no more indepen-

dent than servants, you insure the receiving by the conferring of benefits; and it will certainly be found that none of your pains and patience with a former boy are lost by his departure; for the good that he has gained holds out a reward; your instructions, through him, are conveyed to others; and your house becomes a place which the worthless will shun and the well doing will covet. And thus, whilst your art of training improves, you have in fact less to do with it; your temper, tried by fewer mischiefs, will be soothed by the sight of good order and willing service; and conscience, instead of being galled by the thought of sending half yearly from the manse a pest to society, will be gratified by the hope of making a succession of youths more fit for the world, and more likely to see the kingdom of heaven.

THE END.

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