

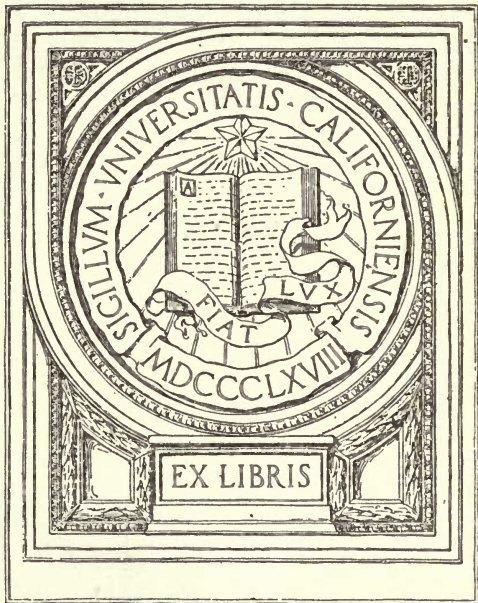
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LOWE'S COMPANION

FOR THE TRAVELLER

BY
JAMES W. LITTLE

AND
EDWARD JAYERS

THIRD EDITION

NEW YORK: PUBLISHED BY
J. W. LITTLE & CO., 150 NASSAU ST.
1846.



THE

AMERICAN
FLOWER GARDEN COMPANION.

REVISED AND ENLARGED.

"Who loves a garden, loves a green-house too,
Unconscious of a less propitious clime,
There blooms exotic beauty, warm and snug,
While the winds whistle, and the snows descend."

BY EDWARD SAYERS,
LANDSCAPE AND ORNAMENTAL GARDENER, AUTHOR OF THE
AMERICAN FRUIT GARDEN COMPANION, &c.

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TO THE
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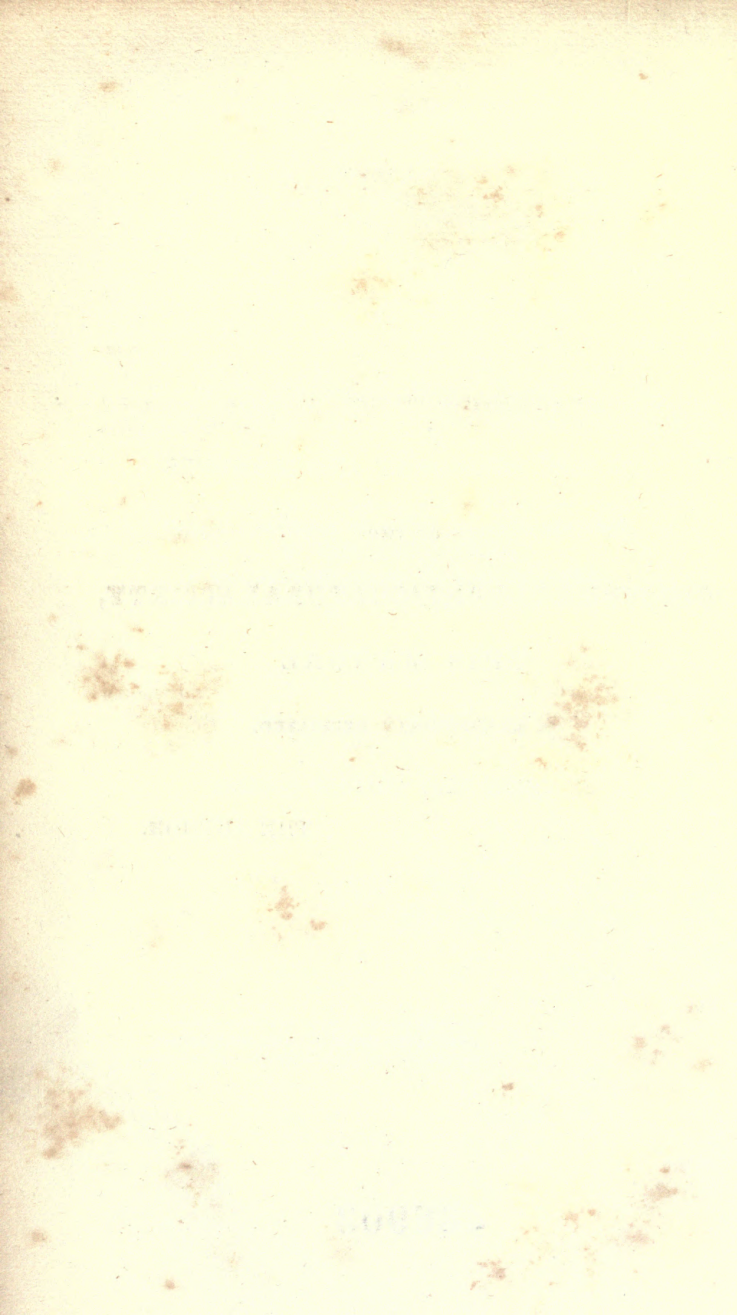
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STEREOTYPED BY J. A. JAMES, CINCINNATI.

TO THE PRESIDENT AND MEMBERS
OF THE
CINCINNATI HORTICULTURAL SOCIETY,
THIS MANUAL
IS RESPECTFULLY DEDICATED,
BY THEIR VERY OBLIGED FRIEND,
THE AUTHOR.

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INTRODUCTION.

THE first and second editions of the "*Flower Garden Companion*" having received a liberal patronage, will be a sufficient apology for the appearance of the present edition, in an enlarged form, although not materially different in its arrangement. The present object, as heretofore, of the "*Flower Garden Companion*," is to aid those persons who are desirous of becoming acquainted with the culture of flowers. In its compilation, the aim has been to give, within the compass of a convenient manual for reference, as much useful matter as possible relative to the subject. To this end, each topic has been separately treated, and in as concise a manner as could be done with propriety; and, indeed, in some cases, with a degree of brevity that on the first reading, to the young practitioner may produce a feeling of disappointment, at the apparent deficiency of information; but on a careful reading of the different articles, it will be found that everything useful (*in so small a treatise*) has been spoken of, and that, in many instances, one article acts as a key to another.

In the outset, directions are given for laying out flower gardens. In treating on this subject, I have confined myself to the general outline, without entering into minute details, which depend very much upon location and circumstances, as well as upon the taste and means of the proprietor.

To the culture of plants and shrubs, descriptive lists have been appended, giving the color, height, and time of flowering, of such varieties as have been found to be best adapted to the American flower garden. It must be here recollected, that location and the different treatment plants receive, will have great influence on the color, height, and time of flowering, which I have set down on a medium scale. In this place, it may be proper to remark, that the design of the present manual is to assist the farmer, the mechanic, and the amateur, in the general culture of flowers, and especially in the culture of *native* American plants, which are not only the

most beautiful, but also the most appropriate to this climate, and are of easy cultivation; combining such methods of practice from foreign horticulture as are adapted to this climate.

The management and culture of green-house plants, and plants in rooms, being so intimately connected with the flower garden, I have devoted a considerable space to that subject. Directions are given for the treatment of the different families of green-house plants, as the *Camellia*, *Erica*, *Geranium*, &c., with descriptive lists of the most approved varieties subjoined.

The shrubbery, and the planting of ornamental plantations, have also been treated on, although not so extensively as the subject might demand in a more enlarged work on ornamental plantations, which are now beginning to be properly appreciated in most parts of the Union. To those who are improving estates in the west, I recommend a work lately published by me, entitled "A Manual on the Cultivation of Live Fences and Ornamental Plantations," which will be found to be a good accompaniment to the "Companion."

With these remarks, I must take leave of the subject, referring the reader to the Table of Contents for the different matters treated on,—at the same time tendering my sincere thanks to several practical gardeners and amateurs for their kind assistance in preparing the list of plants, and for several useful hints for this treatise, hoping it may have a tendency to throw some light on the culture of the flower garden; and if it have any influence on the impulse already manifest in the culture of flowers, my earnest desire will be fully answered.

E. S.

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PART I.

ARRANGEMENT OF THE FLOWER GARDEN, AND PROPAGATION OF PLANTS.

CHAPTER I.

On Laying out the Flower Garden.

ART. 1.—General Remarks.

THE principal object of the “Flower garden” being to please the eye, it should in every department have a clean and healthy appearance, which greatly facilitates the health and growth of the plants and flowers that it contains.

The situation should be so selected, that all the kinds of plants are, as near as possible, accommodated to their natural location, which, by general observation, will be found to be of a more varied nature than can in any given spot be combined to suit the health and growth of such plants as are placed in the flower garden: hence the propriety of selecting a soil, that will suit most kinds; and in some cases, a proper soil, to suit those plants that will not thrive without their *peculiar* earth to support them.

A knowledge of these requisites, is, in a great measure, the leading principle of what is called flower-gardening; although in many cases, the mere act of culture is the only object in view, which has but little weight on the subject; for we can observe wild flowers growing luxuriantly in their natural state, without any other assistance than the hand of nature.

For a definition of the different modes and management of flowers, I refer the reader to their respective heads.

ART. 2.—Laying out the Flower Garden and Planting.

It is difficult to give a correct method, for laying out flower gardens, owing to the diversified opinions of different persons, which are much at variance with each other. Some say that nature should be copied, as much as possible; others contend that formal lines and geometrical figures, such as circles, ovals, &c., are best.

The extent and location of the ground, and the varieties of plants which are to be cultivated, are the principal points to be considered in the laying out of flower gardens; these, with a few general rules, may guide almost any intelligent person to perform the work with good taste and propriety.

In small pieces of flat ground, intended for fancy flowers of low growth and habit, the geometrical order may be very consistently followed, as, the space of ground being small, a *regular* varied order is the most pleasing. In laying out such parterres, the ground should not be too much cut up into small walks and beds; but they should be in number and size in proportion to the size of the plat of ground to be planted. Regard should be always had to have a well proportioned central bed, either of an oval, circular, or other appropriate figure; from this other uniform beds may emanate, in proportion, in a geometrical order. The walks of such beds should be from two to three feet wide, and the beds may be double the width across, in the centre, as that of the walks. A good criterion is, that in a small flower garden the beds should be no wider than a person can reach into the centre, from the walk, to cut the flowers, without treading upon the beds.

Where the ground is intended to be planted with annual flowers *only*, or especially for the culture of bulbous rooted plants, as hyacinths, tulips, and hardy bulbs, it may be laid out into four feet beds, with two feet alleys or walks.

At country residences, where a large extent is appropriated to this department, many convenient and pleasing appendages can be judiciously introduced; as rustic arbors, rustic seats,

and rockery; and if water can be connected, it always gives a good effect. All such appendages, I recommend to be constructed in as natural a manner as possible.

The arbors should be covered with vines and creepers, and their form not be discovered until the person who is desirous to rest, after viewing the flowers in the other departments, happens to stroll into them by an easy walk: all such places should be constructed in the shade, for retirement, and not on a rocky eminence, under the influence of the burning sun, unless a fine landscape is to be seen from them, and then an observatory is more proper.

In many cases, the flower garden will have a pleasing appearance, when various figures are cut in a well kept grass plat, where ease should invariably be attended to.

Many improvements of this kind may be made with a trifling expense, on large grass plats, especially in front of country residences, by the road side, by making a few judicious figures, and planting them with separate families of plants. A dozen varieties of any of the pretty kinds of monthly roses, are fine specimens for this mode of ornamenting, which will continue in flower during the season; several families of perennial herbaceous plants, as the beautiful genus of *Phlox*, *Penstemons*, and the like, are also desirable plants for this purpose; and to these may be added, the hardy bulbous rooted plants, as the tulip, the hyacinth, and lilies, which are too much neglected in the flower garden, for early flowering plants. When the bulbs have done flowering, these beds may be judiciously planted with annual flowers, to flower in the fall, as the pretty kinds of balsam, *Petunia Phlox Drummondii*, dwarf larkspur, or any pretty kinds. For a selection of the best adapted plants for this purpose, I refer the reader to the Descriptive List of the different varieties of plants which will be found under their different heads.

In laying out flower gardens, great care should always be taken, that there is a regular proportion of the beds and walks in the different departments; for it will have a bad effect if

any thing is cramped. The walks should, if possible, be wide enough for two persons to walk abreast, in order to give a social effect, which should always be the first consideration in the flower garden. The beds should also be well proportioned, and not too much cut up into small figures, which, when bordered with box edging, have the appearance of so many figures formed for the amusement of children, more than for the purpose of growing flowers. There is also another great error sustained in this method, namely, the edging will retard the growth of the flowers by being close to them; for, indeed, there is nothing that so much exhausts the soil of nutriment, as box edging.

Every department should have an open, easy appearance, and regular proportion.

I must also beg leave to caution my readers against the very improper method often practised of planting fruit trees in the flower borders and among shrubs:—the impropriety is very evident, if we take into consideration that many of the flowers must eventually be spoiled in gathering the fruit; besides the inducements presented for children to injure the flowers, when in the act of robbing the trees of their fruit.

If fruit is to be planted, a proper place should be selected; it should never be mingled among shrubs and flowers; unless the ornamental kinds, as the Siberian crab, Weeping cherry, and the like; and those have a better effect as a single ornamental object.

ART. 3.—Soil and Materials.

The soil best adapted for the flower garden is a *mellow loam* incorporated with some rotten manure, and a portion of dry sand, with a dry, mellow subsoil.

A part of the ground should also be of a *boggy nature*, composed of black earth and decayed leaves, in a low situation, for the accommodation of such plants as grow in a boggy soil; which are, *Lobelias*, *Iris*, and the like.

The other materials are, gravel for walks, which should be

coarse for the bottoms, to drain off the water from the surface, and fine gravel for the top, in order that the walk may bind hard. Stones for the rockery should be of the roughest kind, that nature may be as much as possible imitated; and the arbors and trellises, and the like, should be of the most simple construction.

ART. 4.—General Planting of Shrubs and Flowers.

The best time for planting shrubs and flowers is in the spring, when the sap is beginning to rise. This generally happens in the month of April, and is, perhaps, the best time for performing such business.

In many cases, planting may be very judiciously and economically done in the fall, especially on dry ground, and where hasty improvements are to be made: much work will thus be forwarded before the coming spring.

The manner of planting may be simply stated in a few words, combining trees, shrubs and flowers. As almost every species of plants have a conjunction of their roots, a few inches under the earth's surface, which, if I may be allowed the term, I will consider as the *crown of the roots*; let this be the criterion of planting, that the above mentioned part be placed a few inches below the surface, and not too deep, which, in many cases, destroys the plants, particularly those that do not freely root from the foot, or the base of the stem, when their natural roots are destroyed by being placed in a situation injurious to them.

The proper manner of planting, or act of inserting the roots, so as to insure the growth of the plants, is simply to observe the nature of the fibrous roots and place them in their natural position in the soil.

Those plants that extend their roots far around the crown or centre, require a hole made to accommodate them, without cramping their roots; others that root downward in a perpendicular manner, as the Pæony, and tuberous roots, and most

kinds of bulbs, should be planted so that the roots find their way into deep, rich soil.

In the act of planting, place the crown of the roots an inch or two deep, and close the fine earth well about the fibres, with either the hand or foot, observing well the nature of the roots: and if the ground is very dry in the spring, give a quantity of water to settle the earth about them.

ART. 5.—Location or Position of Plants.

Plants in their natural state have their peculiar location: it is also requisite to see them in perfection, to place them in similar locations, under the hand of the cultivator: hence, running vines, such as *Honeysuckles*, *Clematis*, *Bignonias*, and so on, are most proper for covering arbors and trellises; Ivy and Virginian creepers for walls; tall shrubs for concealing old boarded fences, and unsightly objects; and the pretty dwarf flowering shrubs, as the *Double Almond*, *Mezereon*, and *Roses*, should be brought nearer the eye of the observer. Their position should also be such, as to give the effect of variety of color, and so arranged that a variety is always in blossom, which can be effected, by referring to the *Descriptive List*, of the several varieties enumerated therein.

ART. 6.—Plan and Management of Trellises and Arbors.

In many flower gardens, trellises, arbors, and summer houses, may be introduced to a very good purpose for concealing offices and unseemly appendages.

The form and disposal of these must greatly depend on the size and situation of the garden.

In city gardens, trellises are mostly introduced on entrances to the back offices, in which cases, they are generally covered with the *Native grape*, or other running vines, as the *Honeysuckle* and *Clematis*. Such vines should always be pruned in the spring, and trained with the greatest care, to guide the summer shoots, which is often too much neglected, to the injury of the plants.

The summer dressing of vines, is simply to thin them out where too much wood is growing, and which would cause a general weakness in the vine; the next object is to train the young shoots, so that all vacant places are regularly covered. These remarks will be found applicable to all kinds of vines.

In flower gardens attached to country residences, the trellis is mostly applied to arbors, which ought to be of a rustic nature, and any form most convenient; formality in their structure, spoils the good effect they would otherwise produce. I think that most of my readers will agree, that they should be of an easy and rural character.

ART. 7.—Forming and Planting the Rockery.

The Rockery, is perhaps one of the best features of the flower garden, and is particularly adapted to this climate: its location depends on taste and circumstances. In most cases, it is placed in a very conspicuous situation, as the front of the Green-house, principal entrances, and such like. By general observation, I have found that a plant thrives best on the rockery, when placed in a situation where the principal part of it is partially shaded by shrubbery or trees.

In extensive pleasure grounds, the rockery has a good effect when placed distinct from the flower garden, and near a rustic arbor, or ornamental bridge, or seat; and if placed by the side of a retired walk, near the lawn or grass plot, it has an easy effect. The form and dimensions, may be so as to accommodate the location it is placed in: a long oval line, or almost any form, pleases.

The materials should be rough stones, and good rich earth; the base to be laid with stones, and then a quantity of soil: this method may be pursued until the whole is completed. When finished, it should have as much as possible a natural appearance, and ridge-like shape.

The plants best adapted for the rockery, are of the herbaceous kinds, as the *Phlox*, *Penstemons*, and so on: all kinds of pretty native plants may also be pressed into the service of

the rockery, as the *Asters*, *Wood Anemones*, *Violets*, and, in fact, all kinds of plants that will thrive on a rock should be planted indiscriminately, without order, so as to form a variety of flowering plants in every month of the season. Plants growing in this manner, always assume their natural habits, and are fine specimens, for young beginners in botany, and the junior members of families that are studying that delightful science: perhaps there is no greater inducement to its researches, than a fine collection of hardy native plants on the rockery; especially if the beautiful tribe of ferns is to be studied, which will thrive well on rocks.

Planting the rockery, is merely attended with inserting the plants between the stones, in the soil, in their natural situations; either on the sunny or shady side: if the rockery is covered with leaves and pine or hemlock brush in the winter, the plants will flower much better in the spring. Let it be remembered, that most native plants in woods, are indulged by nature with a covering of leaves in the winter, and therefore the utility requires no further comment.

ART. 8.—Ornamental Waters and Bridges.

There is nothing that I am acquainted with, that gives more ease, and has so fine an effect in the ornamental and flower garden department, as ornamental waters, in any form they can be introduced; it gives a relief to the eye, from too much sameness of the living part of the created world; and calls to mind, the utility that is derived from its presence as a medium conductor of food, to an organized kingdom. Independent of this, the cooling aspect it assumes, forms a fine feature in rural scenery.

No correct definition, that I am acquainted with, can be given on the formation of ornamental water; therefore it must, like many other things, depend entirely on the taste of those who wish to introduce it, but in all cases, the margin or boundary should have a natural appearance, and seem to be a necessary appendage.

Rustic bridges, also, are interesting objects, where they appear to be useful appendages to the flower garden, or ornamental grounds, in crossing streams, or even in crossing any part of the ground where their presence seems needful. They should be constructed in a rustic manner, of the limbs of trees in their natural state, to give a good effect; formality should as much as possible, in this case, be avoided.

Rustic seats, rustic chairs, tables, and the like, may also be introduced into the flower garden; and when placed in a shady retreat, or by the side of water, they are not only pleasing, but useful acquisitions to the ornamental department.

ART. 9.—On Making Flower Gardens.

In treating on “the Laying out of Flower Gardens,” I shall confine the subject, in this place, to the Parterre, or small garden. The laying out of shrubberies, and ornamental gardens, with the city flower gardens, &c., will be treated on under their separate heads.

The plan, as has been before stated, is merely a matter of fancy, although it may be laid down as a general rule, that the *geometrical* manner is the best adapted to a small garden.

Nicol, one of the best writers on the practice of laying out flower gardens says: “The laying out of flower gardens is a matter of very much fancy. Too many gravelled walks offend the eye, especially if they be much twisted or run across, as it comprehends the whole at once. Their breadth should be proportioned to that of the beds; nor should they be sunk, seldom more than an inch, otherwise they have a bad effect, and look rather like furrows than walks. They may be edged with box, thrift, or gentiannella, according to fancy. But the edging, whatever it may be, should be kept low, thin, and neat. It should seldom be allowed to rise above two inches high, or spread above two inches wide. A linear box edging always pleases, if kept quite close and connected.”

The ground being chosen, prepare for laying it out by digging and well pulverizing it one foot deep, taking out any

stones, or other rubbish, that may be either troublesome or detrimental to the well-being of the plants; it should then be made level on the surface, and the walks marked out to their proper width. This done, take out the earth from the walks, six inches deep, and spread on the flower beds, which should be so managed as to leave them rather highest in the middle. If box edging is to be planted, it should now be done, when the walks are to be gravelled, taking care to keep the coarse at the bottom, and the fine on the top. This done, rake the walks, and flower beds neatly, leaving each highest in the middle, and the work is done. When the work is completed, the beds and walks should have a gradual rise from the outside to the centre, in order that water drains gradually from them. Care should also be taken, in laying out of gardens, that they are laid a little on a descent to one corner, or any given point, so as to let off the superfluous water; it should also be a given rule, that the flower garden attached to dwelling-houses should have a gradual descent from the house.

If the earth where the garden is to be made, is of a poor, sandy, meagre nature, the soil should be taken out where the flower beds are to be made, and a mixture of good, mellow loam, with a portion of well rotted manure added to it, should be put into those places intended for the beds, or borders.

CHAPTER II.

On the Nutriment of Plants.

ART. 1.—Preliminary Remarks.

BEFORE I proceed to the culture of plants and flowers, it will be proper to point out their different nutriments and stimulants, and how they act on the vegetable system, either in a congenial or injurious manner, which, by a little observation, will be found to be of great importance in the culture

of all kinds of plants and flowers:—to this, I have also added some remarks on the development of the different parts of plants, as the seed, the bud, the root, the leaf, and the like; which I consider essential to be known to the cultivator, and I hope the subject will therefore be of some utility in this place.

These plants, like all the other bodies which are organized, require an appropriate nutriment, for the germination of seeds, and the further development of the vegetable economy. The most superficial observer is aware, that plants derive their principal food from the *soil* and *atmosphere*, although not in equal proportions. They also require different compounds, according to the nature of the soil in which they naturally grow; thus, the *Cherry*, *Peach*, and *Nectarine*, are found to grow on a light, dry soil, while the *Pear* and *Plum* require a deep loamy soil; and aquatics grow altogether in water, as the *Vallisneria Spiralis*, *Water Lily*, &c; others, as the *Ferns*, live and flourish on the hardest rocks.

ART. 2.—Food of Plants.

The principal food of plants is found to be either vegetable or animal substances in a decomposed state, which enter into vegetables by aqueous solution, and as it were compose a new vegetable in an organized state. This food is principally absorbed by the roots of plants; it is also inhaled by the leaves, its particles being often raised to a considerable height by the winds.

EARTHS, as *Clay*, *Lime*, *Flint*, and *Magnesia*, are also absorbed by plants, in solution. Each particular variety will be found to contain these earths in different proportions, according to the preponderance of the soil in which they grow: hence, by calcination of corn-stalks, flint is found in the ashes, and is perhaps one of the finest finishers for steel.

Plants inhaling chalky soils possess portions of lime, and, by analysis, each variety will be found to contain a portion of solid substance, which they most readily imbibe by aqueous solution.

Water.—Some persons are of opinion, that water is the sole food of plants, who found their authority on the fact, that many kinds, and particularly bulbs, vegetate and produce their blossoms in that fluid; the reverse of this is, however, the case, as, on calcination, those plants are found to contain component parts; but the quantity of water necessary for different species is also very apparent; as some plants are found to thrive on the hardest rocks, and must obtain their moisture principally from their leaves, to which it is first imparted from the atmosphere, whilst others are known to live wholly in water, and consequently must be of a different nature in their solids.

Atmospheric Air.—“The atmosphere,” says *Stroud*, “is composed of oxygen, carbonic acid, hydrogen and nitrogen gases, in different proportions; all these are to be found in vegetables, but they do not all seem to be vegetable food.

“That oxygen is necessary to vegetation, numerous experiments have proved, and few have been found to subsist long without it, when in a growing state; it is therefore plain, that plants inhale a considerable quantity of the gas.

“*Carbonic Acid.*—This is also beneficial to plants, particularly to the root; but if too large a quantity be applied, it proves injurious or fatal. Hydrogen and nitrogen are supposed to enter vegetables in combination with other substances, as when they are applied separately to growing plants, they refuse to inhale either of them, and death is the consequence.

“From these facts, it appears that vegetables have a power of extracting from the atmosphere, those parts which contribute to their growth and health, as well as from the soil, and of refusing to admit the constituents of either.”

The above facts plainly show the utility and necessity of obtaining a proper air, requisite to the growth and health of the plant; whether in a frame room or green-house, the necessity is the same. When unwholesome air is present, the plant suffers in proportion to the portion of improper gas:

the most delicate parts, as the flower, or young fruit, being first affected, generally perishes : the next is the tender leaves and branches, and so in succession ; but in some cases, as tender annuals, foul internal air destroys the plant in its infant state.

To all plants in a growing state, a small quantity of external air should always be admitted, in order to rectify the internal air. This plan should be observed in the green-house rooms and other confined places.

ART. 3.—Light.

“ Fairest of beings! first created, Light!
 Prime cause of beauty! for, from thee alone,
 The sparkling gem,—the vegetable race,—
 The nobler worlds that live and breathe, their charms,
 The lovely hues peculiar to each tribe,—
 From thy unfading source of splendor, draw!
 In thy pure rays, with transport, I survey
 This firmament, and those her rolling worlds;
 Their magnitudes and motions.”

Light is one of the most requisite agents to the vegetable kingdom, as few vegetables (the Fungious excepted) are known to thrive and have their proper qualities without this stimulant.

The most common observer may have ocular demonstration of this fact, by plants generally growing towards the light, in windows of houses and confined situations ; and as soon as the plant is reversed, the position is reversed also. Leaves, flowers and fruits, are always more replete with their proper qualities, when in an exposed situation. This is observable in the tops of trees. It is generally understood by horticulturalists, that no light as yet known artificially, will compensate for the absence of the sun.

That vegetables lose their proper qualities, when deprived of the presence of light, is exemplified in the *Celery* and *Endive* when *blanched* ; which is effected by excluding them from the light, in which case the vegetable loses its natural

qualities in a certain degree. So tenacious of light, are most kinds of plants, that, when deprived of this stimulant, they begin to assume a yellow appearance, and in time, when fully excluded, they turn to a clear white: it is also obvious, that when they again receive a full share of stimulating influence, they resume their wonted appearance.

I shall conclude this subject by impressing on the mind of my readers, the utility of *light* to plants generally, and especially in frames and green-houses, in the early part of the season, when every opportunity should be taken to admit it. Let them also remember that in winter, owing to the short days, the due quantity of light cannot be given; this should always be taken into consideration by the cultivator.

ART. 4.—Heat.

It is very evident to the most common observer, that a certain degree of heat is required by all plants to cause them to grow, in a healthy, vigorous state. As we find that plants similarly situated, though *natives*, do not all vegetate at the same time: so also seeds require a different temperature of heat, to cause them to vegetate freely; hence it will be seen that all kinds of native seeds vegetate early in the spring, and many exotics, as the Stock-gilliflower, Candy-tuft, and the like hardy kinds: while the more tender varieties, as the Balsam, Globe Amaranth, Cypress vine, and the like, must be deferred until a warmer season. The same affinity is also observable in the circulation of sap in trees, as they are seen to put out their foliage and to commence in growth at different times in the same location.

Heat may be considered under two heads, namely, sun heat, or natural; and artificial, as that applied by fire, fermentation and the like. Sun heat may be in all cases considered as natural to plants, although in many cases where plants are placed in very moist situations they are drawn weak when it acts too powerfully on them after much *wet*, and in such cases the leaves are seen to flag and shrivel up. Fire heat

also when applied in too high a degree to plants, injures their constitution in a manner that they lose in a certain degree their natural strength or habit. Heat and moisture, in all cases, should be regulated as much as possible to correspond to the natural habit of the plants that are to be cultivated.

ART. 5.—Observations on the Roots of Plants.

The roots of plants being intended by nature as channels by which the principal food is absorbed and conveyed to the different parts, and finally forms a part of the plant, should be very familiar to the cultivator.

By due observation it will be seen that the adaptation of plants to their proper soil is of the greatest importance, as plants placed in a soil uncongenial to them, seldom thrive well, owing to improper food being absorbed by their roots: and, in many cases, roots have been known to travel out of their proper position in quest of a more proper nutriment. The time of circulation of the sap in roots is different in different kinds, as may be exemplified by plants and shrubs beginning to put forth their leaves at various periods, in the same location. This fact may be proved by any intelligent observer who will notice the commencement of vegetation in native plants and shrubs, in any given part of the country, under the same circumstances and in the same location.

“Roots being furnished with the power of perpetually adding new living matter to their points,” says Lindley, “are thus enabled to pierce the solid earth in which they grow; to insinuate themselves between the most minute crevices, and to pass on from place to place as fast as the food in contact with them is consumed. So that plants, although not locomotive like animals, do perpetually shift their mouths in search of fresh pasturage, although their bodies remain stationary.”

He further continues, “There is no period of the year when roots become altogether inactive, except when they are actually frozen. At all other times during the winter

they are perpetually attracting food from the earth, and conveying it into the interior of the plant, where it, at that season, is stored up till it is required by the young shoot of the succeeding year. The whole tissue of a plant will, therefore, become distended with fluid by the return of spring, and the degree of distention will be in proportion to the mildness and length of the previous winter. As the new shoots of spring are vigorous or feeble in proportion to the quantity of food that may be prepared for them, it follows, that the longer the period of rest from growth, the more vigorous the vegetation of the plant will become when once renewed, if that period is not excessively protracted."

ART. 6.—Observations on the Bud.

The bud of plants is very aptly termed by the botanist, the *hibernacula* or winter quarters. It is formed in the summer, and properly fed and nourished by the descending sap. Buds may be considered under three definitions: first, buds which contain the rudiments and organization of fruits only, as the *Cherry, Plum, and Pear*; second, buds which contain the blossom and wood-buds under the same covering, as the *Grape*, and most other trailing vines; and thirdly, those which contain all the rudiments of a young plant in embryo, as the *Cherry, Plum, and Pear*, which are called wood-buds.

Nature has carefully protected those precious appendages of plants, by covering them with a hard, scaly substance outwardly, and a woolly substance inwardly, to protect the more tender parts.

It will be found by a due observance of buds, that those which produce the fruit are the most delicate, and of course the most liable to injury by drought, cold, and the many causes inimical to them; hence the *Peach*, and many other fruit trees require protection during the winter in the Northern states, particularly those that have been grown under glass, the buds of which are always more delicate than when the tree is wholly exposed.

The blossom-bud being injured in any way, either by cold or other casualty detrimental to it, is generally destroyed; but the wood-bud on the same tree or shrub, is not, although exposed to the same injuries; and in many cases, as the *Grape Vine*, the blossom-bud is blinded or destroyed by many causes detrimental to it, although the vine will perhaps break and grow in a very healthy manner.

ART. 7.—Observations on the Leaf.

The leaves of plants being the principal organs of respiration, also contribute to their growth by their power of absorption; they are of the greatest importance in this operation. The surrounding air, whether internal or external, being absorbed by their agency, requires to be of a pure and wholesome nature, in order to keep them in a healthy, vigorous state. We are informed by botanists that the leaves of plants are synonymous with the lungs of animals, therefore, whatever disease is imbibed by them, enters into their system.

When too much heat and moisture are applied in greenhouses, or frames, where plants are growing, it is imbibed by the leaf, and the consequence is, that the plant is elongated without its proper qualities, the leaves assume a feeble appearance, and are often totally destroyed, when the sun and air act on them sufficiently to nourish their more healthy parts. Leaves, when decaying, are most liable to breed many insects, as, the Red Spider, Trip, and all other insects which are increased by decomposition; therefore, decaying and dead leaves should, in all cases, be taken from plants in a state of vegetation.

In conclusion to what has been said on trees and plants, it appears evident that the *native* of all kinds of plants in the common idea, is the primitive, and is perpetual, and that every variety, of improved quality, must originate from it, either by chance or luxuriant culture; and it is at the same time clear, that by crossing the primitive or native plants of any country, of the same natural order, new varieties, of improved quali-

ties, are produced, congenial to the country which has given birth to such varieties. From the very best of experiments and authority, it has been proved, that in raising plants, either from seed, cuttings, grafting, or any other mode of propagation, those kinds that have been propagated in a hardy and natural manner are the best qualified to withstand the natural changes of the climate; and that, although, by nursing many tender plants, they are brought to great perfection with attentive culture, it cannot be recommended to answer in a general way.

Any intelligent observer will discover, that plants of all kinds require to be so situated that the *sun* and *air* have, as much as possible, free access to every part of their leaves, fruit, and, indeed, all parts of the plants; and that any violence, either by severe pruning, disease, blights, unwholesome food or air that is present, acts on their system materially, either directly or indirectly.

CHAPTER III.

On the Propagation of Plants.

ART. I.—General Observations.

To describe the many methods practised in propagating plants, would far exceed my prescribed limits, and be altogether foreign to this *treatise*, which is intended to condense, as much as possible, the most requisite subjects to be known by those who are desirous to become acquainted with the culture of the flower garden. The propagation of plants, may be considered strictly belonging to the nursery department, and would require more space than the contents of this book to fully describe; therefore, the subject has been confined to such methods as could be done with perfect ease by any person interested in the subject.

The plan, it will be perceived, is as much as possible condensed into regular methods—and those plants to be operated upon are designated by their proper character, in the *Descriptive List* of their respective departments, by which much space and repetition is in this place obviated.

Of all the different processes in Horticulture, *propagation*, or *increase*, is the most difficult, and, consequently, requires every attention of the operator. Correctness must be, in all cases, attended to, and a *neat* and *active* performance of the subject acted upon must be duly regarded, as in *amputation*, *insertion*, and the like principles, that will be requisite in the different operations.

ART. 2.—Propagation by Seed.

The seed contains all the rudiments of the parent plant in *embryo*; and expands its functionary qualities, and is developed into a new plant when the necessary stimulants and nutriments are present, either in a natural or artificial form. The propagation of any plant or seed, out of its natural climate, is attended, in all cases, by artificial means, and is, therefore, under the laws of culture.

Proper location for Seed.—That most plants require a proper location, is very apparent to the inquiring observer; some are found to grow naturally, and thrive, in water, as the *Water Lily*; others may be considered as amphibious, growing sometimes in, and at others out of water, as the *Water Plantain*, *Arrowhead*, and the like; to the reverse of this, we find some plants living and thriving on rocks, and such locations, where it is very difficult to receive water or food from any other source than atmospheric air. Other plants, we find, are natives of rich and fertile valleys; and some are ornamentally intended, by nature, as a fringe to the woods, by way sides, and the like; hence, a corresponding climate, soil, and situation, are always the best adapted, and should be as near as possible obtained, to grow seeds and to propagate young plants to perfection.

By a little observation, it will be seen that many seeds perish in their natural soil and climate, by accidental causes, when they are not imbedded in the ground; and, in some cases, not one of a thousand vegetates, while, if assisted, by being placed in a proper situation, two out of three would grow; other seeds almost universally grow when they leave the plants in an accidental manner. This fact is, in the first case, exemplified in large seeds, as nuts, and the like. The Hickory and Chesnut are seen to bear bushels of nuts, or seed, which fall from the tree and are dispersed on their natural soil, but rarely vegetate, owing to their not being imbedded in the earth deep enough to receive a regular and proper nutriment to cause them to grow. Most native annual seeds vegetate freely, their covers being thin and of a small size, by which they are easily imbedded in the earth to a proper depth to cause vegetation to proceed at the proper season. The principal point to be attended to, in making seeds vegetate, is, that they are sown in a soil where they can easily take root, and in a depth corresponding to their size. Small seeds, as the *Poppy*, and *Mignonette*, should scarcely be covered; and larger, as the *Balsam*, and *Aster*, may be covered deeper, and so in proportion to their different sizes. In some cases, frost destroys the vegetative principle of seed when it is not well ripened; or placed in a warm, moist situation, where it begins to grow at an unnatural season. But I have never known seed of any kind destroyed by cold when perfectly dry and well ripened.

The necessary food and stimulants to cause seed to vegetate are, *heat*, *air*, and *water*. When a proper quantity of these are applied to seed, it will germinate, unless it has lost its proper qualities of germination, by age or other causes detrimental to it, but so soon as germination takes place, the necessary food and soil must also be present, or it soon perishes; many seeds, as Cress, Mustard, and Radish, are grown in flannel, kept continually moist, for the purpose of small salads in the winter; but although they are so grown, they do not

possess their proper qualities, as they would not in that state grow to their natural size and substance, or produce seed, which is the essence of life. Seed cannot possibly vegetate when perfectly dry, although the quantity of moisture requisite to its germination is different in different seeds; for the want of moisture, many seeds perish in the ground, in the spring, when badly sown, particularly small, minute kinds, which are often exposed on a dry soil, with a burning sun, for several weeks, during which time the vital principle is destroyed; and hence the seed that was good becomes bad, so called, and all the skill or management bestowed on it can no more cause it to vegetate or grow than the most inert substance known; hence seedsmen are often charged with vending bad seeds, when the fault actually belongs to the planter, whose duty it is to give them a fair trial before he passes *sentence* of condemnation.

Light.—Although many seeds grow best in darkness, and in many cases excluding them from light is beneficial to their germination, they cannot continue to grow long without the presence of light, but will turn yellow and die, for the want of that stimulant to form their proper substance. In many cases, seeds are covered, when sown in dry seasons, and kept continually moist; but when they grow, they are exposed by degrees to sun and air. This is a good method, and may be profitably applied to many kinds in the flower garden.

ART. 3.—Propagation by Roots.

Increase of bulbous rooted plants.—Bulbous rooted plants are increased by taking the offsets, or side bulbs, from the parent plant, as the *Hyacinth*, *Tulip*, and the like. The young bulbs are to be taken from the parent, and treated in every way the same, with this exception, they do not require so much room to grow, as they will not flower the first season of planting. They must be separated from the parent with the finger and thumb, and care should be taken not to bruise them in the operation.

Some bulbs, as the *Garlic*, and *Shallots*, form a truss of bulbs, from the centre of the plant, which is to be divided, in order to form a new plant; others are increased from the tops, as the *Tiger Lily*; such are termed cauline bulbs, or bulbs of the stalk; they only require to be taken from, and treated as, the parent.

Increase of tuberous rooted plants.—The tuberous rooted are exemplified in the *Pæony*, and *Dahlias*; the root forms a crown, to which are connected many tubers, which are to be divided with a sharp knife, in such a manner, as to leave part of the crown, with one or more eyes or buds to each plant; those parts are to be inserted in the ground, in the same manner and soil, and treated in the same way as the mother plant.

Increase of fibrous rooted herbaceous plants.—Fibrous rooted herbaceous plants are increased by dividing the crown, or main root, as the *Phlox*, and perennial *Larkspur*. This method may be applied to most hardy fibrous rooted plants, in the month of September, or beginning of May.

Increase by fleshy roots,—examples of which are among many kinds of herbaceous plants, as the *Campanula Pyramidalis*, and the different varieties. Such plants are readily propagated by breaking the roots into small pieces, an inch or two in length, and inserting into pots so that the top of the cutting is just equal with the surface of the earth in the pot. In this manner, they make roots from the joints, and every part makes a plant; when rooted, they may be potted into small pots, or planted into the place assigned for their final flowering.

Geraniums, and many kinds of green-house plants, may be propagated in this manner, by putting the cuttings of the roots in a compost of one-fourth good sharp sand, and the remainder prepared compost, as recommended for green-house plants. When they are propagated in this manner, the roots may be managed in every way the same as cuttings of the same kind of plants.

Roses, of different varieties, may be readily increased by the roots; indeed, there are many kinds, as the *Yellow Harrisonii*, or Harrison's Yellow, and many of the Scotch *Roses*, with difficulty propagated by any other method than by roots. It may also be applied to many kinds of the monthly with good success. The method is to take the long running roots of the kind desired to be increased, and cut into pieces, from one to two or three inches in length; this may be done in the month of February, or any time when the plants are not in a growing state, and when it can be done in the green-house department; having the roots thus prepared, prepare a compost of a good portion of sharp sand, leaf mould, and good maiden loam, which mix well together, fill a number of pots, or boxes, (old glass boxes will answer a good purpose); the cuttings may then be inserted into the pots, in such a manner that their tops are even with the surface of the earth; this done, give them a gentle watering, to settle the earth about them, and the work is done.

Increase by grafting of roots.—This may be done by grafting the roots of *Roses*, by putting the tender choice varieties on those of a strong growth; the *Boursault*, and any free growing kinds that have long straggling roots, are the best kinds for the stocks; the scions, or grafts, may be taken from the young wood of the kinds intended to be increased, which should be well ripened. The month of February is the best time for performing this business, and the manner of grafting is precisely the same as that recommended under the head of *Whip Grafting*. The roots for this purpose should have a quantity of fibres at the small ends, so that they may have means to nourish the grafts when they begin to vegetate. When the roots are grafted, they may be put into pots, or boxes, in the same manner as directed for roots, and placed where they will vegetate freely; care must be taken to keep them well watered, and attended until they are well united, when they may be either transplanted into the place intended

for their flowering, or into pots, if required for the greenhouse department.

ART. 4.—Propagation by Running Vines and Creepers.

The *Potentilla*, *Strawberry*, and *Periwinkle*, are examples of running vines. Such plants are increased by taking off their joints where they have rooted, and planting in the same manner and soil as their parent plants, in the month of September: this process may be greatly facilitated by covering the joints with fine earth and keeping them moist previous to their rooting.

ART. 5.—Propagation by Cuttings.

Many kinds of hardy shrubs are increased by cuttings from the young wood of deciduous plants, which is performed in the spring. The plants that are increased by this method, are the *Althea*, or *Rose of Sharon*, *Snowballs*, *Honeysuckles*, and most kinds of soft wooded plants. The manner of performing this work, is to prepare a piece of moist, shady ground, by digging and dressing the surface: when the ground is ready, the cuttings are to be prepared by cutting them one foot in length, and inserting them into the ground six inches deep; the rows should be eighteen inches apart, and the cuttings eight inches from each other in the rows. When the cuttings are inserted, the ground must be pressed hard to them by the foot, and raked off in a neat manner. The after management, is merely to keep the ground clean about the plants during the summer; and in the autumn they will be perfectly rooted. A moist northern aspect is the best location for this business.

ART. 6.—Propagation by Layers.

The increase of plants by layers, is performed on most kinds of hard wooded plants in the autumn, or early in the spring, as the *Rose*, and *Double-flowering Almond*. The manner of performing this business, is to dig and prepare the

ground about the mother plant; the young shoots are then prepared, by bending them down to the ground, in order to find the proper length required to be inserted; a sharp knife must be applied to the under part of the shoot at a joint, cutting, in a slanting manner, upward, about half an inch in length: the part is then inserted in the soil, from two to three inches deep, in such a manner that the wound or cut *a* is left open, and pressed perpendicularly into the ground: a hooked



Fig. 1. Layering.

stick *b* is then placed over the layer in order to keep it in a proper position; raise nearly upright the end of the layer *c*, which remains above the surface of the ground. This should be done to every layer, to prevent the wound from uniting, being the part from whence the roots will be made for the young plant.

Carnations, *Pinks*, and such like plants, are chiefly increased in this manner; the proper season for laying these is August and September. Many others, as the *Sweet William Pinks*, and their natural family, may be laid by simply taking out the centre of the plant, and placing a quantity of earth sufficient to cover the side shoots, which will form a circle of young plants in a few weeks.

ART. 7.—Increase by Inoculation.

Many trees and shrubs are increased by inoculation, or budding; which is generally done to propagate such plants as do not thrive well by the methods heretofore described.

Inoculation may be very successfully performed on almost every variety of Roses, as the *White Moss*, *Unique*, *Bourboun*, and all the finest varieties,—on the wild kinds, or those of a strong habit.

The *Double-flowering Apple*, *Double Cherry*, and many ornamental trees, may also be inoculated on those of their natural family; and so also with all trees and shrubs that have large full buds. The best time for performing this operation, is when the buds that are to be taken off from the choice kind are well ripened, and the bark, or rind, leaves the wood freely: this will generally be about the latter end of July, or beginning of August. The plants intended to be inoculated, should also be in a healthy state; and the bark should part freely from the wood, or the success will be doubtful. And here it is necessary to state, that in many cases, inoculation is almost uselessly performed on trees and plants that are in an unhealthy condition; the bud inserted must eventually die for want of proper sap and nutriment.

Severe criticisms are often bestowed on gardeners, who adopt the plan of inoculation during the season, when the buds which are by them inserted die; which in many cases cannot possibly be avoided, if the plants are sickly, and do not have their requisite food and nourishment. This is often the case with the *Orange*, and *Lemon*, which are inoculated, and, perhaps, exposed to the sun, without water for many days; in which case the buds must eventually perish for want of nourishment. But I am now digressing, which I hope will be excused in this place, for without some remarks on the subject before me, it would be impossible to elucidate the most proper and necessary points.

Art. of Inoculation.—At the proper season, when the plants to be inoculated are in a right condition, prepare for

the operation by collecting healthy shoots of the summer's growth, of such kinds as are intended to be increased; when the shoots are taken from the trees, they are to be divested of their leaves, leaving a part of the footstalk to the length of half an inch; they are then to be kept damp until they are inserted, which should be as soon as possible after being separated from the trees.—(See *Fig. 2.*)

There are many ways of inserting buds; but I shall confine myself to the most general, and, I believe, most successful method, which is performed by making an incision in the tree intended to be inoculated, in the form of a T, (*Fig. 3.*) by first cutting through the rind, on the top, in a transverse manner, holding the knife between the fore finger and thumb: the bottom incision is made by drawing the point of the knife downward an inch; the thin end of the haft is then to be applied to the top of the incision, in order to part the rind from the wood, which is done by gently lifting the top and running the end of the haft downward to the end of the incision. The incision being made for the reception of the bud, the next thing to be done is to prepare the bud, by placing the scion in the left hand, between the fore finger and thumb, with the top end next to the thumb. The knife must then be taken in the right hand, and its heel placed half an inch below the bud intended to be taken off; it is then to be carefully drawn upwards half an inch above the bud, cutting it out, with about half the wood and bark—thus: (*Fig. 4.*) This being done, the part is to be placed between the thumb and fore finger of the left hand, and the rind gently pressed back with the



Fig. 2.



Fig. 3.



Fig. 4.

edge of the knife; when the wood is to be pinched between the thumb and knife, and divided from the rind with the bud—thus: (*Fig. 5.*) Having the bud thus prepared, proceed to insert it into the stock, by taking it by the strig, between the fore finger and thumb, and pushing it down between the rind and wood in the cavity made by the haft of the knife, in a neat and snug manner—(*Fig. 6.*) This done, prepare to bind it with bass mat, soft string, or other kind of tying, that will secure it in its proper place, and the work is done—(*Fig. 7.*)

Having now gone through the principal items of the practice of *Inoculation*, or budding, I shall make a few remarks on its utility and successful treatment. Budding may be applied to almost every kind of fruit tree, shrub, and, in some cases, to roots, as the Dahlia, Pæony, and many tuberous kinds. But, in all cases, recourse must be had, to operate, on plants of the same family, or little success may be expected; that is to say, apples must be budded on apple trees, or wild crabs; cherries on the cherry tree; roses on the rose, and so on. There are, however, exceptions to this rule, for I have seen the pear budded on the apple tree, and do tolerably well, in some cases, for awhile, although the trees, in this case, are generally of a short duration, and it can not, in some plants, be done to any effect whatever. One great point in budding, is to have the stock and bud in good condition at the time of the operation; the young wood from which the bud is to be taken should be well ripened, and the bud and rind should part freely from the wood, without tearing or injuring it; the rind on the part of the plant intended to receive the bud should also part freely, and the sap should follow the knife when the incision is made.



Fig. 5.



Fig. 6.



Fig. 7.

Many trees and plants are budded when they are not in a healthy condition, and the consequence is, that they will most generally be only disfigured, and the bud will certainly perish. There are many persons who set some definite *time* for budding trees, and they generally choose July and August. To such rules I cannot subscribe, because different kinds of trees even require a different season; for instance, the pear may be budded to good advantage in June, whilst the peach should be deferred to September; while the rose may be budded any time from May until October, and even in the winter, if the bark or rind parts freely from the wood. Many persons, also, are advocates for leaving the piece of wood in the bud and inserting it entire, assigning as the reason for doing this, its having more substance, and being less liable to perish by drought. I have never been satisfied that this is any improvement on the old mode of *taking out the wood*; only in cases where buds have to be taken off too young or too old, when the rind will not part from the wood without injuring it. When the wood is taken out from the bud, it sets closer to the stock, and, besides, it is more in its natural position than when the wood is left in, which is of no use, and leaves a cavity between the *alburmen* of the stock and the inner part of the rind of the buds, the very parts where the union ought first to take place. It may be laid down as a general rule, that budding is the best when done in moist, damp weather, as the rind parts freer then, and the buds take better; and, indeed, the morning and evening are better than the middle of the day, in hot weather.



PART II.

MANAGEMENT OF THE FLOWER GARDEN, AND CULTURE OF PLANTS—WITH DESCRIPTIVE LISTS.

CHAPTER I.

On the Culture of Annuals and Biennials.

ART. 1.—Annual Flowers.

ANNUAL plants are those of one year's duration only, and are renewed yearly by sowing the seed, as the *Lady's slipper* or *Balsam*, the *China aster*, *Mignonette*, and the like.

Annual flowers do not, in many cases, receive that attention they really merit, which, I imagine, is chiefly owing to the trouble of renewing them yearly from seed, and the proneness of most kinds to depreciate into single flowers and inferior qualities; however, the easy and speedy manner of growing them, and the pretty effect they give to the flower borders, when mixed with other plants, claim for them a place in the flower garden. Their qualities, like all other flowers and plants, can be retained, and, in many cases, even improved by attentive management. I shall therefore proceed to their culture, and add a Descriptive List of the best and most appropriate kinds for the flower garden.

ART. 2.—Growing Annuals in Hot Beds, for Planting out early.

To have annuals flower early, the seed should be sown on a moderate hot-bed early in the spring, for the purpose of

transplanting in the flower *bed and borders*; for this purpose, prepare a hot-bed in the beginning of March, in the following manner. Collect two good cart-loads of hot horse manure; or, if of equal parts of leaves collected from trees in the fall and horse manure, the better; shake it up and mix it well together, at different times, until it gets into a state of fermentation, which will be in a few days, when the bed may be made in a sheltered situation; if protected by a board fence, the better.

Prepare the place for the bed by taking out one foot deep of soil, a foot wider at each side and the ends than the intended frame is in size. A two-light frame, four feet in width and six feet in length, will answer a good purpose; but in a small garden, a frame half the size, with half the portion of manure, will answer.

Having the place prepared, make the bed by shaking the manure well together, in order to make it of an equal texture, beating it down with the back of the fork as you proceed—but never tread it with the feet, which is the cause of hot-beds settling irregularly. The bed being made, place the frame upon it immediately, to draw up the heat, cover it well by night, and let it have the full influence of the sun by day, until the heat rises, when the bed may be earthed all over with about six inches of light, rich soil, which should be prepared previous to its being made: half rotten leaf mould, or manure, and half mellow loam, will answer a good purpose for compost.

When the bed is earthed, the frame may again be closed, to draw the heat, and, so soon as it rises, the seeds, of all kinds of annuals, may be sown in shallow drills, and lightly covered with fine earth; care must be taken, in this part of the process, to give air sufficient, by night and by day, to let off the steam that arises, in order that the young plants may not damp off, or be too much drawn in a weak and slender manner, especially when the heat begins to rise after earthing the bed, which will be in a few days. When the plants have

come up, two extremes must be guarded against, namely: to be very careful that the young plants are not injured by the chill of night, or drawn too much by being confined; the heat of the bed and the external air must be the criterion to go by: the internal *air* of the frame should be kept as near as possible to the moderate degree of fifty-five, by Fahrenheit's scale. As the warm weather advances, the bed may have more air by day and night, and be treated in every manner so as to harden the plants as they grow in size; and finally, the lights may be left off night and day previous to the plants being transplanted in the garden, which may be done with most kinds about the 1st of May, and the *tender*, the 20th of May. But where annuals are wanted to be very early in flower, they may be much forwarded by transplanting them out from the seed bed into another frame, an inch or two apart, and then transplanting them into the flower garden when the weather is sufficiently warm.

ART. 3.—Sowing the Seed in the natural ground.

The seed of annual flowers may be sown when the earth will work well, which will be from the middle of April to the beginning of May. This is the best time for sowing most kinds, and if two or three sowings are made at different times, the better success may be expected.

Having the ground well dug, or broken up with a trowel, in order that the seed may germinate freely, prepare to sow the seed in the following manner. Make a small circle, with a stick, in the form of an O, about eight or ten inches in diameter, from a quarter to half an inch in depth; the larger kinds, as the Lupines, &c., require to be planted an inch in depth; some difference must also be made according to the season and state of the weather,—when the ground is dry, late in the season, seeds should be sown deeper than in the early part, when it is moist and mellow. Great care must be taken to cover the seed very lightly with fine light earth, as the young plants are often much injured in making their way

through the surface. If the weather is very dry, the places where the seeds are sown may be watered, in order to make them vegetate more freely. When the young plants are an inch or two high, they may be thinned to about two inches apart, and they may be in every way treated as other plants, according to their different habits.

In sowing annuals, some taste will be required, in order that they show to a good advantage when in flower. In some cases, annuals have a very pretty effect when they are sown in beds separately, as on beds made in grass plats; and even in four feet lineal beds, the bright flowering kinds, as *Phlox Drummondii*, Larkspurs, globe *Amaranthus*, and the pretty *China Aster*, have a very pleasing appearance. When mingled with the different kinds of shrubs and herbaceous plants in the flower border, they should be so arranged, that the taller kinds are placed in the back of the border, and the pretty dwarf kinds are brought to the front, near the *eye*. There is also much taste required in placing them, so as to have a mingled appearance in their blossoming, to form a pleasing variety, which may be effected by referring to the Descriptive List affixed hereto.

In forming a Descriptive List of Annuals, I have selected those which are easily cultivated, and are suited to this climate. I am aware that there are several pretty varieties that have been here omitted, owing to their being too tender, with common cultivation; and I hope the list here following will form a satisfactory collection to those who are desirous to cultivate them.

ART. 4.—Descriptive List of Annual Flowers.*

In giving a List of Annual Flowers, I have divided them into three classes, namely, *tender*, *less tender*, and *hardy*; a

* The list presented in this article, includes all the old and well known varieties. For a copious descriptive list of recently introduced annual flowers, see Appendix, Art. 1.

classification which will at once give the cultivator some knowledge of the most proper time of sowing the different varieties, and whether they require any protection or not in any sudden change of weather that may occur after they are planted into the flower borders for flowering. I have omitted the time of flowering, which it would be an arduous task to give, in annual flowers, as they will flower earlier or later, according to circumstances and seasons. In regard to colors, it is also difficult to give any distinctive character, as annual flowers of all kinds are very prone to depreciate and run out, or sport from their variety of color; indeed, the better way of giving a list of every kind would be under the head of varieties; however, I shall in a certain degree follow the general rule of giving the proper colors, and merely point out the varieties.

TENDER ANNUALS.

- Amaranthus*, tree, tricolor and bicolor.
 globe, purple, red, white and striped.
 coxcomb, com. large red, scarlet, yellow, &c.
 common dwarf, of colors.
 spike flowered coxcombs, a variety.
Egg Plant, white, yellow, red and prickly fruited.
Ice Plant, or diamond ficoidas, white and yellow flowered.

LESS TENDER ANNUALS.

- Amaranthus*, bloody leaved, with erect flower, purple.
Aster, *China*, double, white, red, purple, brown, striped, &c.
Basil, common sweet, red and purple flowered.
Chrysanthemum, double, white and yellow, plain and quilled.
Convolvulus major, pink, purple and deep purple.
India, or *Chinese pink*, single and double, striped variously.
Love lies bleeding.
Marigold, *African*, pale and deep yellow, plain and quilled.
 French, yellow and crimson striped, velvety.
 dwarf, sorts of both African and French.
Marvel of Peru, white, yellow, red, purple and variegated.
Nasturtium, yellow and orange flower.
Scabious, sometimes made an annual.
Stock, com. ten week, red, scarlet, purple and white.
 dwarf, French, fine scarlet, and varieties.
Sweet sultan, yellow, purple, red and white flowered.
Xeranthemum, or eternal flower, yellow, white, violet and purple.
Zinnia, yellow flowered, and red, many varieties.

HARDY ANNUALS.

- Adonis*, pheasant's eye, or bird's eye, red and yellow.
Alysson, sweet scented, white flowering.
Candytuft, white, red, crimson and purple.
Caterpillar plant, yellow, varieties.
Catchfly, *Lobel's*, red, purple and white.
Clary, annual pink, purple and white topped.
Convolvulus minor, blue, white and striped.
Cyanus, or corn bottles, blue, red, purple, white and striped.
Devil in a bush, or Lady in the Green.
Hawkweed, red, pale and deep yellow.
Ketmia bladder, or flower of an hour, yellow.
Larkspur, tall, branching and rocket.
 dwarf rocket, of varieties.
 Neapolitan, branched and spotted.
Lavatera, or Cretan mallow, red, white and purple.
Lupine, sweet scented, yellow flowered.
 common, blue, white and varieties.
 giant blue, and rose colored.
Mallow, curled leaved Syrian and Chinese, pink.
Marigold, giant, or large common double.
 large Cape, leafy, and naked stalked.
 French and African varieties.
Mignonette, (trailing) or sweet scented reseda.
Mulberry blight, or strawberry spinach, red fruit.
Pea, sweet, purple, scarlet, white, pink and white, or painted lady.
Persicaria, oriental, red flowered.
Poppy, tall, double, purple, scarlet, carnations, &c.
 dwarf, or corn poppy, double, a variety.
 chelidonium, or horned, scarlet, yellow.
Snails, hedge hogs and horns, yellow.
Snapdragon, annual Sicilian, white flowered.
Stock, (maritime) dwarf annual, or Virginian.
Sun flower, large double, pale and full yellow.
 dwarf double ditto.
Venus's looking glass, blue, white and purple.
 naval wort, common and Portugal, white.

ART. 5.—Biennial Flowers.

Biennial plants are those which flower the second year after planting the seed, and then generally perish; the Foxglove, and Holly-hocks, are examples of this class. The term biennial, although often applied to many kinds of plants, is not altogether strictly correct; because, many of them will live for three or four years, and some kinds are prolonged for several years by propagation, as the Double Sweet William, China Pink, or any kind which by chance produce fine kinds

from seedlings worth the attention of the florist to prolong by cultivation.

Biennials are generally hardy, although several kinds, as the *Campanula grandiflora*, Fox-gloves, Double China Pinks, and Snapdragons, are worth potting in the fall, and protecting through the winter, either in frames or the green-house, for early flowering plants in the spring.

Culture.—This class of plants is generally increased by sowing the seed in the spring, in small patches, in the flower borders, or in rows in a four feet bed, where the young plants may remain to the latter end of August, or beginning of September, or so soon as the ground is sufficiently moist, after the hot months, to warrant the planting them out for final flowering the next year. This may be done either by planting them in four feet beds, in the place where they are to remain, or the plants may be planted singly in the flower border, where they are intended to remain for flowering. The choice kinds of Sweet William, China Pink, Snapdragon, and, indeed, any fine double flowering plants that are worth saving, may be prolonged by layering down the young shoots about the beginning of September, and taking off the young plants when rooted, and planted into the place intended for their final flowering the next spring. As there are but few varieties of this class of plants, I shall speak of them separately in this place, or, at least, those which can be easily cultivated in the flower garden, and are perfectly hardy; those of a tender kind, which are often cultivated for the purpose of flowering in the green-house, I have deferred to their proper place in the Miscellany.

Columbine,—a pretty genus of plants, many of which are natives, and found growing on rocky situations in various parts of the United States, and highly deserving culture; the double, or garden varieties, are of various colors, from white to a dark purple, and easily cultivated, by sowing the seed in the spring and planting out in the fall among the herbaceous plants in the flower borders.

Fox-glove.—There are two varieties of this pretty plant worth cultivating, the purple and the white, which should find their way into every flower garden.

Honesty, or *Satin Flower*, a pretty dwarf plant, with purple flowers.

Hollyhock.—This noble family of flowers is highly deserving a more general cultivation, and should be carefully cultivated as a florist flower. There are many superb kinds now to be found at the seed stores, of the Chinese variety, which produce fine double flowers, of every hue and color, from a clear white to a dark purple; many of which, when regularly grown into fine double flowers, are not inferior to the *Double Dahlia*.

Snapdragon.—A pretty class of flowers, of various colors, deserving a place in every flower garden.

Canterbury Bells—of which there are two desirable varieties, the white and the purple, which are generally to be found, and are pretty flowers, in the early spring flowering.

Pinks, *Carnations*, and *Sweet Williams*, are also denominated biennials, although, as before stated, they all will live and flower, sometimes for three or four successive years, by increasing them by layering, cuttings, and dividing the roots. All of these have many varieties of flowers, which can generally be obtained by purchasing the seed of the different seedsmen in various parts of the Union. The *China Pink*, a very pretty kind, which has many varieties of brilliant flowers, is particularly desirable for cultivation.



CHAPTER II.

On the Culture of Perennials.

ART. 1.—Perennial Herbaceous Plants.

PERENNIAL herbaceous plants, are those which die down to the root yearly, the roots of which remain many years; they are exemplified in the *Phlox*, *Pæony*, *Golden Rod*, *Asters*, and many other kinds of native plants.

There is no class of plants more deserving general culture in the flower garden, than perennials; which, when once introduced, require but little attention; their increase is also of the most encouraging nature, which, in most varieties, is simply the dividing of, or parting the roots, in summer, after they have done flowering, and choosing a moist, rainy time for the operation, in order that they may readily make young roots, and become well established before winter. By this method, perennial plants generally flower better in the spring, than in the most general method of planting late in the fall or spring; their roots, in such instances, are not so well established, and consequently flower weaker.

Herbaceous plants may be divided into three classes, namely: Bulbous, as the *Tulip*, *Hyacinth*, and most *Lilies*; Tubérons, as the *Dahlia* and *Pæony*; and Fibrous, as the *Perennial Phlox*, *Coreopsis*, *Delphinium*, &c. These separate divisions may be again subdivided into hardy and tender, with reference to the different climates to which they belong: for instance, among bulbs, *Tulips* and *Hyacinths* are hardy—the *Jacobean Lily*, *Mexican Lily*, and *Gladiolus Citycinus*, are tender; among tuberous roots, the *Pæony* is hardy, and the *Dahlia* is tender; and among fibrous, most kinds are hardy; (and, indeed, the greater portion of the best hardy perennial plants are indigenous to this country;) although, in many cases, they are killed in the winter by *wet* saturating their crowns, when left bare and uncovered; it is therefore

necessary that they should be partially covered in the winter, to guard them against being injured in that manner.

In planting hardy herbaceous plants, the principal object to be borne in mind, is their height, color, and time of flowering, in order that they may be so distributed in the beds as to form a pleasing variety, which may be effected by referring to the Descriptive List, subjoined hereto. Care should also be taken that the plants are so chosen as to have a succession of flowers during the season. This may be greatly facilitated by cutting down a part of the young shoots of Delphiniums, early flowering, Phlox, &c. to the ground, about the time they are beginning to show their buds; by this method, a succession of the same kind of flowers may be kept up during the season; those which are cut, being deterred from flowering, make a second growth, and come into flower after those of their natural growth have exhausted themselves.

ART. 2.—Descriptive List of Herbaceous Perennial Flowering Plants.

Botanical Name.	English Name.	Color.	Height.	Time of flowering.
ACHILLEA.	SNEEZEWORT.			
montana	mountain	White	1 ft.	August.
ACONITUM.	ACONITUM.			
japonicum	Japan	Blue	6	June, Aug.
album	white	White	4	July, Aug.
napellus	Monks-hood	Blue	$\frac{1}{2}$	May, July.
ACTÆA.	ACTÆA.			
album	white	White	3	April, June.
AMSONIA.	AMSONIA. N. P.			
salicifolia	Willow leaved	Blue	2	May, June.
latifolia	broad leaved	Blue	2	May, June.
ANEMONE.	ANEMONE.			
Pulsatilla	pasque flower	Violet	$\frac{1}{2}$	April, May.
hepatica	common hepatica	Blue	$\frac{1}{2}$	April, May.
nemorosa	double white	White	1	March, May.
ASCLEPIAS.	SWALLOW WORT. N. P.			
tuberosa	tuberous rooted	Orange	2	July, Aug.
incarnata	flesh colored	Purple	2	July, Aug.
decumbens	decumbent	Orange	2	July, Aug.
ASTER.	STARWORT.			
Novæ Anglicæ	New England	Purple	6	Sept. Oct.
amygdalinus	Almond leaved	White	3	July, Oct.

Botanical Name.	English Name.	Color.	Height.	Time of flowering.
CAMPANULA.	BELL FLOWER.			
azurea	azure	Blue	2 ft.	July, Aug.
versicolor	various colored	Striped	4	July, Sept.
urticifolia	nettle-leaved	Purple	3	Aug.
persicifolia, pl.	peach-leaved	White	2	June, July.
urticifolia	nettle-leaved	Blue	2	July.
var. alba	double white	White	2	July.
CASSIA.	CASSIA. N. P.			
marilandica	Maryland	Yellow	4	Aug.
CENTAUREA.	CENTAURY.			
nigra	Black Knapweed	Purple	2	May, Aug.
CHELONE.	CHELONE.			
barbata	bearded	Red	2	July, Sept.
glabra	smooth	White	3	July, Sept.
Antwerpianus	Antwerp	P. straw	2	July, Sept.
CLEMATIS.	VIRGIN'S BOWER.			
integrifolia	entire-leaved	Blue	2	July, Aug.
erecta	upright	White	3	July, Aug.
alpina	Alpine	White	3	July, Aug.
angustifolia	narrow-leaved	Blue	2	July, Aug.
COMMELINA.	COMMELINA. N. P.			
virginica	Virginian	Blue	$\frac{1}{2}$	July.
CONVALLARIA.	LILY OF THE VALLEY.			
majalis	major	White	1	May, July.
COREOPSIS.	COREOPSIS. N. P.			
grandiflora	large flowering	Yellow	2	July, Aug.
lanceolata	lance-leaved	Yellow	2	July, Aug.
auriculata	ear-leaved	Yellow	2	July, Aug.
tenuifolia	slender-leaved	Yellow	2	July, Aug.
CORONILLA.	CORONILLA.			
coronata	crown-headed	Yellow	1	June, July.
var.	beautiful	Purple	$\frac{1}{2}$	July.
CYNOGLOSSUM.	HOUND'S TONGUE.			
omphaloides	comfrey leaved	Blue	$\frac{1}{4}$	July, Aug.
DELPHINIUM.	LARKSPUR.			
grandiflorum	great flowered	Blue	2	Sept. Oct.
elatum	common Bee	Blue	6	June, Sept.
chinense	China	Blue	2	June, Sept.
barlowii	Barlow's	Blue	3	July.
DICTAMNUS.	FRAXINELLA.			
rubra	red	Red	2	Aug.
albus	white	White	2	May, June.
DODECATHEON.	AMERICAN COWSLIP.			
meadia	meadia	White	1	April, May.
DRACOCEPHALUM.	DRAGON'S HEAD. N. P.			
denticulatum	toothed	Striped	1	Aug., Sept.
variegatum	variegated	Spotted	1	Aug., Sept.

Botanical Name.	English Name.	Color.	Height.	Time of flowering.
virginianum	Virginian	Purple	2 ft.	Aug., Sept.
speciosum	showy	Pink	2	July, Aug.
ERYNGIUM.	ERINGO.			
planum	flat-leaved	L. Blue	2	July, Sept.
EUPATORIUM.	EUPATORIUM. N. P.			
coelestinum	celestial	Blue	2	Sept. Oct.
GENTIANA.	GENTIAN.			
verna	spring	Blue	$\frac{1}{2}$	May.
acaulis	dwarf	Blue	$\frac{1}{2}$	March, April.
catesbæi	Catesby's	Blue	$1\frac{1}{2}$	July, Sept.
saponaria	soapwort	Blue	2	Aug. Sept.
GERANIUM.	CRANE'S BILL.			
sylvaticum	wood	Blue	$1\frac{1}{2}$	May, June.
angulatum	angular	Purple	1	May, June.
HELIANTHUS.	SUNFLOWER.			
divaricatus	divaricate	Yellow	6	Aug., Oct.
plenus	double	Yellow	3	Aug., Oct.
<i>t</i> HEMEROCALLIS.	DAY LILY.			<i>Fleshy rooted.</i>
Japonica	white-flowered	White	1	Aug. Sept.
cærulea	blue-flowered	Blue	1	July, Aug.
flava	yellow	Yellow	2	June, July.
HEPATICA.	HEPATICA. N. P.			
triloba	Early Anemone	Purple	$\frac{1}{2}$	April, May.
HESPERIS.	ROCKET.			
matronalis	matronly	Purple	4	July, Sept.
HIBISCUS.	HIBISCUS.			
palustris	marsh	Pink	4	July, Sept.
var. albus	white	White	3	July, Sept.
militaris	military	Purple	4	July, Sept.
<i>t</i> IRIS.	IRIS.			<i>Flesh rooted.</i>
prismatica	New Jersey	Purple	2	May, June.
versicolor	various colored	Striped	1	May, June.
pumila	dwarf	Purple	$\frac{1}{2}$	April, May.
sibirica	Siberian	L. blue	2	May, June.
LATHYRUS.	PERENNIAL PEA.			
latifolius	broad-leaved	Pink	6	July, Sept.
tuberosus	tuberous	Red	2	July, Aug.
LIATRIS.	LIATRIS.			
scariosa	scarios cupped	Purple	3	July, Aug.
pilosa	hairy-leaved	Purple	3	July, Aug.
spicata	long-spiked	Purple	6	Aug., Oct.
LOBELIA.	LOBELIA.			
cardinalis	Cardinal-flower	Scarlet	3	May, Oct.
syphilitica	blue-cardinal	Blue	2	May, Aug.
splendens	splendid	Scarlet	3	May.
fulgens	fulgent	Scarlet	3	May, Sept.

Botanical Name.	English Name.	Color.	Height.	Time of flowering.
LUPINUS.	LUPINE.			
perennis	perennial	Blue	2 ft.	May, July.
polyphyllus	many-leaved	B. White	3	May, July.
LYCHNIS.	LYCHNIS.			
chalcedonica	scarlet	Scarlet	3	June, July.
var. pleno	double scarlet	Scarlet	3	June, July.
var. alba	double white	White	3	June, July.
LYSIMACHIA.	LOOSE-STRIFE.			
verticillata	whorled	Yellow	3	July, Aug.
ciliata	ciliated	Yellow	3	July, Aug.
stricta	upright	Yellow	3	July, Aug.
Nummularia	Moneywort	Yellow	2	July, Aug.
LYTHRUM.	WILLOW HERB.			
Salicaria	common	Purple	4	Aug.
verticilatum	whorl leaved	Purple	3	July, Aug.
MONARDA.	MONARDA.			
didyma	Oswego tea	Blue	3	July, Aug.
clinopodia	wild-basil-leaved	P. white	2	July.
purpurea	crimson	Purple	3	June, Aug.
GENOTHERA.	GENOTHERA.			
Fraseri	Fraser's	Yellow	1	May, Oct.
PAPAVER.	POPPY.			
orientale	oriental	Red	3	May, June.
bracteatum	bracted	Red	3	May, June.
PARDANTHUS.	PARDANTHUS.			
chinensis	Chinese	Orange	2	June, July.
PENTSTEMON.	PENTSTEMON.			
campanulatus	bell-flowered	L. purple	2	March, Oct.
pubescens	broad-leaved	Purple	2	March, Oct.
angustifolius	narrow-leaved	L. purple	2	July, Sept.
chandlerii	Chandler's	Purple	2	March, Sept.
mackayanum	Makay's	Purple	2	March, Sept.
pulchellum	pretty	Lilac	2	March, Sept.
coccineum	scarlet	Scarlet	2	March, Sept.
POTENTILLA.	CINQUEFOIL.			
formosa	beautiful	Red	2	May, Sept.
atrosanguinea	dark crimson	Puce	2	May, Sept.
RUDBECKIA.	RUDBECKIA.			
purpurea	purple	Purple	4	July, Oct.
fulgida	yellow	Yellow	2	July, Oct.
SAPONARIA.	SOAPWORT.			
officinalis	officinal	White	2	July, Aug.
SAXIFRAGA.	SAXIFRAGE.			
crassifolia	thick-leaved	Purple	1	May.
SMILAX.	SMILAX.			
herbacea	herbaceous	Green	4	July.

Botanical Name.	English Name.	Color.	Height.	Time of flowering.
SPIRÆA.	SPIRÆA.			
Filipendula	Dropwort	White	2 ft.	June, Oct.
lobata	lobed	Red	2	July, Aug.
ulmifolia	elm-leaved	White	3	May, June.
flora pleno	double-white	White	2	May, June.
STATICE.	SEA LAVENDER.			
armenia.		Pink	1	July, Aug.
TRADESCANTIA.	SPIDERWORT.			
virginica	Virginian	Blue	1	May, Oct.
var. alba	white	White	1	May, Oct.
rosea	rose-flowered	Pink	1	May, Oct.
TROLLIUS.	GLOBE FLOWER.			
europæus	European	Yellow	2	May, June.
VALERIANA.	VALERIAN.			
rubra	red	Red	3	July, Aug.
VERBASCUM.	MULLEIN.			
purpureum	purple	Purple	4	July, Aug.
VERONICA.	SPEEDWELL.			
gentianoides	gentian-like	Dark blue	2	May, June.
siberica	Siberian	Blue	3	July, Aug.
hybrida	Welsh	Blue	2	July, Sept.
spicata	spiked	Blue	2	July, Sept.
latifolia	broad-leaved	W. blue	2	May, June.
Teucrium	Germander-leaved	L. blue	2	June, Aug.
VIOLA.	VIOLET.			
odorata	sweet	Purple	1	April, May.
var. alba	white-flowered	White	$\frac{1}{2}$	April, May.
var. plena	double-white	White	$\frac{1}{2}$	April, May.
grandiflora	great-flowering	D. blue	$\frac{1}{2}$	May, Aug.
YUCCA.	ADAM'S NEEDLE.			
filamentosa	thready	White	3	Sept.
gloriosa	superb	White	4	Aug.

ART. 3.—On the Culture of the Phlox.

This beautiful family of plants are mostly indigenous to this continent, and are the pride of the western prairies in the spring; where hundreds of acres are completely covered with their lively tinselled blossoms. Many varieties are also found in the state of Ohio, near the vicinity of Cincinnati; and several pretty dwarf varieties, as the Moss-pink, grow spontaneously on the mountainous parts of New York state, and give a pleasing effect in the early part of the spring, when few other plants are to be seen in blossom.

The Phlox combines many desirable properties, and is admirably adapted to the American flower garden; the roots being perfectly hardy, are easily increased and cultivated. It is pleasing and various in the color of its blossoms, and continues in flower, in a well chosen collection, from March until late in the fall. To what state of perfection the Phlox may attain to, time alone will determine; although it is very reasonable to suppose, it will in a few years have but few rivals, as a "florist flower," when it is considered how readily new varieties are obtained from seed, in conjunction with the lively colors of the flower, and its natural modification of petals or flowers approaching the desired properties of a florist flower.

Culture.—The Phlox may be increased from seed, by which new varieties may be obtained. The seed may be sown early in the spring, either in patches in the flower border, or in drills, for the purpose of transplanting, either into beds or to be mingled in the flower borders for final flowering. The young plants may be transplanted so soon as they have three or four rough leaves, which will generally be about the beginning or middle of June; they should have every encouragement by culture to make them grow freely, and by this means they will flower in profusion in the fall. To this method may be added, that of parting the roots in September, or early in the spring, and putting out cuttings of the young shoots in the month of May, in a shady situation, which will be well rooted and ready for planting out in the fall.

Soil.—The Phlox will flourish in almost any soil, although a rich mellow loam answers best; and in it the plants will flower to a greater perfection than in a poor sandy soil; it also requires a free, open exposure; and has a beautiful effect when planted in separate beds, in a grass plat, or other conspicuous place, near the dwelling.

I herewith append a list of the most approved varieties, which can be obtained of most of the florist and nurserymen in different parts of the States.

ART. 4.—Descriptive List of Phlox.

Bot. Name.	English Name.	Color.	Remarks.
Acuminata	tall purple	P. purple	[Breck, Boston.
breckii	Breck's seedling		a seedling grown by Mr.
carnea	Carter's seedling	Incarnate	raised by Mr. Carter, Boston.
parviflora	small flowered	Purple	
divaricata	early flowering	P. purple	flowers in July.
maculata	spotted stalk	D. red	flowers in July; native.
pyramidalis	Pyramidal	Red	flowers from June till Sept.
striata	striped	Variegated	
purpurea	late purple	Purple	
pyramidalis	white	White	
repens	creeping	Red	pretty dwarf early variety.
striatiflora	Carter's striped	Variegated	splendid variety.
stolonefera	creeping	Red	flowers in April; of dwarf, low
carnea	incarnate	P. red	[habit.
van houtii	Van Houte's striped	Variegated	beautiful variety.
verna	vernal flowering	White	spring flowering.
youngii	Young's	Crim. lilac	new.
undulata	wave leaved	Red	middle of summer.
brownii	Brown's	Red	new.
tardiflora	sweet	White	late flowering variety
subulata	moss pink	Pink	dwarf early flowering.
nivalis	white moss pink	Pure white	dwarf early flowering,
decussata	decussate	White	flowers in July.
procumbens	procumbent	Red	
scabra	rough leaved	Purple	late flowering.
Carolina	Carolina	Br. red	
paniculata	panicled	Red	
suaveolens	sweet scented	White	flowers in the summer.
wheelerii	Wheeler's	Purple	new.
* pictum	Carter's pictured	Variegated	a most beautiful variety.

ART. 5.—On the Culture of the Pæonia.

The *Pæonia*, or Pæony, so called, derives its name from PEON, (*a physician, who first used it in medicine*); it forms one of the noblest families of plants belonging to the flower garden, and is increasing every where, by the attention paid by florists in raising new varieties from seed, by hybridizing of the finer varieties one with another. This family forms two separate divisions of plants, one being suffrutescent or shrubby, as the Tree-pæony; and the other herbaceous, as the common *red*, or Crimson Pæony, well known in almost every flower garden. Within these few years, splendid additions to this noble flower have been introduced from China,

which are known under the name of the Chinese Pæony, as the *Moutan*, and its variety of the *Tree*; and the *Fragrans*, and *Whitlejii*, are also descendants from that country. There are also many fine varieties from Siberia, Switzerland, and the Levant, of the herbaceous Pæony, which are now becoming numerous, and, like the rose, give many shades of color, from a clear white to a deep crimson, and in some varieties we have fragrance also.

The herbaceous Pæony adapts itself to a variety of soil and climate, and to this it may be said to be perfectly *hardy*, bearing our most severe winters without the least injury; the tree Pæony is not, however, quite so hardy as the herbaceous kinds, although, in most parts, the plants may be secured from the frost by covering the wood in the fall, in the same manner as is recommended for the China rose and tender shrubs. This beautiful shrub has been cultivated in the green-house many years, and is at this time one of the best acquisitions to that department. It has also a very pretty effect planted out as a single object, in small grass plats, and, indeed, the herbaceous kinds answer well for that mode of ornamenting of grass plats in small places.

Culture.—The Pæony adapts itself to any soil, although a rich, deep, mellow loamy soil is the best for it to flourish and bloom in perfection; when once planted, it requires but little attention, only to cut off the dead leaves in the spring;—this is often improperly done immediately after the flowering is over, which greatly exhausts the plants, and injures the flowering in the following season.

Propagation.—New varieties of both kinds are obtained from seed, which may be sown early in the spring, in pots of rich mellow soil, and well attended to during the summer; and in the following spring the young plants may be potted off, (if the tree variety,) and treated as green-house plants, in order to forward their flowering, which will probably be three years after sowing the seed. The herbaceous kinds may be planted into the flower borders, where they may remain until

they flower, when they are to be treated precisely the same as the herbaceous kinds in culture.

Dividing the roots.—This may be done to increase the herbaceous kinds in the early part of the spring, in precisely the same manner as directed under the head of “Propagation of *Perennial Tuberos Roots.*”

Grafting the tree Pæony.—This may be effected by inserting the young shoot of the tree *Pæonia* into the tuberous root of the herbaceous kind, by cutting the tuber square on the top, and cleaving the root, precisely the same as directed for the *Dahlia*, and inserting the graft, cut in the shape of a wedge, which see under the proper head of grafting. To this method, I add an extract from a writer in Loudon’s *Gardener’s Magazine*, who gives the following excellent items on propagating of *Pæonia Moutan*.

“In February, select any of the stems of the *Pæonia Moutan*, or all may be used; and at the distance of half an inch from the centre of each bud, both above and below it, cut out entirely round the stem a small ring of the bark, rather more than the sixteenth of an inch wide, in the manner of common ringing, as practised on fruit trees. Thus every bud will occupy one inch of the stem, where the direct continuation of its bark is obstructed, both above and below, by the rings which have been cut out of it. The stems so prepared are then to be laid horizontally about three inches beneath the soil, leaving only the leading bud at the end of each branch above the surface. In six months, every bud will have made a vigorous shoot, and, in general, will have two radical fibres at its base. In August, remove the soil from above the layers, and having raised the newly made roots, carefully separate each young shoot from the main layer, by passing a small knife from one ring to the other, cutting out about one-third part of the old stem. The young plants should then be immediately potted, to remain till they are required for planting out in their final situations. After thus gathering the first crop of young plants, the old layers should

be again covered with good soil, and left as before; and in the following summer a second and greater crop of plants will be produced than in the first season, and what is most remarkable, they will issue from various parts of the stem, where no trace of a bud was previously indicated.

“Again, if a stem be detached from the parent plant and treated as described above, and then laid in soil in a pine pit or stove, it will shoot almost as freely as if connected with the original root.

“In another experiment, cuttings, of about an inch in length, were made of the *Pæonia Moutan* in the manner of vine cuttings, having one bud on each, and about half of the stem behind the bud slit up, and the pith removed. These were put three inches deep in pots of soil, and plunged into an exhausted bark bed, having a temperature of about 60°. In the space of two months, these cuttings made young shoots through the soil, and grew freely.”

Descriptive List of Pæonias.

In forming a Descriptive List of the *Pæonia*, I have selected those varieties that can be obtained of most florists, and that are of various colors, and free blooming plants. There are many *new* varieties, which are now added to the list, so similar to those already described, that it is useless to give them a place in a small choice collection; besides, they are very difficult to obtain at moderate prices.

1 *Hardy Herbaceous Pæonias for the Flower Borders.*

Botanical Name.	English Name.	Color.	Height.	Time of flowering.
Whitlejii	double white	White	2 ft.	May, June.
Humei	Hume's double crimson	Red	2	May, June.
fragrans	fragrant	Red	2	May, June.
tartarica	Tartarian	White	2	May, June.
rosea	roseate	Red	2	May.
tenuifolia	fine-leaved	Red	2	May.
paradoxa	paradoxical	Purple	2	May.
albiflora	white flowered	White	2	May.
officinalis	officinal	Red	2	May.
Grevillii	Greville's	Purple	2	May.
sibirica	Siberian	White	2	May.

Botanical Name.	English Name.	Color.	Height.	Time of flowering.
Reevesii	double crimson	Crimson	1½ ft.	May.
papaveriflora	double poppy flowered	White	2	May.
albiflora sinensis	white Chinese	White	2	May.
Pottsii	Potts'	Db. crimson	2	May.
albiflora siberica	single Siberian	White	2	May.
Andersonii	Anderson's	Blush	2	May.
anemoniflora	anemone flower	Crimson	2	May.
fimbriata	fringe leaved	Crimson	2	May.

Pæonia Moutan, or *Tree Pæonias*, adapted for the greenhouse or flower garden.—

Botanical Name.	English Name.	Color.	Height.	Time of flowering.
Arborea	tree	Purple	3 ft.	April, May.
papaveracea	poppy flowered	White	3	April, May.
rosea	roseate	Pink	3	April, May.
Banksiæ	Banks'	Pink	3	April, May.
Banksiæ palida	large double red	Red	3	April, May.
Banksiæ expansi	expanded Banks'	Blush	3	April, May.

CHAPTER III.

On the Culture of Shrubs and Vines.

ART. 1.—Shrubs.

SHRUBS are either *deciduous* or *evergreen*; the former are exemplified in the *Lilac*, *Double-flowering Almond*, and *Snow-berry*; the latter, in the *Kalmia*, or *American Laurel*, and those plants that are always clothed with leaves,—and hence the name evergreen.

Shrubs may be considered as the lower order of trees. They are a very useful class of plants for the flower garden, and are especially adapted for the embellishment of side entrances, and many parts about town and country residences. In the *parterre*, or small flower garden, they form a prominent feature, where they are planted in the centre of flower beds and borders; in other cases, they form good facing to the

larger kinds of trees that are planted as belts on the margin of flower gardens and ornamental grounds.

There are few countries that possess a better collection of *native* shrubs than the United States; and, indeed, in Europe the first consideration, on laying out flower gardens and extensive grounds, is to prepare a piece of ground purposely for the *American flower garden*. However, the *native* shrubs and plants are much neglected in culture here, which, I imagine, is chiefly owing to their being considered too common, while those plants which are brought from foreign countries are highly prized. Whatever may be the opinion of others, I cannot conceive that their being natives of this or that country can in any wise affect the real worth of flowers and plants, which in themselves are beautiful to every beholder, and are intended by Providence as natural embellishments. It is their finely woven texture and rich coloring, that should engage our admiration, and not the country which has given birth to any particular variety. I hope, therefore, that in future the many pretty varieties of *native* shrubs and plants will find a place, and be cultivated, in the *shrubbery* and *flower garden*, where they can with every propriety be introduced to a good purpose. *Indigenous*, or *native* plants, having qualities adapted to the country, will assume a most pleasing character, and be much improved by culture.

In planting shrubs, like herbaceous and all other kinds of plants, the general rule must be, to place them as much as possible in their most appropriate situation. For instance, the pretty dwarf varieties, as the *Mezeron*, and *Double-flowering Almond*, are the most appropriate for small flower beds, and the facing of the shrubbery; the taller kinds, as the *Lilac*, are generally planted to cover unsightly objects, old boarded fences, and the like.

Propagation.—Most kinds of shrubs are easily increased, by taking the suckers from the parent plants, as they are generally prone to give out suckers from their roots; all the free growing, soft wooded kinds, may be propagated by

cuttings, as recommended under their proper heads, "on the Propagation of Plants;" and many kinds, as the slender growing varieties, do well by being layered; which see, under the head of "Layering of Plants."

In giving a Descriptive List of *Shrubs*, I have divided them into two classes—the *dwarf*, and the *tall*, and have given their height, color, and time of flowering, as near as possible, on a medium scale, with reference to soils and location, where they are generally to be found growing as ornamental plants.

ART. 2.—Descriptive List of Dwarf Hardy Shrubs.

Botanical Name.	English Name.	Color.	Height.	Time of flowering.
AMYGDALIS.	DOUBLE-FL. ALMOND.			
<i>pumila</i>	double-dwarf	Red	3 ft.	May.
AZALEA.	AMERICAN HONEY SUCKLE. N. P.			
<i>nudiflora</i>	naked-flowered	Pink	3	May, June.
<i>viscosa</i>	clammy	White	3	July, Aug.
<i>calendulacea</i>	marigold-like	Orange	4	May, June.
<i>alba</i>	early white	White	3	May, June.
CALYCANTHUS.	SWEET SCENTED SHRUB. N. P.			
<i>floridus</i>	Carolina	Purple	5	May, Aug.
<i>lævigatus</i>	smooth-leaved	Purple	6	May, July.
CLETHRA.	CLETHRA.			
<i>alnifolia</i>	alder-leaved	White	5	Aug., Oct.
COLUTEA.	BLADDER SENNA.			
<i>arborescens</i>	<i>com. arborescens</i>	Yellow	6	July, Aug.
<i>pocockii</i>	Pocock's	Yellow	6	June, Aug.
CORONILLA.	CORONILLA.			
<i>Emerus</i>	Scorpion Senna	Red	3	May, June.
CORCHORUS.	JAPAN GLOBE-FLOWER.			
<i>japonicus</i>	Japan	Yellow	5	July, Oct.
DAPHNE.	DAPHNE.			
<i>Mezereum</i>	Mezeron	Purple	3	April, May.
var. <i>album</i>	white	White	3	April, May.
DEUTZIA.	DEUTZIA.			
<i>scabra</i>	rough-leaved	White	4	May, June.
HYDRANGEA.	HYDRANGEA. N. P.			
<i>quercifolia</i>	oak-leaved	W. green	3	June, Sept.
<i>radiata</i>	ray-leaved	White	4	July, Aug.
HYPERICUM.	ST. JOHN'S WORT.			
<i>Kalmianum</i>	Kalmi's	Yellow	3	July, Aug.
<i>frondosum</i>	leafy	Yellow	3	July, Aug.

Botanical Name.	English Name.	Color.	Height.	Time of flowering.
LONICERA.	LONICERA.			
tartarica	Tartarian	Pink	10	April, May.
Xylosteum	Fly-honeysuckle	Yellow	8	June.
italica	Italian early white	White	6	April.
canadensis	Canadian	White	6	April.
PHILADELPHUS.	SYRINGA.			
coronaris	garland	White	6	July, Aug.
variegatus	variegated	White	4	July, Aug.
grandiflorus	large-flowered	White	3	July, Aug.
inodorus	scentless	White	6	June, July.
nanus	dwarf	White	2	June, July.
POTENTILLA.	SHRUBBY CINQUEFOIL.			
fruticosa	trifol-leaved	Yellow	3	July, Aug.
PYRUS.	PYRUS.			
japonica	Japan	Purple	4	April, May.
alba	white	White	4	April, May.
RHODORA.	RHODORA. N. P.			
canadensis	Canadian	Purple	3	April, May.
ROBINIA.	ROBINIA.			
hispida	Rose acacia	Pink	6	May, Sept.
RIBES.	MISSOURI CURRANT. N. P.			
aureum	fragrant	Yellow	6	April, June.
RUBUS.	BRAMBLE.			
odoratus	flowering	Red	6	June, Aug.
SPIRÆA.	SPIRÆA. N. P.			
sorbifolia	pinnated	White	4	Aug.
opulifolia	Guelder-rose leaved	White	5	June, Aug.
hypericifolia	Italian May flower	White	6	May, June.
chamædrifolia	Germander-leaved	White	2	June, Aug.
trilobata	three-lobed	White	3	June.
lævigata	smooth-leaved	Red	4	May, June.
salicifolia	willow-leaved	Pink	5	June, Aug.
tomentosa	tomentosa	Pink	5	Aug., Sept.
STAPHYLEA.	BLADDER NUT. N. P.			
trifoliata	three-leaved	White	6	May, June.
SYMPHORIA.	ST. PETER'S WREATH. N. P.			
glomerata	common	Pink	4	Aug., Sept.
racemosa	Snowberry	Pink	3	July, Aug.
variegata	variegated		3	July, Aug.
SYRINGA.	LILAC.			
purpurea	purple-flowered	Purple	8	May, June.
persica	Persian	Purple	4	May, June.
var. alba	white	White	4	May, June.
alba	white	White	5	May, June.
chinensis	Chinese	Violet	4	May, June.

ART. 3.—Descriptive List of Tall Shrubs, and Dwarf Ornamental Trees.

[Those marked thus * are used for single ornamental objects on lawns, &c.]

Botanical Name.	English Name.	Color.	Height.	Time of flowering.
ÆSCULUS.	HORSE CHESNUT.			
*coccinea	scarlet	Scarlet	10	June, July.
parviflora	small-flowered	White	10	June, July.
variegatum	striped-leaved	White	16	April, May.
AMORPHA.	BASTARD INDIGO.			
fruticosa	shrubby	Purple	10	June, July.
CORNUS.	DOG WOOD.			
florida	large-flowered	White	15	April.
sanguinea	blood-red	White	8	June, July.
CRATÆGUS.	HAWTHORN.			
pleno	double	White	10	June.
*monogynia	one-styled	White	10	June.
*coccinea	scarlet-fruited	White	20	June.
EUONYMUS.	SPINDLE TREE. N. P.			
*americanus	Burning bush	Pink	10	June, July.
*fructu albo	white-fruited	White	10	June, July.
*atropurpurea	purple-fruited	Purple	10	June, July.
FAGUS.	BEECH.			
*purpurea	purple-leaved		15	
*cuprea	copper-leaved		18	
FRAXINUS.	ASH.			
*pendula	weeping		8	
HALISEA.	SNOWDROP TREE. N. P.			
tetraptera	four-winged	White	6	April, May.
HIBISCUS.	HIBISCUS.			
syriacus	althea frutex	Purple	8	Aug, Sept.
rubro pleno	double red	Dark red	8	July, Sept.
albo pleno	double white	White	8	July, Sept.
variegatus	striped double	Striped	8	Aug. Sept.
LIGUSTRUM.	PRIVET.			
vulgare	striped-leaved	White	8	June, July.
variegatus	sweet scented	White	8	June, July.
MAGNOLIA.	MAGNOLIA.			
glauca	sweet scented	White	8	April.
purpurea	purple	Purple	8	June.
Thompsonia	Thomson's	White	20	June.
SALIX.	WILLOW.			
caprea	great round-leaved		12	
pentandra	Bay-leaved		12	
pendula	weeping		20	
SHEPERDIA.	BUFFALO TREE. N. P.			
eleagnoides	silver-leaved	White	12	April.
SPARTIUM.	BROOM.			
scoparium	common	Yellow	6	May, June.

Botanical Name.	English Name.	Color.	Height.	Time of flowering.
SOPHORA.	SOPHORA.			
japonica	japonicum			
VIBURNUM.	SNOWBALL.			
opulus	Guelder rose	White	10	May, June.
oxyccocus	cranberry-like	White	12	July.

ART. 4.—Hardy Running Vines, for covering Arbors, &c.

The *Honeysuckle*, and *Clematis*, are examples of running vines that are useful for the covering of arbors, trellises, walls, and the like. Vines are readily propagated by *layers* and *cuttings*, which see, under the head of Propagation.

Spring pruning and dressing Vines.—All kinds of hardy vines may be pruned in the spring, in a regular manner, by cutting out all the dead branches, and regulating the remainder in such a manner that they may be at an equal distance apart, when they are to be nailed with shreds of woollen or leather, or tied in a neat manner with bass or other string.

Summer pruning.—The summer pruning may be commenced so soon as the young shoots are grown six or seven inches, by thinning them out in such a manner that they are at an equal distance apart, and allowing room for their future growth. The young shoots should afterwards be regularly attended to during the summer, in pruning off all superfluous wood, and training the remainder in a neat manner—not too thickly together, which is often the case, and by which they are often much injured.

ART. 5.—Descriptive List of Hardy Vines.

Botanical Name.	English Name.	Color.	Height.	Time of flowering.
BIGNONIA.	TRUMPET FLOWER.			
radicans	ash-leaved	Orange	30	July, Aug.
major	large-leaved	Orange	30	July, Aug.
CLEMATIS.	VIRGIN'S BOWER.			
virginica	Virginian	G. white	15	June, Aug.
flamula	sweet-scented	White	15	July, Oct.
verticillata	American	Purple	15	May, June.
sieboldi	Siebold's	W. purple	15	May, Sept.
Californica	white	White	15	May.

Botanical Name.	English Name.	Color.	Height.	Time of flowering.
GLYCINE.	GLYCINE.			
<i>frutescens</i>	shrubby	Purple	15	June, Sept.
<i>Apios</i>	tuberous-rooted	Pink	12	Aug., Sept.
CAPRIFOLIUM. HONEYSUCKLE.				
<i>Periclymenum</i>	English woodbine	Red	18	June, Sept.
<i>variegatum</i>	var. woodbine	Red	15	June, July.
<i>sempervirens</i>	trumpet	Scarlet	18	May, Aug.
<i>Fraseri</i>	Yellow-trumpet	Yellow	20	May, July.
<i>rubrum</i>	red-flowered	Red	15	May, July.
<i>flexuosa</i>	evergreen	Red	15	May.

ART. 6.—On the Culture of Evergreen Shrubs.*

Evergreen Shrubs are those plants which are continually green, and are of two denominations; one of which form pretty families of flowering shrubs, as the *Kalmia*, or American Laurel; and the other division consists of ornamental plants, to give a variety among the deciduous shrubs, as the *Arbor Vitæ*, Juniper, and the like. Evergreen shrubs are a very desirable class of plants, and are admirably adapted to mingle in the shrubbery; or some of the neat growing kinds may be planted to a good advantage to form screens, and evergreen fences, either for the purpose of shading and protecting tender plants in winter, or in summer. They are also used to a good purpose to conceal unsightly objects near the dwelling, or to form fences for boundary lines; and in some cases they may be planted to a good purpose as single objects on grass plats or lawns; but in this case, care should be taken not to over-do the thing by having too many, which gives a heavy appearance where a lively contrast is required. The taller kinds are also admirably adapted to forming clumps on lawns, or extensive grass plats, which give an excellent effect in the winter, besides being in harmony with good taste.

Culture.—Most kinds of evergreens are readily propagated by seed, which may be sown on a rich, moist piece of ground

* For a general treatise on the Propagation and Culture of Evergreens, I refer the reader to an article in a Manual on Live Fences and Ornamental Plantations, which will form a good appendage to this book.

early in the spring. The spot selected for this purpose should be partially shaded from the mid-day sun, which often scalds the young plants in the summer months. The ground may be prepared in the usual way for sowing seed, and the seed may be sown in shallow drills twelve inches apart. The young plants will require to be kept in good order during the summer, and should be watered in dry weather, in order to keep them in a growing state. In the following spring, the seedling plants may be transplanted on a well prepared piece of ground in rows eighteen inches apart, and six inches in the rows, where they may remain until their final planting into the place assigned for them.

Planting of evergreens requires to be carefully done, in order to succeed well; indeed, there are more evergreens lost by mismanagement in planting than any other class of plants. In the first place, no evergreen ought to be out of the ground, but a very short time, unless the roots are taken up with a ball of earth, which should be wrapped round with old mats, or cloth of some kind, in order to keep them compact together. When the roots of any kind of evergreen are laid bare for several days, they are almost certain to *die*, and from this cause *alone* we see so many dead plants, which have been purchased at the market, and elsewhere, that have been procured from dry locations, and the roots have been deprived of earth or laid bare in taking from the ground. The best time for planting is early in the fall, as at that time, if this business is well done, the plants will make young fibrous roots, and be established in the ground before winter. A moist, rainy time should be chosen if possible, and the holes should be dug before taking the plants from the ground, when they may be taken immediately from the nursery and planted in them, in order to succeed; and by taking these precautions, planting of evergreens is a very safe and easy business. The distributing and planting will, of course, depend on circumstances before named. I shall, therefore, proceed to give a list of the best varieties for this purpose.

ART. 7.—Descriptive List of Evergreen Shrubs.

Botanical Name.	English Name.	Color.	Height.	Time of flowering.
KALMIA.	AMERICAN LAUREL. (<i>Flowering plants.</i>)			N. P.
<i>latifolia</i>	broad-leaved	Red	6	May, July.
<i>angustifolia</i>	narrow-leaved	Red	3	May, July.
RHODODENDRON.	ROSE BAY. (<i>Flowering plants.</i>)			
<i>maximum</i>	Mountain laurel	Pink	10	June, Aug.
<i>ponticum</i>	Pontic	Purple	6	May, June.
<i>punctatum</i>	dotted stalk	Pink	6	June, Aug.
BUXUS.	BOX-TREE.			
<i>arborescens</i>	tree-box	White	6	May.
<i>variegata</i>	variegated	White	8	May.
JUNIPERUS.	JUNIPER.			
<i>suceica</i>	Swedish	White	15	May.
<i>virginiana</i>	red-cedar		20	May.
<i>prostrata</i>	creeping		3	May.
<i>sabina</i>	savin-tree		5	May, June.
ARBOR VITÆ.	THUJA.			
<i>occidentalis</i>	American	White	18	May.
<i>orientalis</i>	Chinese	White	18	May.

CHAPTER IV.

Culture of Florist Flowers.

ART. I.—On the Culture of the Dahlia.

THE botanical name *Dahlia*, was given to this genus of plants in honor of Dahl, a Swedish botanist, by Cavanilles, a Spanish botanist, and “is, (says Paxton,) a native of the high sandy plains of Mexico, where it was first discovered by that eminent and indefatigable botanist, Humboldt, five thousand feet above the level of the sea, but in what year we have no authentic accounts. There are three distinct species of this genus: *D. coccinea*, *D. Cervantesii*, and *D. variabilis*; of which the two former are not now cultivated, as they do not readily sport into varieties, and are much less beautiful than *D. variabilis*, from which latter all the innumerable varieties at the present time known to our collections have emanated.”

The cultivation of the Dahlia is generally encouraging to the lovers of floriculture, and, when well understood, is very simple in its operations; adapting itself to more variations of soil and location, in favorable seasons, than any other family of plants that claims so general admiration. Nor does a different kind of soil act so materially on its well-being, as on many kinds of plants, which are partial in their nature, and will *only* flourish in their peculiar soil and location. But should the season prove unpropitious, the most unremitting and scientific exertions of the cultivator cannot counteract its effect on the flowering; although, in some cases, good culture will greatly assist the process. The most unpropitious season to the Dahlia, in this climate, is a *long continuance of drought* in the months of July and August; for when this occurs, the growth of the young shoots is impeded so that the flower buds cannot unfold and develop; but are impoverished in their embryo state in the shoots, which are consequently converted into a hard, woody substance, in order to bear the extreme dry season. In this case, it is not until the cool nights of the fall months that the Dahlia can make the proper shoots for flowering; and this often happens so late, that the entire stalk is killed by the frost before flowering commences. The most favorable locations in such seasons are on the borders of rivers, lakes, or large sheets of water, that afford a humid atmosphere in the mornings and evenings of hot sultry weather; for there is no plant of the flower garden that is more benefited by a humid atmospheric air than the Dahlia.

So far as my experience has been in regard to location, I have found that a free exposure is the best; for when the Dahlia is grown in a confined, shady situation, the plant is generally drawn slender, and the flowers produced are thin of petals, and do not possess the bright, vivid color, as when fully exposed. But care must be taken to plant the Dahlia where it is sheltered from the north and north-west winds, by which the plants, when in a growing state, are often blown down and injured.

Propagation.—There are various methods of increasing the Dahlia, as by seed, cuttings, dividing the roots, and by grafting. To obtain new varieties, florists have recourse to the saving of seed from their best varieties, approaching the nearest qualifications to such varieties as those which it is their object to raise for a new variety, having something different in color or variety from those already in being; those kinds are then denominated *seedlings*, or *new Dahlias*, and are named by the person who first produces them, as, for instance, Sayers' General Harrison, Young's *alba purpurea*, Brown's Bridesmaid, &c.

Seedlings.—The method of raising seedling Dahlias, is simply to sow the seed, in the same manner as recommended for any other plants, and planting out the young plants into a bed for flowering in the fall, in the same way as recommended for other perennial plants. When those have flowered, the cultivator generally selects the best kinds, to save for another *trial*, and the useless single varieties, of which there are generally many, are discarded without any more care or culture.

Cuttings.—When choice varieties are desired to be abundantly increased, they are often propagated by cuttings, by planting the stool, or entire roots, into large pots, or into a hot-bed, early in the spring. When they have made shoots three or four inches in length, they are to be taken off at a joint, and put into small pots singly; or the cuttings may be put into large pots, in the same manner as directed for Geraniums, or other cuttings belonging to the green-house; (which see, under the head of "Striking cuttings of Green-house Plants.") When the plants are well rooted, they may be shifted into larger pots and planted out, in the same manner as directed for other roots, at the proper season.

Dividing the roots may be effected in the spring, so soon as it is a proper time for planting out. The method is simply to divide the crown, in such a manner as directed under the head of propagating "Tuberous Roots."

Grafting.—The choice kinds may be increased by grafting on the tubers of the common varieties; by taking the tubers of the latter, cutting them square on the top, making a slit down the centre, and inserting a shoot of the kind to be increased, which should be cut into the form of a wedge; which see, under the head of “Propagating Green-house Plants by Grafting.” When grafted, the roots may be inserted into pots, and treated in the same manner as recommended for cuttings.

Planting out.—The time of planting out the Dahlia for final flowering, must depend on the season and the different parts of the Union in which it is to be grown. The best direction I can give is, not to attempt it until the frosts are all over, and the weather is sufficiently warm to insure its free rooting into the earth, which should be previously dug and well pulverized; from the 10th of May to the latter end of the month will be a good time for most parts of eastern and western states, whilst March or April will probably answer better in the southern states. The planting may be performed by making holes sufficiently large to receive the plants without breaking the balls of earth about them. The plants may then be carefully turned out of the pots, with their balls entire, and some fine earth carefully placed around them, when a little water may be given to settle the earth to the roots, and the work is done. When the roots are to be divided, the tubers may be planted simply as any other roots, at the proper time.

General Culture and Training.—The principal culture required for the Dahlia, is to keep the earth about the roots, in a clean mellow state; the surface of the earth should be often hoed and raked, which gives an air of neatness, and is beneficial to the growth of the plants, by attracting the dew and moist atmospheric air in hot weather. There are many modes adopted for training the Dahlia, but they all tend to the same result, viz. to secure the plants from being broken down by high winds, and to place the branches in such a position

that the flowers show to a good advantage. The most general mode of training, is to place a strong stake of red cedar, four or five feet in length, near the plant, and train one shoot to it by tying it with bass matting, or other string, as it progresses in growth. In doing this, the string must not be tied too tightly round the stalk, which often wounds, and sometimes cuts it asunder, when it is exposed to the violence of the wind. To this may be added, that of training against a flat trellis, fences, &c., which are all to the same purpose.

Fall management.—The principal course to be pursued in the fall management of the Dahlia, is in keeping the ground clean, pruning and tying up the branches, and thinning out those which are superabundant ones. So soon as the frost is expected, three or four inches of earth should be put around the roots of the plants, to protect them from being frozen, as is often the case at the early part of the season, when neglected. Many persons take up the roots of Dahlias previous to the early frosts, which is evidently an error, because the roots being taken from the ground in a state of luxuriant growth, and when they are not matured by the return of sap, consequently shrivel up, owing to their being too green; but when left in the ground after the stalk is cut down by the frost, the small fibres extract nutriment from the ground, and feed and plump the tubers into a mature state.

Taking up the roots.—When there is apprehension of severe frost, the roots may be taken from the ground and dried in the sun, when they are to be taken into winter quarters.

There are many methods of preserving the roots of Dahlias through the winter; the one most generally adopted is the drying the roots when taken from the ground, and placing them under the stage of a green-house. In this situation, they are looked over at different times in the winter, and divested of any decaying parts, as the rot of the stalks, or any part of the tubers that are beginning to decay, should be immediately cut off with a sharp knife, and the wounds dried,

that it may not begin to rot and communicate disease in a manner to destroy the whole. Another method is to preserve the roots, after their being dried, in boxes of dry sand, or placing them in a cellar or other room, where they are secure from the frost. The roots of Dahlias should be wintered in a situation where they are not too warm, cold, or moist. When kept too warm, the eyes are liable to start into growth at an early, unnatural season, when the sun and air cannot have effect to mature the young shoots, in a healthy vigorous manner; if kept in a situation where the roots are frozen, it is certain they will be lost; if too wet, it is probable they will be rotted; and if too dry, the tubers will shrivel up. A moderate heat, from 35° to 45° , in a situation where the surrounding air is not too moist, or dry, is the most favorable place for preserving the roots of the Dahlia during the winter.

ART. 2.—Descriptive List of Double Dahlias.

The plants described in the subjoined list, were selected in the flowering season from the best collections of the present year; and are kinds which produce fine flowers of their color and free bloomers. The list is more limited than might be expected, but it will be seen that the number of varieties will be sufficient for small collections. To the *connoisseur*, it would be an arduous task to point out the many new varieties that are yearly introduced, and which can only be designated by referring to numerous catalogues: the list here presented has, therefore, been chosen from the best known varieties, adapted to the purpose of private collections. I have omitted the time of flowering, which will entirely depend on circumstances. Those designated thus * are old varieties, retained as free bloomers, and are adapted to small gardens.

Name.	General Character.	Height.
WHITE.		
Antagonist (<i>Bragg's</i>)	pure white, beautiful flower	5 ft.
*Miss Percival (<i>Schmitz'</i>)	clear white, free bloomer	4
Alba purpurea (<i>Young's</i>)	white, edged with purple	5
Queen of Summer (<i>Holmes'</i>)	cream white, tipped with purple	5
White Defiance (<i>Schmitz'</i>)	clear white, fine flower	4
Cheltenham Queen (<i>Hodge's</i>)	fine clear white, good flower	5
YELLOW.		
Sulphurea Elegans (<i>Jones'</i>)	light yellow, free bloomer	5
Unique (<i>Ansell's</i>)	yellow, tipped with red	5
Argo (<i>Widnall's</i>)	fine yellow	4
Prince of Wales (<i>Dodd's</i>)	fine yellow	5
*Bowman's Premier	yellow, free bloomer	4
Victor (<i>Widnall's</i>)	bright primrose, edged with pink	5
PARTI-COLORED.		
*Mrs. Rushton (<i>Buist</i>)	white, tipped with rose	5
Lady St. Maur (<i>Brown's</i>)	white, tipped with violet purple	4
*Striata Formosissima (<i>Bates'</i>)	blush carnation, striped	6
*Lady Cath. Jermyn (<i>Girling's</i>)	white, striped with scarlet	6
Bridesmaid (<i>Brown's</i>)	white, edged with lavender	5
Madame Chauviere (<i>Girling's</i>)	light crimson, tipped with clear white	
Rival (<i>Bannard's</i>)	fine crimson, free bloomer	4
Dowager Lady Cooper	delicate pink, fine form	5
Eximia (<i>Girling's</i>)	rose, superior form and habit	4
Grace Darling (<i>Dodd's</i>)	rosy salmon, fine large flower	5
LILAC.		
*Queen of Beauties (<i>Garth's</i>)	fine cupped flower, free bloomer	5
Marshal Soult	lilac and red, very fine flower	5
Lilac Perfection	fine lilac, free bloomer	5
PURPLE.		
Defiance (<i>Harwood's</i>)	fine purple, free bloomer	5
*Pickwick (<i>Cormack's</i>)	fine purple, compact flower	5
Oakley's Surprise	ruby pur., beaut. tipped with white	4
Admiral Stopford (<i>Trendfield's</i>)	very dark, first class flower	5
Sir R. Sale (<i>Smith's</i>)	crimson purple, cupped, free bloomer	
Quilled Perfection (<i>Brown's</i>)	shaded claret, free bloomer	
ROSE, CRIMSON, AND LILAC.		
Mrs. Shelly (<i>Mitchel's</i>)	dark rose, shaded with lilac	4
Hero of Stonehenge (<i>Whale's</i>)	crimson, beautifully cupped	5
*Rienzie (<i>Widnall's</i>)	crimson, shaded with lilac	4
*Ne Plus Ultra (<i>Widnall's</i>)	fine crimson and purple	4
Madonna (<i>Standford's</i>)	rosy lilac, free bloomer	4
Perpetual Grand (<i>Brown's</i>)	bright crimson	5
Rose Superior (<i>Girling's</i>)	fine deep pink, beautiful flower	6
Sir R. Sale (<i>Smith's</i>)	crimson purple, cupped fine flower	5
*York and Lancaster (<i>Saunders'</i>)	light rose shaded, free bloomer	5
SCARLET.		
*Countess of Liverpool	fine scarlet, free bloomer	7
*General Harrison (<i>Sayers'</i>)	fine scarlet, shaded with crimson	7
Hero of the Thames	fine scarlet, good show flower	6
Vivid (<i>Thompson's</i>)	brilliant scarlet	5

ART. 3.—Hardy Bulbous Rooted Plants.

Bulbous rooted plants belong to a very extensive class of hardy flowers, and are highly deserving a more extensive and general cultivation than they receive; they are certainly the prettiest ornaments of the flower garden in the early part of the spring, when few other plants are in flower. Indeed, the *Snowdrop* is the first harbinger of spring in the flower garden, and is finely described by Mrs. Barbauld:

“As Nature’s breath, by some transforming power,
Had changed an icicle into a flower;
Its name and hue the scentless plant retains,
And winter lingers in its icy veins.”

“It begins often to grow beneath the snow, at a temperature scarcely removed from the freezing point, and flourishes alone,” says Nuttall, “while all other plants lie dormant.” The *Snowdrop* is succeeded by the pretty *genus* of plants, the *Crocus*, of which there are various colors, of yellow, white, and blue, and is particularly adapted to the facings of flower beds and borders. These are succeeded by the *Daffodil*, *Polyanthus*, *Narcissus*, *Jonquils*, *Hyacinth* and *Tulips*; and lastly, that noble class of flowers, the *Lilies*, of which the *White Lily* is one of the most splendid specimens of the flower garden, presenting at one time a flower possessing a delicate white color and exquisite fragrance.

Culture of bulbous roots.—The culture of bulbous rooted plants, is simply to plant the bulbs, such as *Tulips*, *Hyacinths*, and others, about the latter end of October, in the vacant places of borders. The best method that I am acquainted with, is to plant the roots in small clusters of six or eight together, four inches apart, by making a hole two or three inches deep, into which insert the bulb about an inch under the earth’s surface; and if a little sand is put into the hole, it will be of utility to the bulb, as it will keep it from rotting. This manner of planting may be applied to *Hyacinths*, *Tulips*, *Narcissus*, *Crocus*, and *Snowdrops*, and all hardy bulbs. When the leaves of bulbs decay after flowering, they

should be taken from the ground, and moderately dried in the sun, and put into boxes with sand until autumn planting, when the young or side bulbs are to be taken from the parent, as directed under "Increase of bulbous rooted plants," and planted separately from the flowering bulbs.

In places where tulips are planted in large collections, beds are purposely prepared for them by taking out the soil of the bed, which is generally made four feet wide, with an alley two or three feet wide around it. The compost used is about two-thirds good mellow loam, which should be prepared twelve months previous to using it; with it should be mixed one-third good rotten cow or horse manure, and a portion of good, coarse, sharp sand. This being prepared, is put into the bed, and the bulbs are planted, as before directed, in rows, from six to eight inches apart, each way of the bed. In this method of culture, it is customary to use an awning in the time of flowering, to protect the flowers from the influence of the sun, which spoils their colors and prevents their being in bloom any length of time; the management is in every other way the same as before stated.

Hyacinths are also often planted in separate beds, when precisely the same method is followed, with the exception, that they require a lighter and richer compost than the tulip.

The varieties of bulbous roots are so numerous, that it would be impossible for me here to give any definitive list of them. I have therefore stated their different divisions, or classes, leaving the cultivator to choose his collection as taste may dictate, which can be always done by applying to the different seedsmen in the Union, who generally have good collections in the planting season, in the fall, for sale. The divisions, or classes, are as follows:—

Tulips are divided into several different varieties, namely,

1. *Roses*, with white grounds, with rose or cherry color flame, or feather.
2. *Byblomens*, white grounds, with violet or purple flame, or feather.

3. *Bizards*, yellow grounds, with chocolate, dark brown, and nearly black flame or feather.

They are denominated flamed Roses, Byblomens, Bizards, when the stripes of color descend boldly from the top edges of the petals two-thirds of the way down the middle toward the bottom; and are called feathered Roses, Byblomens, or Bizards, when the coloring is finely pencilled round the margin of the petals; either of white or yellow.

To these may be added, Early Tulips, of various colors, on white and yellow grounds, of which the *Duc Van Thol* is a prominent variety.

Full or Double Tulips, are of various colors.

Parrot Tulips, with fringed edges of brilliant crimson and yellow, with shades of bright green.

Hyacinths, like Tulips, are divided into several classes of flowers, which are known under several names, some of which refer to their color, as *Gold of Ophir*, *Rose Boquet*, &c. Their principal divisions are—

Double Hyacinths—Red and rose colored; Blue, of various shades; White, with red and purple eye; Pure white; Double yellow, with various eyes; White, with a yellow eye.

Single Hyacinths—Blue, White, Yellow, Red, and Rosy colored.

*Variou*s—Blue grape; Pur. grape; Feathered, of varieties.

Crocus—Cloth of gold; Blue, White, Purple, and Scotch, of varieties.

Fritillarias—Persian *curious*; Meleagris checkered.

Polyanthus Narcissus—Grand Monarque; Double Roman, sweet scented; Sultan, *White* and *Yellow*; and various double varieties.

Single Narcissus and Jonquils—Hoop Petticoat; Poet, with crimson nectary, and various.

Lilies—White, Orange, *Lilium Superbum*, Silver, Striped, Double white, Yellow pompone.

Turks' Cap Lilies—Different varieties.

Crown Imperials—Yellow, Red, Orange, &c.

ART. 4.—The Carnation and Picotee.

The Carnation requires precisely the same culture as the Picotee; I shall therefore retain them under the same head; and with these the Pink also might be classed, with a very little variation of culture, in this climate.

This delightful family of plants, of which *Dianthus* is the generic name, (from *Dios*, divine, and *anthos*, flowery fragrance,) is highly deserving a more general cultivation; for it is certain that the Carnation and Pink are among the prettiest ornaments of the flower garden of the season, and, being natives of *Britain*, require *only* a little protection during winter, to have them in the greatest perfection.

Before I proceed with directions for the culture of these plants, it will be proper to give a definition of their different varieties and characteristics, as acknowledged by florists, and in doing this, I cannot do better than copy an excellent article on the subject from the "Floricultural Cabinet," written by Mr. John Frederic. He says—

"This flower is divided into several classes, and of late years these have been increased, indicated by the color of the flowers. There are now shown, at different exhibitions in the country—Scarlet Bizarres, each petal being striped with two colors, scarlet and a dark maroon, on a white ground, varying in intensity in different sorts.

"Crimson Bizarres; the stripes also consisting of two colors, but approaching in their tint more to a rose-color and purple. In this class, there is a subdivision, styled pink and purple, which are lighter and more lively in their shades.

"There are yet three other classes, consisting of Flakes. Their colors are scarlet, rose, or pink, and purple of various hues; some being many shades darker than others in each of the divisions.—After the flakes, come the varieties called Picotees or Carnations, with either spotted or striped margins to their petals. Of these there is a very great variety, and they may be classed under the heads of scarlet, red, rose-

colored, and purple. Formerly, they were only shown in two classes, red and purple, without any reference to the extent of the coloring; but now each class is subdivided into heavy-edged, with the color thickly laid on round the margin of the leaf, and are called in Lancashire Striped Picotees; and feathered, or light-edged, where the color touches the leaf in an unbroken delicate line."

The Carnation, like the Dahlia, and other florist flowers, is increased by seed, to obtain new varieties, which are named by those who produce them. The seed may be sown in pots, or in the open ground, early in the spring; and the young plants may be potted and managed the same as recommended for general culture. They will flower the second year, when the grower may see the qualities of his new varieties. The general culture I recommend, is to propagate the Carnation by layers, in August or September, immediately after they have done flowering; and when the plants are well rooted, which will be in four weeks, they are to be put into moderate sized pots, in a compost of two-thirds loam and a portion of sand and rotten leaf mould: when this is done, they may be placed where they are not too much shaded, nor receive too much influence from the sun. The plants are to remain in this situation until the first frost appears, when they are to be placed in a cold frame, well lined on the outside with stable manure. In this situation during the winter they must often be examined, and divested of any dead leaves or filth they may collect, and air admitted every opportunity in fine weather. When the winter is over, the plants may be plunged into the proper place for flowering, which should be an exposure, where the sun has not full influence over them: they may again be layered at the proper time, and the same culture continued every year.

One great point in the culture of this plant is, that it be not over-watered in the winter, which, when the severe change comes and freezes it, the sap vessels often burst, and if it does not cause the leaves to perish, the plant is much injured and

weakened by it. The Carnation should be kept in winter in a moderate, *dry, airy* state, and never be over-watered.

In many cases the Carnation is taken into the green-house and flowered in the spring among other plants to a very good purpose. After flowering, it is then turned out into the borders, as before directed.

It is needless for me to give any directions on tying up the branches, watering the plants in a flowering state, &c., because all this course of culture comes under that general method of cultivation, which every lover of flowers thoroughly understands.

ART. 5.—The Pink.

The Garden Pink is one of the neatest flowers of its season, and is much admired for its fragrance, especially the variety known as the Clove Pink, which has the fragrance of the clove.

There are, besides this, the *Double Pheasant-eyed Pink*, too rarely seen in the flower garden, where it should always find a place, as it is certainly deserving of general culture, particularly as it is so easily and readily increased, by parting the roots, in September; and by doing this each plant will make twenty. For the operation, a moist time should be chosen, when every plant will strike root freely. Of this class there is a very pretty dwarf neat variety, well adapted for edging, particularly for the parterre, or small city garden.

The *Common Garden Pink*, which is often increased by sowing the seed, is well worth cultivating, as it generally flowers abundantly the second year, and may be termed biennial, although it is often prolonged for several years, when good varieties are obtained from seed, by cuttings, layers, and dividing the roots.

The *Carnation Pink* is also now much cultivated, and is a desirable variety, and forms a connecting link between the common Garden Pink and the Carnation. It is readily grown from seed, and produces flowers the second season.

I have often seen very fine specimens of flowers produced from seed of this variety; and in some cases having the delightful fragrance of the clove, in connection with a good double flower.

The *Prize Pink*.—The one recognized as a *florist flower*, is rarely seen in cultivation in this country; nor is it likely ever to become a favorite to the general cultivator, owing to its habit being too tender to withstand our dry summers and severe winters. This is owing to the high state of perfection the plants are brought to by amateurs; and, like the Carnation, Tulip and all *prize* florist flowers, they have a tendency to return to their primitive state, sooner or later, unless they have every attention paid to them, as a florist flower. But when the Pink is kept in a state of perfection by the amateur florist, there is nothing I am acquainted with so perfectly in unison with a highly cultivated flower garden.

There is not a flower that I am acquainted with, of so domestic a nature as the Pink. It should be planted near the front, or the windows, of the dwelling; for its agreeable fragrance, and neat habit, are always inviting, and I earnestly hope so pretty a flower will find many admirers in every part of the Union.

The Garden Pink flourishes in a loamy soil, with a portion of well rotted manure, that from the cow-yard is the best; and the choice tender kinds should be partially protected in the winter. The method of propagating the choice kinds of Pinks is by pipeings, and by layers.

The pipeings are the young shoots or grass of the plants, which are taken from the plants in the month of August or September, by taking them between the finger and thumb, and gently pulling them out of the socket of the shoot, of the length of three or four joints. The top of them is then partially cut off, level, with a sharp knife, and they are every way like a cutting, *only* they need not be cut at a joint, or cut level at the bottom with a knife, but are simply pulled out of the *pipe* of the stalk, and hence the name *pipe-*

ing. A compost of one-third mellow loam, one-third rotten leaf mould, and one-third river sand, is to be prepared and put into a shady situation, and the pipeings are to be inserted therein, an inch or two apart, and they are then covered with a hand or bell *glass*, and regularly attended to as any other cuttings, by shading from the sun, cleaning the glass, &c. When rooted, which will be in a few weeks, they may be planted into their final place of flowering.

The method of layering is precisely the same as for any other plant, and the time best for the business is the middle of August or in the beginning of September. The method is to clear out the plant from dead leaves, or any rubbish that might have been collected. The top of the leaves of the shoots intended to be layered are then cut even, and the earth round the plant should be broken up with a trowel, and the shoots knecked and layered with pegs, in the same manner as before stated. When well rooted, the young plants may be planted in their final place for flowering. The Carnation and Picotee may be treated in precisely the same manner.

ART. 6.—The Polyanthus and Auricula.

The Polyanthus and Auricula, with the Primrose, Cowslip, and all their intermediate varieties, may be considered under the head of *Primulaceæ*.

This pretty family of plants has more claim on our attention to their culture than any other class of flowers, so little regarded. The *Primula vulgaris*, or common Primrose of Great Britain, is one of the first harbingers of spring, and is seen almost every where, peeping under the sunny banks, to greet the young spring, and bid adieu to the last relics of old hoary winter.

In China, Switzerland, and other parts of the northern hemisphere, the *Primula* is found inhabiting the mountains and meadows; and the *Auricula* is found, in its primitive state, growing on the base of the Alpine mountains, where the sun seldom or never shines; and hence we may infer

that this variety requires shade, to grow it to perfection, in a cultivated state.

The *Polyanthus*—which is an improved variety of the English Primrose, and has been brought to that state of perfection as to render it a *florist flower*,—differs from the Primula by forming a *truss*, or number of flowers, on one stem, and hence the name *Polyanthus*. Florists decide on the perfection of this flower, by its having a strong and uniform stem, which ought to be elastic and erect, showing the truss of flowers well above the leaves of the plants. The footstalk should be stiff, and of a proportionate size to the *pips* or flowers, which should be five or more in number, that the truss be close and compact. The pipe, tube, or inner part of the petal, should rise above the impalement, be short, and finish fluted in the *eye*; the *antheræ* should cover the neck of the tube; this is the *rose eye*; and what florists call a *thrum eye*. When the style shows its *stigma* in the tube, above the antheræ, resembling a pin's head, it is then called a *pin eye*, and the flower is rejected.

The *tube* should be round, of a bright yellow color, well filled with anthers, bold and distinct. The *eye* should be round, of a bright clear yellow, and distinct from the ground or body color. The *ground*, or body color, should be of a dark rich color, resembling velvet, and clear from spot or blemish. The *pips* should be large, and of rich lively colors, nearly all of one size, lie quite flat in the centre, and be as free as possible from ridges or fluting, and as round as possible, to preserve their peculiar beautiful form, which is circular, or wheel-shaped, excepting those small indentations between each division of the limb, which divides it into five or six heart-shaped segments. The edging, or *lacing*, should be of a bright yellow, of the *same color as the eye*, and go perfectly round each petal, also, down the centre of each division of the limb to the eye; it should also be of an equal breadth on each petal.

Culture.—The *Polyanthus* and *Auricula* require the same

treatment in culture, and are increased by seed, which should be sown in pots or boxes, of light, fine earth, in the spring. The green-house, or frame, is the best place for this business, but the open ground will answer; care should be taken to keep the earth moderately moist, or the seed will not vegetate freely. The young plants should be kept in a shady situation through the summer, as they will not thrive when fully exposed to the sun. In the fall, the plants may be potted singly into four or five inch pots, in a compost of half well prepared mellow loam, and the remainder leaf mould and good sharp river sand. The old plants may be divided by their roots, in August or September, and potted in the same kind of compost.

When the winter begins to close, the *Polyanthus* and *Auricula* may be protected in "Garden-frames," as directed under that head; or they may be introduced into the front stage of the green-house, where they generally flower in fine perfection. Early in the spring, the plants should be plunged out of their pots in a northern aspect, where they are not too much shaded, and in the fall they may be again repotted, as before directed.

It would be useless for me to give a list of the numerous varieties of the *Polyanthus* and *Auricula*, as described in the English catalogues. I shall, therefore, merely point out the different divisions of the family, as follows:—

Polyanthus—Single and Double varieties.

English Primrose—*Single*: Yellow, Purple, and Lilac.
Double: White, Yellow, Purple, and Lilac.

Cowslip—Yellow, and Purple.

Oxlip—Yellow, and Purple.

Auriculas—Large Purple, with dark centre; Purple, with yellow centre; Fine Purple, crimson border and centre; Pure Yellow.

ART. 7.—On the Culture of the Pansy, or Heartsease.

The *Pansy* having become so favorite a plant in the flower garden, I shall devote a small space to remarks on its culture. To obtain new varieties, the same process as with other flowers must be resorted to, namely, selecting out the best kinds, and impregnating one with the other, in order to mix the colors, and obtain those which are considered by florists the best marked flowers; which are those with a clear, dark ground, and well shaped petals, that are regularly margined or laced, either with white or yellow: but white is the most delicate, and is considered the best.

Having procured the seed, it may be sown immediately, or saved until spring, when it may be sown either in a *pot* of light, rich earth, or in a frame. As soon the plants are grown to a moderate size, they are to be pricked out, either into beds or borders, of rich earth, of a moist, loamy nature; in many cases, they are planted as a bordering for flower borders; and when they are of a good width, they have a very pretty effect in the flowering season. But the more proper way is to plant them in four-foot beds, and if a little shaded from the noon-day sun the better.

The *Pansy* is, in most cases, hardy; however, if the choice and tender kinds are a little protected in the winter, they will flower much better in the spring following. The general manner of planting the *Pansy*, is to prepare a piece of ground in the usual way for planting, and divide it into four-foot beds, with eighteen-inch alleys, and plant the seedlings across the beds, about a foot apart each way; and they are to be in every way treated as other flowers. When the plants are fully grown, or fit for transplanting, they may be mixed with other flowers in the borders for flowering, and a little shaded from the mid-day sun, which generally runs the delicate colors off them.

The choice kinds may be potted and protected in frames during winter, or they may be planted in the soil in frames, and covered; and, indeed, the more choice kinds may be with

every propriety placed in the green-house, to flower early, where they will have a pretty appearance.

The choice varieties may be propagated by cuttings, which should be taken off early in the spring, or in September, and treated the same as any other cuttings, by placing them in a shady situation, and well attending them, when they will generally strike root freely.

ART. 8.—The Chrysanthemum.

It is much to be regretted that the Chrysanthemum is not more generally cultivated, particularly when it is in season when there are but few other plants in flower. This, I presume, may be more attributed to but few varieties being generally known, and those of a very inferior quality, than to any other cause. In hopes to make the subject better known, I shall treat separately on the culture, and add a Descriptive List of some of the best known varieties at the present period.

The Chrysanthemum is a native of China, and may be considered a hardy perennial; but, although it lives through the winter unprotected, the plants do not bloom in perfection unless they are protected from the early frost, either in a frame, green-house, or room. There are various methods of cultivating the Chrysanthemum, as by cuttings, layers, and dividing the roots. The common mode of culture is to plant out the roots in the spring in the flower borders, and allow them to grow without any other culture than is given to plants in common: these plants are taken up about the first week in September, and put into pots or boxes, to suit their size, and are allowed to flower, with the ordinary care given to plants.

The most approved method by florists, is to increase the plants by cuttings, which are taken from the plants in the ground, when they are grown eight or ten inches. The method is to take off the cuttings at two or three joints and pot them, in the same manner as recommended for the propagation of geraniums; when the cuttings are well rooted, they may be potted into three inch pots of compost, the same as

recommended for green-house plants, and put into a situation where they are partly shaded from the mid-day sun, which often scalds the leaves, and makes the plants have a very bare appearance. When the plants are well rooted, they may then be shifted into four or five inch pots, with the same compost as before recommended, with the addition of a portion of well rotted leaf mould, or manure, and a portion of sand. They may now be placed in a free exposure, and have a bountiful supply of water, to grow them in a healthy state. In order to have Chrysanthemums form nice bushy heads, they should be stopped, when about six inches high, by nipping out the heart of the plants. In this place they may be allowed to remain until taken into the room, or green-house, for flowering, which should be done before the first frost appears, which always injures and disfigures the plants.

There is one thing necessary to be considered in the cultivation of the Chrysanthemum, namely, the manner of wintering the roots, which should be so managed, that they are kept in a dry, healthy state, and are not growing freely, as it should always be the object of the cultivator to keep the young shoots from growing, if possible, during the winter.

Descriptive List of Chrysanthemums.

Adventure; yellow.	Paper White; fine white flake.
Aitons; yellow.	Peerless Primrose. [low, fine.
Bicolor; white, with yellow centre.	Park's Small Yellow; clustered, yellow.
Changeable White.	Purpurea Superba; superb purple.
Compactum; small white.	Quilled Purple; fine flower.
Curled Lilac; deep lilac, curled petals.	Quilled Aster flowered.
Defiance (<i>Buist</i>); lemon yellow.	Queen; delicate rose.
Fletcher; rich crimson.	Sanguineum; deep crimson.
Golden Lotus; fine yellow.	Solon; large superb yellow.
Grand Napoleon; fine purple.	Starry Purple; fine purple.
Georgiana; pink, expanded flower.	Striatum; pink and buff.
Indian White; pretty small white.	Superb White; fine flower.
Invincible; large white.	Tasselled Lilac; fine lilac.
King; large pale rose.	Tasselled White; showy flower.
Lilac Perfection; fine lilac.	Triumphant; buff and pink.
Lucidum; pure white.	Victory; rosy blush.
Mirabile; pink and buff.	Virginia; white, perfect flower.
Ne plus ultra; pure white.	Wheelerii; deep rose.
Perfection; lilac.	William Penn; creamy white.

CHAPTER V.

On the Monthly Calendar.

ART. 1.—Object of the Monthly Calendar.

IN giving a monthly calendar, the principal object is to take a cursory review of the management of the flower garden, at the different seasons, which could not be, in any other way, done in so condensed a form, corresponding with the tenor of this book, which is, as much as possible to treat on every thing separately. The manner of propagating most kinds of the plants adapted to the flower garden, has been separately treated on in Part I; and it now remains to speak of their general culture, as the seasons pass on from spring to summer, autumn, and winter. In commencing this subject, I shall begin with the year; for, although in the month of January nearly all horticultural operations are suspended, it is customary to allot that month a space in the calendar.

Before I proceed with the directions for each month, it will be proper to say, that the reader must, in many instances, judge for himself of the proper time of doing any particular business, as a little fore-thought will at once convince any person that *practical observation* is one of the best guides to perfection in the management of the flower garden. The criterion here laid down is supposed to answer for the eastern states, and the vicinity of Cincinnati. In the more southern parts of the Union, of course, every thing relative to practice and management will be in accordance with the season, which will perhaps be a month earlier to operate than the rule here laid relative to *time*. This may be easily remedied by taking such things into consideration, and managing accordingly; and taking February for January, March for February, and so on, through the process of the monthly calendar.

ART. 2.—January.

In this month, little can be done in the flower department, except in the green-house, and taking care of plants in rooms, which I shall notice in their separate places. However, if the weather proves changeable, which is often the case, the coverings of the plants are liable to be misplaced by the wind, and other causes; therefore it is proper to look over the garden, to see that all is in due order, particularly if *Carnations*, and such like, are covered.

Plants in frames, also, as the *Carnation*, *Auricula*, *Polyanthus*, and the like, may be looked over, and kept in order, by taking away any dead leaves or filth that may be collected in them; and if mice, rats, or other vermin, have made any depredations, they should, if possible, be destroyed. If the weather proves mild, which is sometimes the case in this month, the glasses may be taken off in the middle of the day, and closed at night; care must be taken that they are not left open through the night, and the plants frozen, which is often the case. See Garden Frames.

ART. 3.—February.

In this month, like the preceding, little can be done to advantage in the garden, except where any forest trees are to be pruned, or cut down, which may be done to a good purpose, and much forward the business of the flower garden in the coming spring; the frames should be attended to, as previously directed, and the garden should often be looked over, to see that the covering, and the like, is in due order.

In the south-western states, the business of the flower garden will commence this month, and the rules laid down for March will answer precisely the purpose, and the same transfer may be carried through the seasons.

ART. 4.—March.

This month, if mild, begins the principal business of the flower garden. A hot-bed may be prepared, as before directed, for sowing annual flower seeds; biennials and perennials, that are intended for early planting, may also be forwarded by this method. The plants in frames may have more *air* given them, and every opportunity should be taken to forward them as much as possible for the planting out in the ground. The uncovering of many plants may be seen to near the close of the month, and all kinds of hardy shrubs and plants may be pruned and tied, or nailed, in a proper manner, either to fences, walls or trellises, to which they are intended to be trained.

In the latter part of this month, all dead stalks may be neatly cut from the plants, and cleared from the garden, and the grass plat may be raked and divested of all the old dead grass, and any thing that may prevent the young grass from coming up in a regular manner; any parts of the walks that have been washed, either by rain or snow-water, should now be repaired, and put into good order previous to the spring dressing. The pruning of trees and shrubs may be performed, by simply, in the first case, divesting them of all dead wood, and thinning out all weak, superfluous branches, and those which cross one another. In the act of pruning, a few simple rules are to be regarded, viz. that all wounds or amputations be made with sharp instruments, and left in a clean, slanting manner, that the wet may not collect on and rot the wound; the next thing is, that the plants be regulated in such a manner that the *sun* and *air* have free access to every part of them; and thirdly, that their natural form and habit be as much as possible retained. In cases where plants have grown into a straggling manner, they may be headed in, to form a new head or crown. These remarks will be found to answer a general purpose, in pruning plants to their natural habit, if correctly attended to.

ART. 5.—April.

April is the busiest month in the flower garden. As soon as the weather will admit, and the ground is dry, the pruning and cleansing of the plants and the garden should be finished.

The borders and flower beds may now be dug, and the box, or other edgings, mended or replanted, and every thing must be done preparatory to transplanting perennials and sowing annuals.

In digging borders or flower beds, care must be taken that they are so dug as to lay rather the highest in the middle, by which the appearance will have a more pleasing effect, and the water will drain from them in a regular manner. It must be recollected, that wherever water is allowed to lay long on any plants, (except *aquatics*,) they are much injured thereby. Previous to the borders being dug, the places required to be planted, either with shrubs or herbaceous plants, may be planted after the manner described under the heads of Planting and Descriptive Lists, where every information will be found relative to their proper position, and the manner of performing the work. When the borders are dug and planted, the grass plat, if any, and walks must be repaired, and put in proper order.

The seeds of hardy annuals and perennials may be sown, and the layering of plants, dividing the roots, putting out cuttings, and the like, may be performed as directed under the head of "Propagation."*

ART. 6.—May.

Supposing the work to be done as directed, in April or the beginning of this month, the principal thing to be attended to is to sow all kinds of annual, biennial, and perennial seeds, at three sowings, this month: the hardy kinds at the beginning, the half hardy at the middle, and the tender at the end of the month.* In the beginning of the month, box edgings may be

* This business, in this place, particularly refers to the eastern states; in the south-western states it should be done in the preceding month.

laid, and all kinds of edgings, as *Moss-pink*, *Iris*, *Stone-crop*, and the like, may be neatly repaired, and every thing completely finished for the spring dressing. If the trees and shrubs have not been pruned and trained, (which see, under the proper head,) as directed in April, no time should be lost in performing that work in the early part of this month.

In the middle, or latter part of the month, all kinds of green-house plants may be plunged in the borders or flower beds, as directed under their proper heads. The *Dahlia*, *Jacobean Lily*, and all kinds of tender rooted plants, either tuberous or fibrous, may also be planted the latter part of the month.

Tender and hardy annual flowers may now be transplanted from the frames; the hardy at the beginning, and the tender at the end of the month.

All kinds of flowers that are of slender growth should now be supported by tying them neatly to sticks, and every attention should be paid to the health of the plants and neatness of the garden.

ART. 7.—June.

The principal business to be done in this month is hoeing and keeping the flower beds in order, often mowing the grass plat, and cleaning the walks; indeed, every department should at this time receive the most strict attention. And here let me remind the reader, that one of the principal things to be attended to in flower-gardening, is to remove all weeds in their infant state, for at this stage they can be easily destroyed; but if allowed to grow and get strongly rooted in the ground, they exhaust the soil, as well as have a bad appearance. Hoeing, raking, and destroying weeds, are operations so simple and common as to render any directions on the subject superfluous; but its simplicity does not prevent it from being a most important subject. To avoid irksome minuteness, I will merely remark, that the most strict attention should be paid to keeping every part of the garden at all

times neat and cleanly; and having once called attention to this point, I may not recur to it hereafter.

Particular attention must be paid at this time to the tying up all the slender plants to stakes or sticks, as the *Dahlia*, and plants of a rapid growth. For this purpose, neat sticks, or stakes, should be prepared, of a size in proportion to the height of the plant; for the *Dahlia*, sticks of about six or seven feet, planed off in a tapering manner, either round or square, and painted green, answer a good purpose. In the operation of tying up the *Dahlia*, care must be taken that the plant is not tied too tightly, which is often the case, and the consequence of which is, that the plant is nearly cut asunder, and the first storm that comes blows it down. In tying up plants care must also be taken that they are not too much bundled together, which is not only unsightly to the eye, but is often the cause of the centre part of the plant being in a measure rotted, owing to the leaves being too much confined, and not receiving the influence of the atmospheric air.

Attention must now, also, be paid to the training of vines, as *Honeysuckle*, *Clematis*, and all such plants as are trained to trellises and arbors; which see, under the head of Hardy Running Vines.

Annual flower seeds may now also be sown for late flowering; and in moist weather any bare places in the borders may be planted and filled up with annuals, to make every part have a regular and sightly appearance.

ART. 8.—July.

Every favorable opportunity should be taken in this month to keep down weeds as they appear, and to tie up any plants that are of a slender habit. The *Dahlias* should be carefully looked over, and tied to their stakes, to prevent them from being broken down by rains or heavy storms. Every attention must now, also, be paid to annuals, by thinning out those that are growing thickly together, which, in their infant state, cause a weakness in their habitual constitution, and they

rarely assume their wonted vigor in the flowering season; and the consequence is, that they never flower in perfection. Any kind of bulbous roots, as *Tulips*, *Hyacinths*, *Crocuses*, and the like, that are to be taken up and replanted in the autumn, may be removed so soon as their leaves are ripe and decaying: for the method of performing this work, I refer the reader to page 76-7.

It will be proper here to observe, that there is an exception to the *rule* of taking up bulbous rooted plants, in most kinds of lilies, as the *White Lily*, *Orange Lily*, and the like. Indeed, in many cases, they are much injured by being often removed; the *White Lily* seldom flowers well, if at all, the first year of its removal, and many other kinds flower but feebly. The best method that I can recommend in the culture of lilies, is to thin out the roots in such a manner, yearly, that the large flowering bulbs are three or four inches apart: the taking away the offsets and small bulbs in this manner, gives those left to flower a chance to obtain the different nutriments and food in the grounds in which they are growing.

Care must be taken this month of any green-house plants, whether plunged in the ground or otherwise, by watering them moderately, so that the earth they are growing in may be kept moderately moist. This is the most critical month in the summer for many kinds of green-house plants, particularly the *Erica* and *Camellia*, which are often so much injured that they never recover, owing to the earth in the pots being allowed to be dried to *dust*. The consequence is, that the roots of the plants perish by drought, and the leaves turn yellow and fall off. Insects, also, attack the plants, which, being in a weakly state, by degrees dwindle and die. In all kinds of tender annuals and herbaceous plants which are perishing for want of water, attention may be paid to the watering at the roots moderately in the evening; but care must be taken not to over-water at this season, which will be unnatural, and greatly injure them. *Moderation* must be the guide in this process, as in all others of the same nature.

ART. 9.—August.

Little is required to be done in this month, besides keeping the flower beds and garden clean, tying up plants, cleaning walks, &c., of which I have already spoken. If any bulbous rooted plants, that are to be taken up, still remain in the ground, their removal should no longer be deferred. The inoculation to be done on *Roses*, or any choice plants, should be attended to near the end of the month, or as soon as the plants are in a proper condition to be operated upon; which see, under the head of Inoculation, page 35. Any kinds of annual or perennial plants that have done flowering, and are encumbering their neighbors, may also be taken away or cut down, and the garden should at this time go through a regular hoeing, raking, and cleaning, which is very important at this season, and when neglected is many times the cause of much labor, by weeds over-growing and spoiling the autumnal flowering plants.

ART. 10.—September.

In the beginning of this month, all kinds of green-house plants intended to be taken up and potted, either for the green-house or rooms, should be attended to. For the manner of performing the potting of plants, I refer the reader to that chapter, "on the Management of Green-house Plants." All kinds of annual and biennial flowers may now also be potted, and placed in a situation where they can be partially shaded, in order to encourage their rooting freely in the pots. For a Descriptive List of the best kinds for this purpose, I refer the reader to articles 1 and 2 in the Appendix. Indeed, any kind of plants intended to be taken into winter quarters, should not be delayed after this time; they are rarely well rooted and prepared for the sudden change.

There are but few things to be done in the flower garden, that require more practical knowledge, and are less understood, than the taking from the ground and preparing plants for winter quarters. In this, I would wish to be understood

as referring to all kinds of annuals, biennials, and perennials. In the first place, it is an act of violence on nature to remove plants from the soil, when they are established and in a vigorous growth, to a small pot of earth, perhaps of quite a different compost from that in which they have been growing; besides, they have in most cases their principal roots *cut asunder*, which have extended several feet in search of a proper nutriment; consequently, the natural channels that extract food for the plant are severed from it, and its vigor is more exhausted than nourished; the plant being thus enfeebled, eventually loses a portion of its leaves, in proportion to the loss of such members; and this again weakens it, owing to its losing, in a certain degree, its power of imbibing the moisture of the atmospheric air. In this case, the plant has generally to undergo a change in habit and growth, at a time when it is least prepared for it, namely, before the approach of winter, when it requires to be in full vigor, which can only be regained by the most attentive and natural management.

Taking the plants from the ground and potting them.— If possible, an opportunity should be sought to take the plants from the ground, or pot them, on a moist, humid day, after a shower of rain. They should be taken carefully from the ground, and their fibrous roots as much as possible retained. Being taken from the ground, they should be immediately potted, and well watered, and placed in a situation where they are partially shaded, and have a free circulation of air: it will be the better for them if they be placed under trees, where the direct rays of the sun are withdrawn from them, and a free circulation of air can act on them. In this situation, the plants must be regularly attended to, by keeping the earth moderately moist, in order that they may root freely in the new pots. All dead leaves should be taken from them as they appear, being often very injurious to plants potted in this way; for the decaying leaves being in a state of putrefaction, create an impure air, which is imbibed by the living leaves, and sickens the plants.

When the plants are well rooted in the pots and begin to recover their strength, they are to be gradually exposed to the sun and their natural location, in order that they may recover their natural habit, previous to their removal to winter quarters.

In this month, the principal business in the flower garden is keeping it clean from weeds, gathering all kinds of flower seeds as they ripen, (which see, in the Appendix, Art. 3,) protecting plants of slender habits, and training and tying vines to trellises. This is the proper time to divide and propagate many kinds of hardy herbaceous plants where wanted, and if any alterations or new arrangements are to be made in the flower garden, they should be immediately attended to.

ART. 11.—October.

The principal thing to be attended to in the flower garden this month is, to give particular attention to the management of the green-house plants that are not taken into the green-house or rooms. Green-house plants should be protected at night, after the first of the month, in most parts of the northern states; for the first frost, which is always to be expected at this time, will much injure them if exposed, besides spoiling their appearance. Any kinds of hardy bulbs, as *Tulips*, *Hyacinths*, *Lilies*, and the like, may be planted, from the middle to the end of the month, as directed under their proper heads.

The *Carnation*, *Polyanthus*, *Daisy*, and any kind of half hardy plants in pots, that are intended to be protected through the winter in frames, should be placed in them and covered on cold frosty nights.

Every attention must be paid to the *Dahlia*, and tender rooted plants, that are liable to be injured by the early frost. It is a good method to protect them, by laying some long manure or litter about the roots, to guard them from being injured by the first frost.

This month is also a favorable time for transplanting all

kinds of evergreens; hardy shrubs and herbaceous plants may also be planted to advantage, especially in a dry location; and, indeed, all kinds of fall planting is much better to be done at this time than later in the fall, as the plants that are at this time planted out are not so liable to be injured by much wet settling about and rotting their roots, besides the advantages of their making new spongioles, or tender roots, which draw much nutriment to the plants, and prepare them to grow vigorously in the spring.

ART. 12.—November.

Supposing the green-house plants to be housed, their management will be found under the proper head, of the green-house department; but the half hardy plants in the frames will require to be attended to, by giving air, covering on cold nights, and the like, as recommended under the head of "Garden Frames." Great attention must be paid to the Dahlia, if not taken from the ground, that it be not frosted at the root; indeed, it should always be the rule, even in mild autumns, to take the roots from the ground the first of this month; but if left after that time, a double covering should be applied. Little will require to be done in the garden, except to clear away any kind of dead leaves or decaying plants, which appear to be a nuisance, and every thing may be prepared for the winter.

All kinds of hardy bulbs that were not planted the latter part of October, may be planted by the middle of this month, and if any new plantations, either in the shrubbery or flower garden, are to be made in the fall, they should not be omitted any longer than the middle of the month.

Covering plants, and protecting shrubs.—About the 20th of the month, or as soon as the winter begins to close, which will vary from fifteen to fifty days in different parts of the States, for which this work is intended to be adapted, will be a proper time to protect all kinds of herbaceous plants, by covering them on their crowns with long manure, or if leaves

can be obtained, they will answer a better purpose. Tender kinds of shrubs, as the *Double Hibiscus*, *Magnolia purpurea*, &c., may be protected, by tying up the branches in a neat manner, and covering them over with straw, and tying it neatly around them.—Which see, under the head of Covering and Protecting Plants.

ART. 13.—December.

Little can be done in the garden this month, except it is a very mild season, when the covering of plants, and the like, may be done, as directed in November. For the management of the Green-house and Frames, I refer the reader to the articles under these heads.

CHAPTER VI.

On the Variations and Motions of Plants.

ART. 1.—Variations of Plants.

In order to diversify the subjects of the “Companion,” I have introduced several that are not altogether pertaining to culture; but which may be interesting to those who are desirous of being made acquainted with the different qualities and variations of plants, as their color, monstrous habits, motions, &c.

ART. 2.—Color of Plants and Flowers.

There is nothing that I am acquainted with in the vegetable kingdom, that is more changeable and deserving of notice than the coloring of plants; which is different not only in flowers, but also in leaves, roots, seeds, bark, and, indeed, in every part of them. When the earth is clothed with vegetation in

the spring, *green* is the predominant color; and so varied are the shades of this general vestment, or clothing, that it is hardly possible to find two different varieties of plants of the same shade of color. This general clothing of plants also undergoes many changes during the season from spring to autumn;—the most general change that takes place, is the expanding of the leaf of most plants, when the color is commonly of a light green, inclined to a yellow, and the forests have at that time a tinge of yellow in their appearance; this coloring is soon changed into a *deeper green*, which, when the leaf is at its maturity, is then at its deepest color. From the maturity of the leaf to its decay, or dropping from the plant—which is shorter or longer in different varieties—a gradual change takes place, from a deep green to a yellow, in most plants; and in some varieties it is again changed to a dark red, or purple, as in most of the native shrubs, which is owing to the acid they contain. Leaves of plants are also variegated or checkered in many ways, with two or three distinct colors, which is exemplified in the *Amaranthus tricolor*, *Variegated Geraniums*, and many evergreens, as *Hollies*, *Box*, &c. Some leaves of plants have distinct colors on each side, as the *Tradescantia discolor*; and in some cases, the color of plants is entirely extracted and a white is substituted, which is caused by the absence of light and air, as in the case of blanched *Celery*.

In the flowers of plants, many changes are observable, from their first expanding to their decay. The *calyx*, or covering of the flower, is mostly *green*;—there is, however, an exception to this rule in some few flowers, as the *Ear-drop*, or *Fuschia coccinea*, which has a beautiful scarlet *calyx*, or covering, that is often taken for the flower cups, which are purple; and the changeable part of the *Hydrangea hortensis*, is nothing more than a changeable calyx, or covering, the flowers being no larger than a pin's head. The petals, or flower leaves, are the most changeable; as in most flowers, when they begin to expand, their petals are of a light

green color, which, on being expanded and exposed to the atmospheric air, become *red, purple, yellow*, or any color natural to them, during which time it undergoes many changes. Flowers are also variable in their parts, as in most cases we find the anthers, which contain the pollen, are of a yellow color, and the styles, which support them, of a *hyalinus*, or water color. The flower leaves, or petals, are also, in many cases, mottled or variegated, as in the *Geranium, Balsam, Camellia*, and many others.

In taking a general view of the colors of plants, it will be found that white is the most common in the petals of spring flowers, as the *Snowdrop, Wood anemone, Cherry, Plum, &c.*; water color in the *styles and stigma* of flowers; yellow in the heads or anthers of flowers, and in the petals of most compound flowers, as the *Sunflower, Coreopsis, Hawkweed*, and most autumnal flowers; black is most common in seeds and the bark of roots; blue, red, and violet, in the petals of summer flowers, as the *Rose, Larkspur*, and many native plants; red is also very common in acid fruits and berries; and green predominates in leaves and in the calyx of plants.

In closing the present article, it is proper to add, that the color of flowers varies from their natural or primitive, according to the location they are placed in; and by observation it will be found, that all kinds of fulgid flowers, as the *Double Lychnis, Roses*, or any high colored ones, require to be exposed to the sun and air: shade generally causes most flowers to lose their deep colors, except those of a pure white, as the *Lily of the Valley*, and those which naturally grow in shaded locations.

ART. 3.—Double Flowers.

Double flowers are exemplified in the *Double Dahlia, Stock-gilliflower, Rose, and Camellia*; they are, in most cases, the result of luxuriance in culture, or other causes, by which the organs of generation are transformed into gaudy petals, or flower leaves; consequently, such flowers cannot

possibly produce seed; their varieties have, therefore, to be prolonged by propagation of cuttings, roots, and layers.

Nothing is less constant in plants than double flowers, which is fully exemplified in the *Dahlia*; as we may see on the same plant, perhaps twenty flowers all differently formed: some nearly single, with the organs of generation, as the *male* and *female* parts, with a yellow centre; others approaching a semi-double, and some a perfect double flower, until the variety is termed "*run out*," which is to say, *returned to its primitive state of a single flower*. This sporting of flowers is very different in plants of the same family; for we see in some plants that almost every flower is perfectly double, as, for instance, in the *Dahlia*; the *Countess of Liverpool* generally forms a fine, clear, well-formed double flower; whilst other varieties have occasionally a fine double flower; and some, on the same plant, are semi-double, and the remainder nearly single. The same affinity is observable in many kinds of perennial plants, that produce double flowers.

In annual flowers, as the *Stock-gilliflower*, the double flowers are more perfect, but the duration is shorter: one year only it can be said to continue, although it is often prolonged by cuttings, which are mostly of a sickly appearance. Whatever may be the value of double flowers, certain it is, that they, sooner or later, will cease to be in existence. The primitive, or single flowers, are the only varieties that can perpetuate the vegetable kingdom to the end of time. The economy of nature in this case, as in all others, has given a variation, that too much sameness may not cloy our pleasure. We, for instance, in some double flowers, find them continue their perfect character for many years unaltered, as the *Double White Camellia*; in others, we perceive a continual variation for a few years, as in the *Dahlia*, and then the primitive state again predominates. In other denominations of plants, as annuals, a yearly variation from the single to the double flower is observable, as in the *Stock-gilliflower*; whilst the primitive, or single flower, at all times

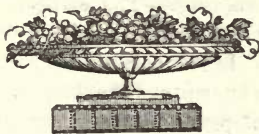
presents the same form and number of parts, and is perpetually renewed, and continued in its natural habit and quality.

ART. 4.—Motion of Plants.

The most general motion of plants that takes place, as a natural change, is the well known fact, that most trees, shrubs, and the lower order of plants, always incline toward the light. This fact is observable in woods, where trees grow close together, in which case their branches always incline towards the light and air, as the vacant places, and the outsides. Plants on the shelves of green-houses, or in windows, always incline to the glass, and when their position is changed, the leaves and minor branches change their position also, and incline to the light. If a number of plants are placed in a dark room, in different parts, where there is a small window, each plant will be found to direct its position in a direct line to such window. In conclusion of this part of the subject, it may be proper to state, that soft-wooded plants alter their position, on being changed, sooner than those of a hard-wooded kind; therefore, the time of regaining the position of any plant depends on its nature.

The movements or motions of the leaves of plants, is exemplified in many different ways. If a branch of a grape vine is turned from its natural position, where it grows, so as to turn the under sides of the leaves to the light, they will in a few days regain their natural position, by being reversed on their footstalks. This movement is apparent also in the leaves of most kind of plants when reversed from their natural position, which they again resume, in a shorter or longer time, in accordance to their habit, as before stated. In some varieties of plants, the leaves fold up close to the footstalk in the night. This motion is termed by botanists, “the sleep of plants,” and is observable in some varieties of *Oxalis*, and many of the winged-leaved plants, as the *Acacia lophanta*, which folds its leaves close to the stem by night, and unfolds them at the approach of day. The same movement takes

place if such plants are put into darkness in the day time. Some plants are known to close their leaves on being touched, as the *Sensitive plant*; and some leaves are put in motion by the most gentle breeze, as the *Aspen-tree*, the leaves of which are always trembling on the tree, and hence the name *tremula*. In flowers, a motion is observable in their folding and unfolding, in different periods of the day; an example of this is observable in a pretty green-house plant, the *Oxalis versicolor*, which opens its flowers in the middle of the day, when the sun shines on it, and the heat is above sixty degrees, but closes when darkness comes on at night; and on the following day the same motion is observable if the sun and heat are congenial, but if not, the flowers remain folded. The most beautiful motion in flowers that I am acquainted with, is exemplified in the *Edwardsia grandiflora*. This beautiful plant expands its calyx, which is cloven, when the sun shines strongly on it; from between the calyx, a drop of *nectar*, or honey appears, and becomes larger as the sun has more influence; the upper petals of the flower then ascend to catch the honey, and protect the more delicate part of the flower, which in time fully expands; but so soon as the sun withdraws, the tender parts of the flower close, and the upper petals descend with honey adhering to them, which amasses the whole flower in nectar, a rapid decomposition takes place, and in a few hours the flowers drop from the plants, and putrefaction immediately follows. This fact accounts for the difficulty of obtaining seed from the plant in question.



CHAPTER VII.

On Spring and Fall Management.

ART. I.—Spring Management, Pruning, &c.

WHEN the snow begins to disappear in the spring, the shrubbery and flower garden may be often overlooked, and some of the plants and shrubs that have much covering over them, may have a part of it taken off: for it often happens, that plants being too much covered at this season of the year, make a feeble growth, and are much weakened and injured thereby when fully exposed; we should, therefore, uncover all kinds of plants and shrubs by degrees, as the spring advances, for, by either exposing them too soon, or keeping them covered too long, we cause them to make a weak and tender growth.

When the snow is all gone, the garden may be cleansed of all kinds of covering and rubbish that have collected during the winter, and every thing should have a neat, cleanly appearance. The grass plat may also have a good raking, in order to remove from it all dead leaves and decaying substances, which often deter the young growth of grass from coming up in a regular manner; and the consequence is, that it seldom has a handsome appearance during the summer season. For a general explanation of the planting of trees, sowing seeds, &c., I refer the reader to their proper heads, in the Monthly Calendar.

Pruning and training.—The earliest opportunity should be taken to prune and train all kinds of shrubs, vines, creepers, and the like. In this operation, a few leading principles are requisite to be known, and the thing is so simple and easy, that any intelligent person can perform it in the most accurate manner.

The first thing to be observed in pruning any kind of trees

or shrubs, is to take particular notice of the natural shape or habit of the plant to be pruned. This will be found to be different in almost every different kind of plants; for instance, in some plants we find them naturally to assume an upright habit; in others, a straggling; and in some, a weeping. The first is exemplified in the *Rose of Sharon*; the second, in the *Rose* and *Snowberry*; and the third, in the *Weeping Willow*, *Cherry*, and the like.

To retain these habits, and improve the symmetry of plants in such a manner that the *sun* and *air* may have as much as possible a regular access to every part of them, is the leading principle of pruning; for although in many cases the natural habits of shrubs and plants are cramped into unnatural forms, in order to give variety of effect, it cannot be recommended to be followed as a general rule; for whenever the natural habits of trees or plants are distorted into unnatural forms or positions, it has more the appearance of mockery than reality. *Nature, in this and every other case, should be as much as possible copied and assisted, but never cramped into unnatural forms and positions.*

The natural habits of the plant being noticed, the next thing is to examine and cut out all the dead wood. In this operation, the pruner must not be deceived, and disfigure the plant by cutting out such shoots as will require to be left to fill the vacancies of the dead wood in the growing season. The dead wood being taken out, the next thing is to prune the plant in a regular manner, by cutting out all the weakly shoots, and thinning in such a manner that the sun and air have a free access to every part: all long straggling shoots should be taken off, that the shrubs or vines may have a regular, compact appearance. In performing this operation, sharp knives and instruments should be used, that the wounds may be cut clean and heal freely.

Training all kinds of vines, as *Honeysuckles*, *Clematis*, *Bignonia*, and the like, may be done with despatch, in order that every thing may have a neat and cleanly appearance.

The training of vines is simply done by tying them neatly with bass, or other strings, in such a manner that every part is equally divided at a regular distance, and to allow a sufficient space for the summer wood to grow, and be trained between the shoots laid in at this season.

ART. 2.—Fall Management and Covering Plants.

We should be cautious that the early frost does not destroy the *Dahlia* roots, and tender green-house plants, before they are covered, or housed: I mention this the more particularly, as it is very often the case, especially with young beginners in flower-gardening, that tender plants are left too long unprotected, and thus are much injured, if not totally destroyed.

The potting of plants, putting them in the frames, and the like, are spoken of under their proper heads, to which I refer the reader.

The covering, or protecting of plants, should be attended to so soon as the frost begins to be severe. The Box edgings may be protected by sea-weed, hemlock brush, long manure, old tan, or other light covering. Merely to keep off the sun from scalding Box edging will be sufficient, as it is more injured by the sun thawing and bursting the sap vessels than by being severely frozen; and hence it is that the leaves of Box edgings are often scalded in the spring.

The same rule that is here given with regard to Box edging, is applicable to covering most other plants. The principal object is to protect them from the sun: for it is not the severe frost that injures them, so much as the sun, which, when it exerts its full power on them, bursts their veins in a frozen state, and causes the plants to sicken, and in many cases to die. Many plants, as bulbs and herbaceous plants, are often materially injured in the spring by being too thickly covered in a warm temperature, and commencing to grow when excluded from air; and when uncovered, the leaves are made tender, and suffer very much on being exposed to the sun and air.

In many cases, the flower borders, if not in too conspicuous a place, would be much better if the stalks of herbaceous and other plants were not cut down in the fall; for there is no better protection than the stalks of plants, and especially if leaves can be obtained from woods or elsewhere and put around the crowns of the plants, in which case the stalks will keep the light leaves in their places until the snow binds them down. Recollect that nature has given leaves and stalks to plants as a natural covering, and therefore they are best adapted to the purpose.

Covering Vines and Running Roses.—The Multiflora Rose, and other tender kinds, require covering during winter in some parts of the States, as do many kinds of running vines. This may be effected by taking the plants entirely away from the trellis, arbor, or the like; then, with bass matting or other string, tie them together compactly, and lay the whole on the surface of the ground, where it may be fastened with hooked sticks or other means; the wood will require then to be covered over two or three inches thick with leaves, long manure or any thing that will keep it from being exposed to the weather. In this state it may lay until the time of uncovering in the spring.

Covering monthly Roses and half hardy Shrubs with Straw.—The best method to perform this business, is to drive down a stake near the centre of the plant, and about the height of it; this done, collect all the shoots and tie them neatly around the stake, at three or four places, with bass matting, osier twigs, or other strings; this done, take a bundle of wheat, or other straight straw, and place a quantity neatly around the bush, butt end downwards, then bind the straw with strings, in three or four places around the plant, in a snug manner, as directed before, and place a shovel or two of good rotten manure around the roots, to keep the straw compact, and the intense frost from the roots of the plant.

Herbaceous plants may be protected by covering around them with rotten leaves, long manure, old tan, or any light

covering, about an inch or two deep, which may remain to the time of uncovering in the spring. This method may also be applied to the Monthly Rose, which preserves the roots and crown of the plant from severe frost, and will answer equally as well as the covering with straw, where the top of the plant is not an object of consideration in being protected; and this in many cases will be lost, even when covered with straw, if the wood is not well ripened before the winter closes severely.

When plants are covered too early in the fall, they are often much injured, by the wood or crown of them becoming soft in warm changes; and in some cases herbaceous plants will begin to grow at this unnatural season, by which they are much injured in their flowering in the spring. The great criterion in this matter should be, to have the wood and every part of such plants as much hardened as possible previous to the covering of them, in order that they may withstand the severity of the winter with the least possible injury.

CHAPTER VIII.

On the Summer Management of Pot Plants and Garden Frames.

ART. 1.—Of Pot Plants.

It is not without reason that many persons complain of the unsuccessful attempts to cultivate *green-house*, and tender plants, in pots during summer. The error may, however, be easily detected, and a remedy effected in most plants, by the following *items*.

To be clear on the subject, I wish it to be understood, that

the summer and winter treatment of the plants in question is something different in this climate, and this being often controverted, is the principal error complained of. For instance, in summer, most plants require large pots, with a compost of good mellow loam and well rotted manure, or leaf mould, with a little coarse sand, to give a moderate drainage to the fibrous roots, in order that the earth may not become saturated by heavy rains, or over-watering:—the object should be, to keep the roots of plants in *summer, cool and moist*, and in a temperature as uniform as possible, without much repeated watering, that washes away the nutriment contained in the soil, which the plants ought to imbibe. In the winter, plants require small pots, to be well drained, and their roots in a moderately warm and dry state.

It is a great item of economy for florists to cultivate flowers in small pots, in order to grow and accommodate a great number in a small space, and to give the pots a quantity of drainage at the bottom, in order that, when over-watered, the superfluous moisture may be carried off when in a flowering state, and in this state the plants are offered for sale. In their new home, the plants are often exposed to the hot sun, or where bricks or other dry materials attract the sun, and cause their leaves to droop; in this state the earth in the pots becomes dry, and often so much contracted as to leave a cavity between the ball of earth and the pot, in such a manner that when watered it passes through between the earth and the pot, and leaves the plant as dry as fine dust. In this state, the fibrous roots between the inside of the pot and the ball of earth perish with drought; the plant continues to live in a sickly state during the summer, the leaves turn yellow, and if over-watered, when taken into winter quarters, it finally perishes—owing to the mismanagement it has received in summer.

It should be a general rule with those who purchase plants in spring, to repot many kinds into larger pots, for them to thrive well during the summer, such as, all kinds of Roses,

Geraniums, Verbenas, Heliotropes, Fuschias, and, indeed, all kinds that require to grow during the summer. They will all do well in the compost recommended for green-house plants. By this method, and keeping them properly watered, and in a location where they are partly excluded from the mid-day sun, plants will generally flourish satisfactorily, with a little moderate attention.

Where ample space can be appropriated to plants, it is a good method to turn them into the flower borders; which see, under the head of *Plunging Green-house Plants* in the *Flower Borders*.

ART. 2.—The Management of Garden Frames.

In flower gardens, where choice collections of plants are always fostered, it is proper to have two or three garden frames, for the protection of the half hardy kinds of herbaceous plants, as the *Carnation*, *Polyanthus*, *Auricula*, &c. The frames for this purpose may be of almost any dimensions, but those of a moderate size are the best—say of three sashes from nine to twelve feet long, and from four to five feet wide. The location of the frame should be where it can have the full influence of the sun; it should be well protected from the cold winds by a board fence or otherwise. Care must be taken that the place is chosen where it is perfectly dry, or the snow water running into it will rot and destroy the plants.

Having the ground and frame thus prepared, about the middle of September a lining of leaves, or manure, may be placed around it, of about two or three feet wide. In the bottom of the frame, some cinders or ashes may be laid, to keep it dry, and to keep the worms from working up the earth among the pots. Place the plants in a regular manner in the frame, the largest at the back, and the smallest in the front; be careful that they stand level, in order that when watered the water may not wash off at one side.

The management of the frame in the fall, is simply to water the plants when they require it; to pick off all the

dead leaves, and keep it in every way neat and clean. The sashes must be regularly taken off in the morning and closed at night, on fine days, until the cold weather appears, when they must be left on at all times, excepting fine, mild days, when they are to be taken off, in order to air and strengthen the plants.

When the weather sets in severe, the frame must be lined around, two or three feet thick, and as high as the glass, with *hot* horse manure; and the lights must be regularly covered at night with shutters, boards, mats, or the like, and uncovered in the morning, unless the frost is too severe, in which case the covering may be kept on all day.

During the winter, the interior of the frame should often be looked over, on a fine day, and divested of any dead leaves, or other nuisance. As the spring advances, more air may be given, and the plants hardened by degrees to plunge into the flower garden, as directed under the proper head.

CHAPTER IX.

The Shrubby.

THE shrubbery is so nearly allied to the flower garden, that in a work professedly treating of the latter, a particular notice of the former subject is required. Indeed it is rare that a flower garden has a good and natural appearance without the presence of the shrubbery, either in forming an outline on the margin, or occupying a prominent situation at the end, for the convenience of a shady retreat, or other useful purpose. *Shrubs* are either *deciduous* or *evergreen*; the former are exemplified in the *lilac*, *double flowering almond* and *snowberry*; the latter in the *Kalmia* or *American*

laurel and *arbor vitæ*, and those plants that are always clothed with leaves, and hence the name evergreen.

Upon a careful observation of the general method of laying out flower gardens, it will be seen that there is too much sameness in their appearance, arising from the neglect to appropriate a part of the ground to ornamental and flowering shrubs. This I imagine to be chiefly owing to the *geometrical* or Dutch system being mostly followed in laying out flower gardens: and hence a method has been adopted that is *proper* and natural to a foreign climate, but has little claim upon good taste in this country, where climate and local circumstances are so opposite. It is a well known fact, that the Dutch are the most successful cultivators of the tulip, the hyacinth, and most other kinds of bulbous rooted plants, in the known world; and it is also known, that the soil and situation in which they are grown are of a humid nature, which is congenial to most kinds of hardy bulbous rooted plants. Such local circumstances, united with industry and intelligence, have put the Dutch florist in possession of an annual income from bulbous flower roots of a very large amount, which it is probable will not be equalled by any other country for ages. But the climate of *America* is not favorable to the culture of bulbs to a great extent, owing to the soil and atmosphere being more dry in the spring and summer season: on the other hand, *hardy*, hard wooded shrubs, as the *rose*, *double flowering almond*, *lilac*, &c., are well adapted to our soil and climate, and flourish extremely well in the western and northern states. The native varieties of beautiful shrubs, for which this country is so eminently celebrated, by the European horticulturists and amateurs, are also peculiarly adapted to the shrubbery, and are highly deserving a more general introduction into the flower gardens and foregrounds of country residences. It is greatly to be hoped that the present good taste and enlightened state of horticultural improvement in every department, will be the means of arousing the attention of every lover

of *native* scenery to the culture and cherishing our *native American Flora*. This method will at once create a taste for cultivating *native* plants and flowers, and facilitate a practical knowledge of their habits and location, in a natural state. The most pleasant associations that my early days *ever have and ever will hold in recollection*, are in the straying in search of native plants for my little *parterre*; each succession of flowers, from the primrose to the fall flowers, were eagerly collected, with sisters and brothers in infantile unison; and I am certain that when the youthful mind is thus employed, it imbibes the most noble principles it is capable of comprehending.

I recommend that shrubbery be more frequently planted on the margins of lawns, the outsides of the flower garden, and for clumps on extensive grass plats, to give a variety; and indeed in all kinds of foregrounds and side entrances of almost any denomination. To residences on the main road and in the immediate vicinity of cities, shrubbery can with every propriety be introduced on the side wings of the lawn and carriage roads; and in many cases, if a belt or border of some six or eight feet wide of shrubbery were planted in front next to the road that passes such places, it would add much to the beauty and value of the property. In many places of this description the front entrances are planted altogether with forest trees, as the *balsam fir*, *sugar maple*, *horse chestnut*, *ailanthus*, *catalpa*, and similar tall growing kinds, which when grown to the full size, give a very heavy and gloomy appearance, where a lively variation should have the preference. There can be no objection, however, to a few ornamental trees being planted in front of such houses, or even mingled with the shrubbery, and particularly if so managed as to form a *screen* or outline to protect the building from the cold winds: trees so situated serve the double purpose of shelter and ornament. In planting shrubs of every denomination, the general rule should be, to place the plants so that their habit and appearance will be really

ornamental and at the same time subserve (or at least seem to) some useful end: for instance, the taller kinds, as the *lilac*, *snow-ball*, and the like, are the most proper to cover board fences and for the back part of shrubberies; the more dwarf kinds, as the *double flowering almond*, *roses*, *meze-reon*, and so on, for the front or facing. There is also some taste required in mixing the varieties of foliage and habits of the different kinds to be planted, which can only be acquired by due observance of shrubs when in full foliage. The planting should be so managed that when grown up the outline is *natural*, that is to say not too formal; but here and there a little broken by some tall shrub growing above the rest. In the front of such plantations a part of them should be planted with herbaceous and other kinds of plants, which, when nicely mingled with the shrubs, form a pretty contrast in the flowering season. Indeed the margin of a shrubbery is the best situation where such plants would flourish and show to good advantage, besides giving a fine finish to the whole.

CHAPTER X.

City and Native American Flower Garden.

ART. I.—The City Flower Garden.

THE flower garden attached to city residences, when well managed, embraces many useful features relative to health and pleasure, and in every way conveys to the proprietor a moral lesson in natural history of the most refined nature. I trust that every intelligent person is aware that the continual working of the ground, attached to city residences, is, in every way, conducive to the health of the inmates, by dispelling and rectifying the impure vapor, arising from smoke and other

causes, that condenses and settles on the surface of the ground, which is purified if the earth is frequently turned up; and, in conjunction with this, the benefit arising is of common interest, in proportion to the quantity of ground kept in such order, in any city or town.

Phytologists and philosophers inform us that the vegetable kingdom exhales certain gases conducive to the health of mankind; and hence we infer the utility of trees and plants in cities, especially when we take into consideration their beauty and cooling shade. Nature, the best criterion, convinces us of the use of plants and flowers, the earth being covered in a measure with them; no doubt, for a wise purpose—the welfare of the animal kingdom.

In order to derive pleasure from a fine collection of flowers, it is necessary to pay proper attention to their varied and successive flowering; so much the more inviting would they appear to the admirer; and the sure guide to this gratification, is to furnish the flower garden with a suitable collection of plants. These are *the inducements* to the culture of the city flower garden; and that a *moral lesson* may be derived from flowers, is proved, from the researches of the most learned philosophers, to the untaught prattling of the humble cottage.

The fragrance of the *Rose* is admired by all; its structure gives a pleasing lesson to the young botanist, or naturalist; to the artist, it furnishes a superior copy for many purposes; and the apothecary extracts many essential oils and waters from its petals, which are also used in a dry state, as conserves, and for various other purposes. Nor is the *White Lily*, in its purity, less deserving a place in every city flower garden. Its fragrance, together with its pure white petals, is produced from bulbs, which are valuable in cases of swellings and wounds.

Flowers contain, also, in their primitive state, *male* and *female* parts, covered with the petals, or colored leaves, which are, in their infant state, enveloped in a *calyx*, or outer

covering, by which they are protected or supported when expanded. Most flowers have also an equal proportion, and an exact number of parts, in many thousands of blossoms; and in these there is every thing to please, and nothing to offend, the most refined or chaste observers.

In concluding this subject, it may be necessary to offer a few remarks on the management of the city garden. I earnestly recommend it to be kept neat and clean, in order to promote the health of the plants, and of their owners. It should be often worked, to create a clear, sweet, healthy air; and at different times fresh mould should be added, to give new vigor to the plants; much manure is seldom requisite, as city gardens are often too rich, owing to the quantity of lime, ashes, and the like, incorporated with the soil.

The *grass plat* requires to be often mowed, for convenience, neatness, and the well-being of the grass.

The plan of the garden, I recommend to be such as to give ease, with variety; so as to accommodate various plants and shrubs; the walks to be of clean gravel, with an edging of box, or neat dwarf plants, as the *Thrift*, *Dwarf Iris*, *Moss Pink*, and such like.

The *trellises*, *arbors*, *walls*, *fences*, and so on, should be covered with *vines* and *creepers*, so that the whole may have a corresponding appearance.

In laying out flower gardens, let them be so managed, that many kinds of flowering shrubs may be introduced; for this purpose, beds should be appropriated. The most common error in laying out city gardens is, that they are too much cut up into small figures, and consequently, shrubs, so essential to give a variety, cannot be admitted. Nothing should be cramped, but every thing should have an open, easy appearance in the flower garden. (See Part I, Chapter I, "On Laying out the Flower Garden.")

ART. 2.—The Native American Flower Garden.

Native plants and flowers are those which are found growing spontaneously, without the aid of culture. Perhaps no country has a finer or more numerous collection of hardy flowering plants than the United States; indeed, no collection can be said to be complete without the *American Flora*, which has engaged the attention of horticulturists to such an extent in Europe, that grounds have been prepared and adapted for American plants; and it is greatly to be hoped, that the present good taste for gardening in this country, will be the means of introducing the many pretty varieties of flowering shrubs that are to be found in every part of the Union, particularly the beautiful families of *Spireas*, *Magnolia*, *Azelias*, *Kalmias*, *Rhododendrons*, and many others, that are much wanted in the flower garden.

There are also a very numerous collection of hardy herbaceous plants, indigenous to America, deserving the attention of the lovers of flowers, of which the beautiful family of *Phlox* forms a prominent character, its different varieties being distributed in every part of the Union; some of which completely cover and decorate thousands of acres of the western prairies in the spring. The *Penstemon*, *Coreopsis*, *Rhudebeckia*, *Liatris*, are also pretty families of native plants, abounding in almost all parts of the Union. There are also several beautiful varieties of *Orchideous* plants, that are natives, as the *Cypripedium*, or Mockasin plants; the Lady Slipper, of which there are two or three beautiful varieties, to be found on the borders of groves, and on the prairies, near the barrens. To these may be added, several pretty varieties of native bulbous rooted plants, particularly the Lily, of which the *Philadelphicum* and *Canadense* are fine specimens; and are found growing on the borders of groves, and margins of woods, in most parts of the Union. To these, the beautiful genus of *Trillium* is also found in shady groves; and with it the *Orchis*, of many varieties, are to be found growing spontaneously in most parts of the Union.

It would far exceed my prescribed limits to give a descriptive list of the many varieties of plants that deserve a place in the native flower garden. I have therefore noted those which are most deserving of culture, by prefixing N. P. in the Descriptive List, under the different heads of shrubs, herbaceous plants, &c.; and, as in every section of this country, there are to be found native plants adapted to their peculiar situation, I recommend that such as are pretty be selected, and planted as similar as possible to their natural location. This method will at once create a taste for cultivating native plants and flowers, and facilitate a practical knowledge of their habits and location, in a natural state. Nothing can be a more inviting appendage to the country residence, where a sufficient quantity of ground can be appropriated, than a plat converted into an American flower garden; especially on the banks of *rivers* and *streams*, as those of the Hudson, Ohio, Mississippi, and many others, from which water might be introduced. In such situations, every variety of native plants might be commodiously planted, and grown to a high state of perfection.

The best method of laying out such gardens, is to manage the water so as to form a narrow strip, or stream, two or three feet deep, and if a natural stream can be had, the better: at the end, an artificial pond might be made, at a trifling expense, for growing the *Water Lily*, and *native aquatics*; and also for the purpose of introducing gold and silver fishes.

The south margin of the stream might be advantageously planted with native flowering shrubs, as the *Azelias*, *Kalmias*, *Spireas*, and those that are found growing in such situations: the margin of the pond should be planted with weeping willows, and trees of a pendulous habit, for shade, under which, a rustic seat might be properly placed, for the accommodation of those who desire to view the sporting fishes, and other interesting objects by which they are surrounded. Attached to the pond, or streams, I recommend a well arranged grass plat, with a few figures cut therein, which

should be planted with native herbaceous plants, and dwarf shrubs; on the margin of the grass plat, a serpentine, or some well contrived walk, bordered with shrubbery, leading to a rockery, of a *semicircular form* on the north side, and almost straight on the south. A rockery so situated might be planted with various perennial and annual plants, and dwarf shrubs, which would there be in a natural aspect and location. On the circular side of the rockery, divided by a walk, a broad belt might be planted with different kinds of native shrubs, as *Rhododendrons*, *Kalmias*, *Azelias*, *Andromedas*, and *Spireas*.

In some convenient place near the rockery, a *rustic arbor* may be very properly placed, and covered with native vines and creepers, for the accommodation of visitors, and the junior members of the family who wish to study botany. The plants should be properly labelled, with the botanical name on one side of a neat tally, and the native state on the other. For the better accommodation of those who collect native plants, they should be furnished with "*Nuttall's Genera of the Plants of North America*,"—a work which, in a very concise and correct manner, gives the habit, time of flowering, and location, of all native plants, and should be in possession of every lover of botany.



CHAPTER XI.

On Plunging Green-house Plants in Flower Borders.

THE flower garden may be greatly beautified in summer, by plunging into the borders and beds, many varieties of green-house plants, in their different compartments, in order to give a diversity of foliage. The plants are also much benefited by this method. Being placed in the ground in this way, their roots are in a better situation, and receive a more regular supply of moisture than could possibly be applied to them in any other position.

The best time and manner of performing this, is to turn out some of the most hardy kinds in the beginning of spring, as the *China Rose*, *Laurustinus*, *Myrtle*, and the like: the more tender kinds, as the *Geraniums*, *Fuchsias*, and others, may remain until the middle or latter part of May, or at a time when the frosts are over. This process, like many others, must be managed agreeably to the latitude of the country in which it is to be performed, and the nature of the season at the time of doing the work, which a judicious person will at once discover, as a practical knowledge is worth volumes of theory.

Care should be taken to place every plant, as near as possible, in a situation the best adapted to its nature. The *Camellia*, *Daphne*, *Nerium*, and most kinds of evergreens, thrive best in a shaded situation; others thrive and flower more effectually in an exposed location, as the *Geranium* and most kinds of fulgid flowers.

Some taste is also required in placing the plants where their habit will have the desired effect; some require sticks to cling to, and should be placed in the centre of small figures, as the *Thunbergia alata*, and *Maurandia Barclayana*, and all convolvulous plants: others are more proper for the

facings of borders and clumps, being of a trailing nature, as the different varieties of *Verbenas*. Vines and creepers are best adapted to the covering of arbors, trellises, and so on.

The *Thunbergia alata*, *Maurandia Barclayana*, and the like climbing plants, may be trained to appear to advantage on a trellis of an ornamental form, as that of a *fan*, *balloon*, or *pyramid*, which should be of a size corresponding to the place they are planted in.

There are many kinds of plants belonging to the green-house, that ought to be propagated either in the fall by cuttings, and remain in pots in the house through the winter, or to be propagated early in the spring, for the express purpose of ornamenting the flower garden in the summer; as, the different varieties of the *Heliotrope*, the *Fuchsia*, or Ear-drop, the *Verbena*, and soft, free-flowering plants, which should be plunged out of the pots;—they should be mixed indiscriminately among the other plants in the vacant places;—however, in some cases they are planted separately in beds by themselves, as in small figures on grass plats, where they have a very pretty effect in the flowering season.

All plants set out not to be taken up in the autumn for the green-house or rooms, should be plunged into the ground out of their pots. But those intended to be taken into winter quarters, as most kinds of evergreens and the like, should be plunged in the pot, into the ground. Being plunged in the pots, the luxuriant growth they would acquire, will be in a measure repressed, owing to the roots being curtailed; whilst if turned out of the pot they would extend their roots some distance in the soil, and when taken up in the fall, the roots would be severed and the plants weakened so as to require some time to recover.

The management of green-house plants in this way is simply to water them when they need, and prune any straggling branches that appear during the season.

CHAPTER XII.

Insects.

THERE are innumerable tribes of insects that are more or less injurious to, and feed on plants and flowers, although there are but few *species* that seem to be really of a destructive nature enough to encourage the florist to seek out means for their destruction. It appears to have been one of those beautiful *ultimates* of a wise Providence, to retard the multitudinous increase of many kinds of infesting insects, by the continual war and extermination of one species with another, and hence we escape many serious injuries that would evidently occur if such providential interference was not guided by an unerring hand.

One of the most destructive classes of insects to the flower garden and green-house, is the *Aphides*, or plant-lice, of which Dr. Harris says, "They are found upon almost all parts of plants, the roots, stems, young shoots, buds, and leaves; and there is scarcely a plant which does not harbor one or two kinds peculiar to itself. They are, moreover, exceedingly prolific, for Reaumur has proved that one individual, in five generations, may become the progenitor of nearly six thousand millions of descendants."

The word *Aphis* or plant-lice signifies to *exhaust*, and is a truly recognizable term for this destructive insect, which is seen in masses on such plants as it attacks, which it always sickens and deprives of its sap or nutriment, converting the fluid into a kind of honey dew which it emits on the leaves of plants, and is often eagerly fed on by the *Ant*, which always lives in harmony with and protects the *Aphidians* or plant-lice.

In the green-house, the Rose and Geranium are always more or less affected with this insect. It is, however, easily

destroyed by fumigation of tobacco, which should always be resorted to when these enemies appear, and care should always be taken that they are not allowed to be too numerous before the remedy is applied. It is better to fumigate two or three times than to allow the plants to be injured by the insects, especially as the fumigation does not injure the plants, but destroys thousands of other insects in their infant state. The Green-fly is also very destructive to the Rose in the garden, where it may easily be destroyed by dipping the young shoot in a decoction of tobacco water, or it may be applied with a syringe; in either case it will be proper to wash off the tobacco water by washing the shoots clean with clear water in the morning.

The next common insect that infests plants is the *Red-spider*, a small, minute insect, bred by dry, harsh heat or internal air. Plants that are affected with this insect have a sickly appearance, and their leaves turn *yellow* and then *red*; on the back of the leaf a fine *web* is seen, and the insect is readily seen through a magnifying glass, and sometimes by the naked eye. There is no insect that I am acquainted with so difficult to destroy as the Red-spider. In the greenhouse steam and moist internal air counteract its ravages, and if the flues are whitewashed over with lime and the sulphur of vivum, it will in a great measure destroy it: but sulphur should in all cases be very cautiously applied, as too great a quantity suffocates and scalds plants.

Many plants, as *Ericas*, *Acacias*, *Oleanders*, and *Camellias*, are very subject to a white scaly insect, which must be removed by taking it from the leaf either with the point of a knife or brush; after removing the insect, take a wash made by a decoction of soft soap with a small portion of sulphur and tobacco juice, with which the parts affected are to be sponged over three or four times. *Oleanders*, *Camellias*, and many evergreens, are often infested with a large, black, scaly insect, which can be removed in the same manner as the before named.

There are several species of insects which attack the Rose, as the Rose Bug, which is found in and attacks the flower, as soon as it is opened. The only remedy I know of to keep this down, is to pick it off from the flower as soon as it is expanded. There is also a worm that is found in the bud, which often destroys it before it is fully opened; this must also be kept down by picking it from the flower as soon as it is discovered.

Rose Slug.—In some districts, as in the state of Massachusetts, near and about Boston, the Rose Slug is very destructive, and it almost destroys every leaf of the plant if not prevented from its depredations. In order to obtain a remedy against this infesting insect, the Horticultural Society of Boston offered the liberal premium of one hundred dollars, which was awarded to Mr. David Haggertson, gardener to J. P. Cushing, Esq., for the following effective remedy, viz. Take two pounds of whale oil soap, dissolved in fifteen gallons of water, and syringe the plant therewith, in the evening, till the slug is destroyed. The plants will also require to be syringed every morning with clear water, or the cure will not be accomplished to any purpose, as the leaves will be scalded by the sun, and hence the remedy will be ineffectual. When the *slug* is destroyed, which will be in a few days, the ground should have a good cleaning under the plants, by taking away all the dead leaves, and other filth that has collected, so that the plants may assume their usual vigor, which will be retarded if these are allowed to remain.

Many plants are also often attacked at the root by different insects; in this case, they always sicken, or lose their leaves. There are several species of the *Aphis*, which feed on the young fibrous roots of the Rose, &c. Each variety of plants, as before stated, has its peculiar *aphis*, which will be seen clinging to them in clusters, and must be either cleansed by a decoction of tobacco juice, or washed off with clean water. When this is done, the plants will then again assume their usual growth and habit.

The Rose, and many plants, are also often affected with a large *grub*, which eats the roots asunder, and the consequence is, the leaves turn yellow, and, if severely eaten, the plants often die. The only method to destroy this depredator, is to clear away the earth about the roots of the plant, where the enemy will generally be found, although it is often the case that they move their quarters, after they have done their work of destruction, to another plant. In this case, search must be made under the neighboring plants, where the grub always is to be found.

The *Caterpillar*, *Grass-hopper*, and their natural families, must be detected when in the act of making their depredations. The Caterpillar will be seen, in its crystalized state, on the wood of trees and plants in the spring, in rings formed around the branches; and it is then the time to destroy it, as one of these contains thousands of young caterpillars, in their infant state. The Grass-hopper is the most easily taken early in the morning, and must be caught on the plants, as the Dahlia, &c., when it makes its ravages too severe, which is often the case in very dry weather.

Birds.—Before I close this article, I must say one word in favor of encouraging and preserving all kinds of birds that frequent the flower garden and shrubbery, and, indeed, there are some of the small domestic kinds that, with a little kindness, will even frequent and live in the green-house during the winter. An instance of this kind occurred last winter, in the green-houses of Sayers & Heaver, of Cincinnati, where one of those little feathered domestics took up its abode, and fed on the *apis*, or green-fly, and kept the plants perfectly clean during its stay in the winter; but in the spring, it took leave of its landlords, and the green-fly soon began to appear in their usual numbers. Birds of most kinds that inhabit gardens, feed on insects, and should be considered as one of the safeguards against the multitudinous increase of them; besides, they are charming companions to the flower garden, particularly if a little sequestered, where they should be allowed

to build and increase, as rightful inheritors of the premises. In addition to this, many birds are delightful warblers in the spring; and some of those of a migratory character, if welcomed to their new home, will make a long stay, and in many cases the same bird has been known to revisit its stopping place for several seasons. But I am now digressing from my subject, and must therefore proceed to the culture of the Rose, hoping that ornithology will ere long go hand in hand with botany and the pleasing art of floriculture.

CHAPTER XIII.

The Rose.

ART. 1.—General Remarks.

THE Rose is so generally known, as one of the most prominent class of flowers belonging to the flower garden, that any comment on its beauty in this place would be altogether useless; I shall therefore proceed with its culture. In treating on the culture of the Rose, I shall bring the subject under one general head, and then divide the different classes, as acknowledged by florists, of the present improved state of this lovely family of plants.

The first general division of the Rose, is the difference made from the time of blooming, which is the Roses that bloom in June; and Ever-blooming, or Monthly Roses. These are again subdivided into many parts, which take their *nomenclature* from some property prevalent in the class, as the *Rosa Multiflora*, or many-flowered rose; *Rosa Damascena*, the Damask rose, &c. There are some also that are classed in honor of distinguished persons in floriculture, as

Rosa Banksiana, or Lady Banks' Rose. The *Lawrencea*, and *Noisette* Roses, are also of this character; and several species are named from their places of primitive growth, as the *Rosa Gallica*, Rose of France; the *Rosa Bourboniana*, the Bourbon Rose; *Rosa Indica Odorata*, the Tea-scented China Rose, &c. And, with these, we have the *Remontantes*, or Hybrid Perpetuals, which is a charming class, and should find their way into every flower garden.

In order to make the subject concise and clear, I shall again recapitulate these under their proper heads, and speak of their separate qualities, and places assigned them, whether as a hardy garden rose, *pillar* rose, or those which may be considered the pot rose, that are wintered, either in a greenhouse or room, to protect them from the inclemency of the winter, and for the gratification of having the plants flower, and especially in the early part of the spring, which could not be effected if they were allowed to remain out doors, in an exposed situation.

ART. 2.—Propagation.

There are various methods of propagating the Rose, as by seed, by cuttings, by layering, budding, and grafting the roots in winter. The principal object of growing Roses from seed is to obtain new varieties; and from this method many of the beautiful varieties of hybrids have been originated of late years, particularly the *Remontantes*, which have been produced by hybridizing the Perpetual and Bourbon. To the florist, and those who are curious in the culture of the Rose, this branch of floriculture may be adopted, by hybridizing one variety with another, to obtain new varieties of an endless number and variety.

Raising Seedling Roses.—The berries, or hips, of Roses, will generally be ripe in the fall, when they may be taken from the plant, and saved in sand until the spring. The berries may then be divided, and a rich piece of ground in the garden may be prepared, in the same manner as for other

seeds, by digging and well pulverizing it; the seed may then be sown in drills, twelve inches apart, and covered with a portion of light earth, mixed with sand, and the ground gently beaten down with the back of the spade, or a board, in order to make the surface solid and *level*. To this method, may be added that of sowing the seed in pots, or boxes, (old glass boxes are just the thing,) and I think the best; these may be filled with good compost, and the seed sown the same time and manner as above directed. In either method, a place should be chosen where the young plants are not too much exposed to the influence of the sun, nor under the drip of trees, in the summer. The ground should be kept moderately moist, and by good attention most of seed will *grow* the first year; although it generally happens, as the covering of the rose seed is very hard, many of them remain in the ground until the second year before they vegetate.* In order to forward the growth and flowering of the seedlings, they may be taken from the seedling-bed when they have three or four leaves, and transplanted into a nursery bed in rows, twelve inches apart and six inches in the row. In this place, all the hardy kinds may remain until they flower, which will be in two or three years; but the varieties of the Tea, and the tender kinds, will require to be potted in the fall, and treated as the pot rose, until they flower, when the cultivator may determine on their qualities. This method is the one generally adopted for the roses that flower in June, or the hardy garden rose.

For the choice varieties of pot roses, where a green-house is at hand, I think the better method is to sow the berries of Roses in pots or boxes, when taken from the plant, and place them in the green-house during the winter; and by this method the seed vegetates early in the spring; owing to its being kept continually moist, the hard shell decomposes sooner than when in a dry state. In this mode, care should

* See Propagation by Seed, Part I., Art. 2.

be taken to keep the mice from the seed, as they are great lovers of the Rose; and, indeed, they are quite amateurs in the seed of most choice flowers.

Propagation by cuttings.—Most varieties of the China and Tea Roses are propagated by cuttings of the young wood, which should be taken from the plant when they are well ripened, which is soon after the mother plants have done flowering, or more properly speaking, when its general flowering is over; *the cuttings should be plump and hard.* A good compost, with one-fourth sharp sand, should be mixed for the purpose, and the cuttings taken off about three joints, and prepared as directed under the head of "Cuttings," in the green-house department. They are then to be inserted in pots, or boxes, and placed either in a frame or a shady location, and every attention should be given, by keeping them moderately moist, clearing away any filth and decaying leaves. In a few weeks, the cuttings will be well rooted, when they are to be potted off, in small pots, and managed in the same manner as directed for the potting of young plants from cuttings in the green-house.

Propagation by layers.—Almost every class of Roses may be propagated by layers, although the practice is generally applied to those kinds which do not propagate *freely* from cuttings, which are those known under the name of the old garden, or *June* Roses—the Multiflora, Boursault, Champney and most running roses, with the *Remontantes*, Bourbon, and Perpetuals. The best time for this business is about the latter end of July, or the beginning of August, when the young roots, which are those to be selected for this purpose, are tolerably well ripened; but the best criterion is to layer the Rose so soon as the ground is sufficiently moist to create young shoots from the incisions, where the callus is formed to make fibres, or young roots.

Budding Roses is one of the most speedy and certain methods of increasing the Rose, and is now becoming very prevalent among cultivators, particularly where choice va-

rieties are in demand. The operation is done in precisely the same way as directed under the head, "*Increase by Inoculation*," Part I., Chapter III.; and the time of performing the work, is at any time from June to October, when the buds are well ripened, and the stock is in good condition, as directed under the proper head.

Grafting Roses by the root.—This is performed in the month of February, by collecting the long straggling roots of the Boursault, or free-growing kind, that have plenty of roots. On these, the choice kinds of the Perpetuals, Remontantes, and the Moss, are grafted, in the same manner as recommended for grafting, under the proper head. When the roots are grafted, they are to be potted and placed in the green-house, to unite, which will be during the spring.

ART. 3.—Roses that bloom in June.—Various Roses.

Multiflora Rose, (*Rosa Multiflora*,) a Japanese variety, and is perfectly hardy in the south-western states; it also bears the winters in cooler regions, only when the season is unusually severe. The *Multiflora* is a slender growing variety, and is readily increased by layers or budding, as the cuttings do not strike root freely. The *Grevilla* or Seven Sisters is of this class, and was once the leading rose of the class; the flowers are remarkable for having several shades of colors in the same cluster, and indeed almost every variety, as single, double, and semi-double, are to be seen mingled together in one bunch or cluster. It is cultivated as a pillar rose, and for covering trellises and arbors. To this may be added *Russelliana*, or Russell's Cottage Rose, a fine specimen for pillars, &c.—a fine, free bloomer, with flowers of a rich crimson, shaded, and sometimes striped with white. A perfectly hardy rose and highly deserving culture.

Laure Devoust is allowed to be the climax of this class, and is a strong grower, perfectly hardy, and a profuse bloomer, bearing flowers of various shades from a white to a pink, in immense clusters; and to these may be added the

old *Multiflora*, the type of the class, which is a pretty variety, bearing fine pink flowers in clusters.

Boursault Rose, (*Rosa Alpina*,) a hardy, slender species of rose that is now found common in almost every flower garden, and is often used to bud the choice kinds of tender China Rose upon. It was once much esteemed as a running rose, and it is at this time a useful variety for covering fences, trellises, and the like places; and some are pretty for pillar roses, as the *Elegans*, which makes a rapid growth and has a profusion of fine, double, crimson flowers. *Purpurea*, or purple crimson, is also a desirable variety, which is often sold under the name of purple *Noisette*, or Michigan Rose; it has pretty, semi-double, purple, crimson flowers. To these may be added the White Boursault, *gracilis*, and several other varieties, which will be found in most nursery catalogues.

The Prairie Rose, (*Rosa Rubifolia*,) or Native Prairie, is one of the finest climbers and pillar roses of the present day, and is undoubtedly destined at no very distant period to become a general favorite, and to find a place in every cottage garden in this country. The old *Prairie Rose*, known as the Ohio or Kentucky Rose, has been cultivated in the western states since the year 1830, as a fine, native specimen of climbing roses, and its double flowers produced in large clusters of various shades and colors are still much admired. This, however, has been much surpassed by the fine seedling specimens produced from the native Prairie Rose, by Mr. Feast, of Baltimore, who has grown the following splendid varieties, which are perfectly hardy, and are peculiarly adapted for either pillar roses, covering arbors, rockery, &c.

The *Queen of the Prairies* is one of the best of the above, having fine, large, well formed, rose colored flowers, three inches in diameter, *cup* shaped, and having the property of withstanding the sun without being *scalded*. *It should be in the hands of every cultivator.*

Pallida, pale blush, perfectly double, is an admirable

variety for covering unsightly places, as it blooms admirably lying on the ground.

To these may be added, *Perpetual*, *Michigan*, *Elegans*, *Superba*, and others, which are all pretty varieties.

The Sweet Brier, (*Rosa Rubiginosa*,) or the English Eglantine, is a well known, hardy variety, of which there are now several varieties, although with most of them the fragrance of the foliage is the most recommendable quality for their culture. The plants are often used to a good purpose for making ornamental live fences for the flower garden. There are, however, two or three pretty, double varieties, which are well adapted to the shrubbery, as the double white and double red Sweet Brier, and their intermediate varieties.

To these may be added the Scotch Rose and Yellow Austrian, which are found in most gardens, and are divided at the root. The varieties are pretty early flowering kinds, and are generally admired for their buds. One of the prettiest of this class is the *Harrisonia* or Hogg's Yellow Harrison, which is a beautiful double flowering variety.

The GARDEN ROSE, or June Flowering Rose, is the old inhabitant of the English flower garden, and recognized under several different varieties, as the Red Moss, which is the type of the Moss Rose, which is now classed under the head of

The *Rosa Centifolia*, var. *Rosa Muscosa*, or Moss Rose, which is mentioned by Miller so early as the year 1727, and is at this very time one of the best roses of the flower garden, and in bud has no competitor among all the varieties known at the present time. From this has emanated many varieties, which will be described in the Descriptive list, but *none* to excel the primitive when in bud. To this may be added

The *Rosa Centifolia*, or the Provins, or Cabbage Rose, an old inhabitant of the English flower garden, but although it is called an English Rose, it is undoubtedly a native of

Provins, a town a few leagues from Paris, where it is extensively grown for distillation, and produces that much esteemed cosmetic, *rose-water*, &c. The old Dutch or Provins Cabbage, is the principal type of this class, and retains its character as one of the best roses of the garden, at the present period. The old Moss Rose is also undoubtedly an old variety of this class, and from it, crossed with other varieties, emanated several superb kinds, which will be found described under their proper heads in the Descriptive list. All of these varieties are perfectly hardy, and are propagated by taking up the suckers from the mother plants, by layers and by inoculation.

The *Rosa Gallica*, or the Rose of France, is also a perfectly hardy garden rose, and increased by layers and inoculating. "Buist on the Rose," (*a work which should be in the hands of every lover of this lovely family*,) says the distinguished features of this family are strong, upright flower stalks, want of large prickles, ridged leaves, and compact growth. The colors vary from a pink to the deepest shades of crimson. Nearly all the striped, mottled, and variegated varieties have originated from this group.

ART. 4.—Descriptive List of Roses that bloom in June.

Those marked thus *, are fine old varieties that are retained for their superior qualities; those marked thus †, are superior varieties that are scarce, and of late introduction.

ROSA CENTIFOLIA, var. *Muscosa*, the Moss Rose.

Name.	Color, Character, and Form.
*Red Moss.	Rose color; splendid bud; the old Moss.
Crimson Damask.	Deep rose, strong habit.
*Luxembourg Moss.	Bright red; perfectly double, free grower.
Provins Moss, or <i>Unique</i> .	White; blooms in magnificent clusters.
Alice Leroi.	Rosy lilac; hardy, strong, free grower.
†White Striped Moss.	Pure white, striped with pink.
*White Bath, or <i>Clifton Moss</i> .	Pure white; of rather delicate growth; glob.
†Laffay's, <i>Perpetual white Moss</i> .	Pure white; profuse bloomer.

ROSA CENTIFOLIA, the *Provins*, or *Cabbage Rose*.

<i>Unique</i> .	White; often striped. [riety; globular.
*Belgic, or <i>Dutch Provins</i> .	Red; the old Dutch Cabbage, fine va-
†Crested, <i>Provins</i> .	Bright rosy pink; fine variety; cup.
Reine Caroline.	Deep pink, vary to blush; fine late variety.

ROSA GALLICA, *the Rose of France.*

Name.	Color, Character, and Form.
*Belle Africaine.	Dark crimson; double compact flower.
Carmin Brilliant.	Bright carmine; cup.
*Coronation.	Brilliant scarlet; profuse bloomer.
Duc de Choiseul.	Pale rose; flowers freely; well formed.
Elemensie.	Rosy crimson; grows and blooms freely.
*Fanny Bias.	Pale blush, shading to a pink; free bloomer.
*Hercules.	Bright red; with a delicious fragrance; cup.
Isabel.	Pink; flowers in clusters in profusion.
King of Rome.	Bright red; perfect form.
*La Negresse.	Superb double crimson; fully double.
Ranunculus.	Mottled rosy purple; free bloomer.
†Souvenir de Navarino.	Expanded pink; double, free bloomer.
*Tuscany, (<i>Rivers'</i> .)	Dark rich crimson; free bloomer; expanded.

STRIPED, SPOTTED, AND MARBLED VAR.

*Rosa Mundi.	Spotted and striped with rose.
*Bicolor.	Scarlet, with pure white stripe.
Hersilie.	Pink, spotted with white.
Malsherbes.	Rosy purple, spotted with white.
†Jeanne Hachette	Red, with crimson spots. [white.
*Renoncule Ponctuee.	Spotted and marbled with rose, crimson and
Village Maid.	Carnation, striped with deep rose, pink & white.

ROSA ALBA, *the White Garden Rose.*

White Globe.	Pure white; fully double; globular.
Madam Hardy.	Pure white; strong grower.
La Belle Augusta.	Blush, changing to nearly white.
Clementine.	Pure white; perfectly double.
Reine des Belges.	Pure white; perfectly double.

ROSA DAMASCENA, *the Damask Rose.*

Leda.	White flowers, edged with pink.
Mathilde de Mondeville.	Rosy lilac; fragrant profuse bloomer.
York and Lancaster.	Striped pink and white.

HYBRID CHINESE ROSES.

Belle Parabere.	Violet shaded crimson; fine pillar rose.
Bon Ginnerure.	Bright red, edged with violet.
Coupe d'Hebe, <i>Hebe's cup.</i>	Delicate blush; fine pillar rose.
D'Aubigne.	Violet shaded purple, approaching blue.
Fulgens.	Bright red carmine; flowers quite double.
General Lamarque.	Bronzed mottled crimson; curious shades.
Rivers' George 4th.	Rich crimson; full and perfectly double.
L' Ingenue.	Shaded crimson, very double.
Louis Philippe.	Dark rose; perfect, fine, blooms freely.
Lord Nelson.	Dark velvet; perfectly double.
Petit Pierre.	Purplish crimson; large, perfect flower.
Prolifere.	Dark rose, changeable to a violet.
Stadtholder.	Clear pink; good standard rose.
King of Hybrids.	Beautifully spotted and striped; cup.
Vandael.	Rosy purple, changing to a violet crimson.

ART. 5.—Roses that bloom the whole season.

This class of roses may be divided into two parts, viz: the old Monthly or Chinese varieties, and the hardy Hybrid Perpetuals. The Chinese, or *Rosa Indica*, of which the Tea Rose forms a prominent character, were formerly considered as green-house plants, and they now properly belong to that department in the northern and eastern states, but in the southern states they are all perfectly hardy, and need no protection in the winter.

The China Rose is admirably adapted to the front stage of the green-house, and with a little attention will flower nearly all the winter. In the spring they thrive best planted into the ground, and may be either mingled with other plants in the flower borders, or they may be planted in separate beds, and if the different classes are planted by themselves, they form fine groups during the time of flowering.

Propagation.—The China Rose may be propagated by cuttings, layers, budding and grafting on the roots. As all these systems have been spoken of, it will be useless to repeat them in this place. Suffice it to say, that the cultivator should always aim to strike the cuttings early in the summer, in order to have the young plants well established in the pot before winter. The common method is to strike the cuttings in pots of prepared compost in precisely the same manner as directed for green-house plants. When rooted they may be potted in the same manner as recommended under the head of propagating green-house plants. The shifting of the young plants into larger pots, and general treatment, is simply the same as green-house plants in the winter, and will be spoken of under the proper heads, and will therefore need no notice in this place.

The Rose should always be grown in a rich, loamy compost, with a portion of well-rotted manure and leaf mould, with river or other coarse sand to give it a moderate drainage, as the Rose always delights to root in a moderately dry soil. Where a green-house is not on the premises, for the

tender kinds of Roses, a pit or cold frame will answer for winter quarters, as the slightest protection will preserve them through the winter.

The Bengal, Chinese, or Daily rose, is also of this class, and requires the same treatment; although in most parts south of Philadelphia they are hardy, with the exception of the wood, which is cut down to the ground, unless protected, in severe winters; which see, under the head of "Covering tender shrubs and roses," &c.

The Noisette Rose, which owes its origin to Mr. Noisette, of Charleston, South Carolina, was raised by that noted florist about the year 1815, and created great excitement at that time among rose fanciers, and is supposed to have been a production of the common China and White Musk Cluster. Like all other classes of roses, there are now numerous varieties of fine specimens of this rose, which have been produced from seed. Several of the leading varieties at the present day will be found in the Descriptive list to follow this article. Like the before named varieties, the Noisette is perfectly hardy in the southern states, but in the northern states it requires some protection during winter. It is propagated by cuttings, layers, and budding; but by layers is the best method. Its treatment is precisely the same as recommended for the Chinese varieties.

The *Lawrenciana*, or Miniature Rose, is a very dwarf variety of the China and the *Lilliputian* of the French florists, who cultivate several varieties of this *pet* rose; one of which, the *Master Burke*, we are informed by Hovey's Magazine of Horticulture, when three years old, in full flower, was completely covered with the half of an egg-shell. This is a pretty variety for the amateur, and is particularly adapted to room culture.

The Bourbon Rose, which takes its name from its place of parentage, the Isle of Bourbon, is supposed to be a hybrid between the China and Red-four-seasons, as it was there first discovered by Monsieur Perichou in planting a hedge

of roses, and sent to France in 1822 by Monsieur Jaques, then gardener at the Chateau de Neuilly. According to Mr. Buist, who is excellent authority on the Rose, the Bourbon is perfectly hardy in the southern states, and nearly so in the northern, where it will stand in the open air with a little protection, and is decidedly one of the best classes of roses belonging to the flower garden. To this may be added that lovely class of hardy roses,

The Remontantes, or Hybrid Perpetual Roses, which are equally hardy as the garden rose, and with good cultivation will produce flowers nearly through the season in great perfection. This is evidently one of the best classes of roses for garden culture, and requires only to be introduced to gain the general admiration of all who cultivate them. They are cultivated the same as other garden varieties, and are propagated freely by layers, inoculating, and grafting, but they do not strike root freely from cuttings. To this may be added,

The Microphylla, or *Small-leaved Rose*, with its small, pinnated leaves, having the appearance of the locust tree in miniature. The Microphylla Rose is generally hardy, and delights in dry soils, giving a succession of flowers through the season. This rose is peculiarly adapted for growing against fences, and is in many cases used as live fences to a good purpose. Those varieties most generally cultivated will be found in the Descriptive list.

The *Musk Cluster* is also one of the old inhabitants of the flower garden, and is peculiar for its musk fragrance, although in every other property it is surpassed as a running rose. It is more delicate than the Noisette, and requires nearly the same culture, with the difference of its requiring to be protected in the winter.

ART. 6.—Roses that bloom the whole season.

TEA-SCENTED ROSE, (*Rosa Indica* var. *Odorata*.)

Name.	Color, Character, and Form.
Barbot.	creamy blush; highly fragrant.
*Blush, or <i>odorata</i> .	exquisite fragrance.
Bougere.	bronzed; superb flower; cup. [cup.
*Caroline.	pale rose; one of the best of the tea-scented;
Clara Sylvain.	pure white; free bloomer; strong grower; cup.
*Devoniensis.	straw, with buff centre; fine flower; cup.
*Duc d'Orleans.	bright rose; strong grower; cup.
*Eliza Sauvage.	salmon yellow; fine rose, but feeble grower.
Flon.	fawn color; large, fine flower.
Hardy.	pink; free bloomer, quite double; cup.
Hymenee.	creamy white; free bloomer; hardy; cup.
Josephine Malton.	creamy white; strong grower; cup.
La Sylphide.	rosy buff; large flower; free and hardy.
Madam Desprez.	fine white; does well budded.
Mansais.	large buff pink centre; hardy.
Nid d'Amor.	blush, with rosy centre; cup.
Princess Marie.	coppery rose; beautiful free bloomer; glob.
Reve du Bonheur.	creamy blush; early flower.
Safrano.	very fragrant; bright rosy red.
Triumph de Luxembourg.	fawn color; very large flower.

BENGAL CHINESE OR DAILY ROSE, (*Rosa Indica*.)

*Arch Duke Charles.	rose, changing to crimson; cup:
*Beau Carmine.	dark crimson; free bloomer; cup:
Belle Isidore.	pink, changing to crimson; strong grower.
Bisson.	delicate rosy pink; perfect double, and fragrant.
Lady of the Lake.	beautiful pure white; cup.
Multiflora Cels.	blush; flowers perfect, and in profusion.
Comble de Glorie.	rich crimson; large and double.
Cramoise Superior.	brilliant crimson; strong grower; cup.
Gros Charles.	shaded rose; free grower.
Louis Philippe.	dark crimson; pale blush; centre excellent.
Marjolin.	dark crimson; hardy and luxuriant; glob.
*Thea a Fleurs Juane.	pure white; flowers in clusters.
Mrs. Bosanquet.	pale rose; perfectly double; cup.
Prince Eugene.	
Reine de Lombardie.	rosy red; fine rose for the parlor; glob.
Sanguinea.	deep crimson; free flower.
Triomphant.	violet crimson; flowers perfect.
Washington, (<i>Landreth's</i>),	crimson, frequently striped; fine Amer. var.
NOISETTE ROSES.	
Aimee Vibert.	pure white; perfect form; free bloomer.
Marseillaise.	crimson; perfectly double and distinct.
Champneyana.	pink cluster; profuse bloomer.
Chromatella.	yellow, or (<i>cloth of gold</i> ;) superior flower.
Conque de Venus.	creamy white; bright pink centre.
Cora L. Barton.	clear rosy pink; profuse bloomer.
Du Luxembourg.	rosy purple; sweet scented; free bloomer.

Name.	Color, Character, and Form.
Euphrosine.	rosy buff; peculiarly grateful fragrance.
Fellenberg.	pale red; perfectly hardy; free bloomer.
Jaune Desprez.	rosy buff: hardy; profuse grower.
Lamarque.	yellowish white; hardy; rapid grower.
Le Pactole.	yellowish white; free bloomer.
Smithii.	lemon yellow; rather tender.
Prudence Roesser.	fine rose; rather dwarf; cup.
Rotanger.	pale rose, changing to a blush.
*Solfatare.	bright sulphur yellow; pillar rose.

THE BOURBON ROSE, (*Rosa Bourboniana.*)

Acidalie.	blush white; perfect; superb flower; cup.
Bizarine.	rosy crimson; free flower, strong habit; cup.
Boquet de Flore.	deep carmine; free bloomer, strong plant;
Docteur Roques.	rich crimson: distinct free bloomer. [cup.
Cytheree.	bright rose; free bloomer in clusters; cup.
General Dubourg.	large pale rose; fragrant flower; cup.
Grand Capitaine.	bright crimson; (<i>pillar rose</i> ;) glob.
Hennequin.	rosy crimson; flowers in clusters.
Hermosa.	bright rose; superb flower; cup.
Henry Plantier.	deep rose; large fine flower.
Madam Desprez.	bright rose; fine glossy foliage, cup.
Madam Newman.	bright rose; very fragrant; cup.
Marshal Villiers.	deep purplish crimson; splendid flower; cup.
Paul Joseph.	brilliant crimson; free bloomer; cup.
Queen, (<i>of Isle Bourbon.</i>)	waxy blush; petals perfectly formed.
Violet de Belgique.	violet; splendid flowers.
Zulema.	pale blush; flowers in large clusters.

PERPETUAL DAMASK ROSE, (*Rosa Damascena, var.*)

Algina.	bright rose; cup.
Antonia.	quite double; fragrant.
Bernard.	pink; fragrant and superb flower; cup.
Billiard.	bright rose; profuse bloomer.
Jeanne Hachette.	very large pale rose; perfectly double.
Josephine Antoinette.	rosy pink; fragrant, free bloomer.
La Reine, (<i>Queen of Perpetuals.</i>)	pale rose; free bloomer.
Monthly Damask.	pink; very fragrant, free bloomer.
Noel.	pale pink; grows freely, very prolific.
Portland Blanc.	white; large fine form and fragrant.
Preval.	pale flesh; fragrant, profuse bloomer; cup.
Rose du Roy.	brilliant crimson; fragrant; cup.
Stanwell.	pale flesh; free bloomer; cup.

REMONTANTES, OR HYBRID PERPETUAL ROSE.

Auberon.	rosy carmine; profuse bloomer; cup.
Comte de Paris.	rosy purple; delicate fragrance; cup.
De Neuilly.	beautiful clear rose, spotted with white; cup.
Edouard Jesse.	bright red; delightfully fragrant; cup.
*Fulgurie.	rosy crimson; flowers large and perfect; glob.
*Lady Forwick.	rosy pink; odor of the Damask; cup.

Name.	Color, Character, and Form.
*Louis Bonaparte.	rosy lilac; superb and profuse flowers.
*Madam Laffay.	rosy crimson; a most splendid variety; cup.
*Marechal Soult.	bright rosy purple; imbricated and fragrant.
Mistress Elliott.	rosy lilac; vigorous free bloomer; cup.
*Prince Albert.	rich crimson; vigorous and fragrant; cup.
*Rivers.	brilliant crimson; fragrant profuse bloomer.
Rachel.	bright rose; cup.

THE MICROPHYLLA, (*Small-leaved Rose.*)

Carnea.	rose; large double.
Violacea.	violet purple; upright growth.
Alba odorata.	double white, yellow centre.
Maria Leonide.	creamy white, blush centre.

Planting and Pruning.—As a general rule, the best time for planting roses is early in the spring, when the ground is in good order; although in some cases the hardy Garden Roses may be planted with good advantage, on dry ground, in the fall. The pruning may be done in the fall with the hardy garden kinds, and in order to have them flower well they should be pruned pretty close to the root to make the plants throw up good, strong shoots of young wood; for it is from these the bunches of flowers are to be looked for. The *China* and *Monthly* Roses should be pruned in the spring—they should have all the injured wood cut off, and their main shoots shortened to make them throw out young wood. The running roses should be simply thinned out of all the weak shoots, leaving always plenty of young branches for flowering, as it is on these they give their profuse wreaths of roses. They should never be shortened, but simply take out the dead wood, &c.



PART III.

CONSTRUCTION AND MANAGEMENT OF THE GREEN- HOUSE.

CHAPTER I.

On the Construction of the Green-house.

ART. 1.—Location and Plan.

THE Green-house being, at this time, an almost general appendage to the flower garden, particularly in city residences, where it is generally connected with the dwelling-house, is the principal reason for introducing some remarks on the subject in this place.

The position of the green-house should, if possible, be such that it may face to the south, although a south-east, or south-west aspect may answer: it must be a consideration with the owner, as to which is the most convenient place on the premises. In all cases, it should be protected as much as possible on the north-east, and cold quarters, and be exposed to the south and south-east. The site on which it is to be built must be dry, which facilitates the working of it in winter, and is most conducive to the health of the plants. The house may be of almost any plan; it will appear to good advantage with a circular front, although a straight one is the most general, and answers best. Thirty feet long and fourteen wide, in the inside, is perhaps a good house; but this, like many other things relative to flower-gardening, must depend on circumstances; the object here is to show that a

green-house of this dimension is the best general criterion for one furnace; therefore the length will depend on circumstances. The front and end walls should be of brick, and may be raised two feet above the surface of the earth; on the front wall, upright sashes, from two and a half to three feet high, must be conveniently fixed so as to give air, either by sliding into a grooved chase, so that the whole or any portion of them can be taken out at either end, and air given if required, at any part of the front of the house; or they may be suspended on hinges, to be lifted up at pleasure. The back wall must be carried to such a height, that when the roof, which must be glass, is put on, it will form an angle of forty degrees; the ends, which should also be glass, will have a pitch accordingly; the roof should be composed of sashes four feet wide, the top ones to slide by pulleys and reels over the bottom. The rafters may be four inches wide on the outside, and bevelled to an angle inside; the panes should be five by seven inches, well glazed, with a lap of not more than a quarter of an inch; the wood, and all other materials, require to be of the best quality.

ART. 2.—Mode of Heating.

The house may be heated either by a dry flue or hot water, but the dry flue is most general, and perhaps best.

Materials for the flue.—The materials are, about fifty fire bricks, for an arch over the furnace, six bars of cast iron for the grate, eighteen inches long, the ends of which must be three inches square, and the other part two inches thick, and three-fourths of an inch wide at the top, and half an inch at the bottom, which will allow a sufficient draught and room for the ashes to pass through.

The two frames required for the furnace and ash-hole should be the same in size, twelve inches square, and from two to three inches wide, with iron doors, hung in the usual way: next, are two iron bars, as supporters for the grate, which must be two feet long; the other materials are flue

tiles, which should be twelve inches square. Soft bricks and good mortar are the other requisites.

Building the furnace.—The furnace is the first to be attended to, which should be at least fifteen or eighteen inches below the level of the flue, in order to have a good draught. The size of the furnace must be thirteen inches wide, in order to give space for taking out the bars, when it is requisite to clean the furnace; the bars must rest on the two iron supporters, underneath which will be the ash-hole, of the same dimensions. An arch of fire-bricks must be turned over the grating, fifteen inches high in the centre.

There should be a neck of a curvilinear form, from the furnace to the flue, about three feet long, with a regular ascent of one foot, to cause a good draught.

Position of the flue.—The position of the flue should be such as to turn round the front and back of the house, from the north-east to the north-west corner, where the smoke should be carried horizontally from the neck before spoken of.

Dimensions of the flue.—In building the flue, I recommend for a foundation, that bricks be laid in mortar, to the width of twenty-one inches from the wall. On this foundation, two courses of bricks must be laid on their edges; one three inches, the other fifteen, from the wall, leaving a space of four inches between each brick, so as to form a pigeon hole under the flue: on these two courses, lay a plank for a foundation, on which lay either brick or tiles, for the bottom of the flue; then proceed with three bricks, on their edges, each side the bottom of the flue, which, when covered with the upper tiles, forms the flue, the inside of which will be twelve inches deep and eight wide.

ART. 3.—Walk and Stages.

Adjoining the foundation of the flue, round the front of the house, I recommend a walk, two feet wide, to be laid with an inclination of half an inch in ten feet, to the south-east or south-west corner, to carry off the water, which can be

conducted through a pipe, three inches in diameter, to pass under the wall, into a reservoir; on the inside of the walk, a row of bricks may be laid in an upright direction, to keep the earth from covering the walk.

Staging of the house.—Over the flue, around the front, a stage may be built for the accommodation of small plants, consisting of four shelves; that near the glass to be eight, the second seven, the third six, and the fourth five inches wide; to descend towards the walk six inches, which will be two inches between each shelf; or it may be made level, with boards, if most convenient. A stage should also be erected from the walk, to the back of the house, according to the following scale, viz: the first shelf next the walk to be four feet six inches from the front glass, its height three feet, and width seven inches; the second, six inches above that, and the same width; the third and fourth, eight; fifth and sixth, ten; seventh, twelve, and eighth the remaining space to the wall. Their height, one above another, gradually to increase, so as to leave the seventh twelve inches from the eighth, which should be five feet from the top of the wall. In addition to the above, shelves may also be erected in other parts of the house, for succulent plants, as the *Cactus*, and dry stove plants, with many little things that may be added to suit the owner's taste.

Having completed the house, the next thing to be attended to is painting the wood work white,—the stage excepted,—the brick work and walls require whitewashing, for the benefit of the plants, and its neat appearance.

ART. 4.—Repairing and Cleansing.

Before entering on the subject of green-house plants, there remain one or two observations on the internal arrangement of the green-house, which, though not strictly pertaining to the subject of this chapter, may be brought in here with advantage.

To have the house in proper order for the reception of

plants in the fall, it should be minutely inspected in the month of August each year, that all repairs which appear necessary may be done. The flue should be examined first, which requires that a few tiles be taken off the tops, in order to clean out the soot, that has collected during the winter; this may be done with a hoe and brush; the soot must be drawn to the place where the tiles are taken off. The flue being cleansed, it is next to be examined outwardly, the tiles properly replaced, repaired, and white-washed; the back wall, and every part of the brick work, must also be white-washed, which will be of material benefit to the plants, when growing in the house.

Lime-washing improves the appearance of the house, and is a great preventative against the many insects which infest plants. If a portion of sulphur be beaten fine, and mixed with the wash intended for the flue, the red spider, that minute pest to plants, will be greatly deterred from injuring those which are at the dry end of the house.

The furnace is next to be inspected and repaired. The internal part of the house being cleansed and repaired, the roof should be inspected, and all broken glass repaired. The wood work should be painted if required, and, in fact, every part put in perfect order.

When the house is filled with plants, great care must be taken not to allow any leaves or filth to collect, as it occasions an impure air, which often causes the plants to have a sickly appearance.

The leaves of plants being porous, and having the power of absorbing the surrounding air in which they grow, it is evident that their health greatly depends on the pure state of it; consequently, care should be taken to obtain that which is most congenial, and which will be found to be a sweet and pleasant internal heat.

CHAPTER II.

On the Management of Green-house Plants.

ART. 1.—Taking the Plants into winter quarters, and Potting.

IN treating of the management of green-house plants, taking them into winter quarters should be the first consideration. This must be attended to about the middle of September, although in many cases it may be deferred to the beginning of October; yet the latter month cannot be recommended, as in many instances plants are much injured by frost before that time, particularly in the eastern and northern States.

Potting the plants.—Previous to taking the plants into the house, those that require repotting into a fresh compost should be attended to, in order that they may be well rooted and established in the pots, so that they may have a good appearance in the house; many others, that are not properly green-house plants, may be potted and taken in, to flower during the winter, as the *Polyanthus*, *Primrose*, *Stock-gilliflower*, *Carnations*, and others; also, many varieties of bulbous roots may be potted, as *Tulips*, *Hyacinths*, and *Narcissus*, which will flower and decorate the house in winter.

Before the plants are taken into the house, the pots require to be cleansed of all dirt, or any substance attached to them; all dead leaves should, also, at this time be taken from the plants: indeed, everything should be done to bring them into the house as clean as possible.

ART. 2.—Arranging the Plants in the House.

To put the plants in proper order, requires some taste and judgment. Most plants have a peculiar location in their native state; therefore it is equally requisite that they have something similar in their artificial location.

The *Geranium*, or *Pelargonium*, may be placed in a

situation as close as possible to the glass, where they can obtain the full influence of the sun. The *Camellia*, on the contrary, requires a shady situation, but should be so placed, that a free circulation of air can act upon it, which should be wholesome, or the flower buds will eventually drop off before they expand. All kinds of succulent plants, as the *Cactus*, and *Aloe*, should be placed on shelves, in a warm, dry situation, where they can receive the sun and air, which is at the east end. On the front shelves, small plants, of almost every kind, of a hardy nature, may be placed; and particularly such as the *China roses*, *bulbs*, and those of a dwarf habit. If this plan be observed, their appearance will be graceful and pleasing.

Some taste is also required in arranging the plants in such a manner, that the whole form a mingled group, not too formal. Their various colors and forms should be so managed, that there is not too much sameness, which will be the case if several plants of a similar kind are put together. Some plants, of tall habit, should be selected and placed separately, where they can be seen to good advantage.

ART. 3.—Watering the Plants.

The best criterion for watering the plants, is to observe those which dry the earth in the pots soonest; such will generally require the most water; but there is an exception to this rule in the fleshy plants, as the *Cactus*, and succulent tribe, which require water but seldom, during the winter months; but when the spring commences, then most plants require water more abundantly, especially those in a growing state.

All kinds of evergreens, in a growing state, should be well watered: as the *Myrtle*, *Orange*, *Lemon*, *Laurestinus*, &c. *China roses* require often watering, and so do also the *Calla æthiopica*; however, if pans containing water are kept under them the better; though not generally recommended in a green-house.

In some cases, plants are much benefited by watering them all over; this must, however, be done cautiously, and at a time when the water will quickly dry upon them; for if it is left on them too long, it greatly injures them, and prevents their respiration and perspiration.

The time of watering plants must depend on circumstances; the evening is the best, early in the autumn, after a fine sunny day; but in the winter months, the morning is the best; for, by watering in the evening, in winter, both the house and the plants are injured, by being cooled too much. A water-pot, with a rose, is most to be recommended, as it is not so likely to wash the earth out of the pots, which injures those roots near the surface.

ART. 4.—Temperature of the House.

Admitting air to the green-house, requires some care and practical knowledge; to do it properly, regard must be had to the nature of the plants, and the time of the year. When the plants are first housed in the autumn, the sashes should be wholly let down during the day, and the house closed at about half an hour before sun-set.

As the winter approaches, and the air gets colder, it must be admitted more moderately in the morning, and the house closed sooner in the evening, in order to shut in the sun heat. The temperature of the house will depend on what state the plants are to be kept in.

The green-house is mostly considered as mere winter quarters for plants—to keep out the frost is considered sufficient; but, for my own part, I think the green-house should be made as inviting as possible in the winter, and the plants forwarded a little, and forced into flower, for the gratification of those who visit. The house, under such circumstances, will require to be kept warmer than usual, by five or ten degrees.

The temperature of the green-house is usually regulated by the thermometer of Fahrenheit, and the principal object is

to keep it a little above freezing, say from thirty-six to forty degrees, in a cold night; but to forward plants to an early flowering, from forty to forty-five degrees is the lowest it should be allowed to fall to. The heat in the day-time, when the sun shines, may be allowed to rise fifteen degrees higher than at night.

In conclusion, I must again particularly recommend that the plants be kept cleansed from all dead leaves, and other filth, that may either be attached to the pots or plants: the pots must be either washed or new ones used in shifting, about the beginning of March, so that they have a clean and healthy appearance; the shelves should be often cleaned during the winter, and the pots often moved, to prevent water from collecting under them, which stagnates, and injures the roots. It is also very requisite that a quantity of water, of a proper temperature, be always kept in the house for watering the plants, and to be at hand in case of fire. Every attention should be paid to the hottest end of the flue; no chips, or shavings, should be left near it, which, in many cases, I believe, have been the cause of the destruction of the house by fire. The house should be examined during the winter, and if any parts, in consequence of the severe heat have given way, they should be immediately repaired.

ART. 5.—Descriptive List of Green-house Plants.

In forming a Descriptive List of green-house plants, I have selected those kinds which are of easy culture, and free flowering. Some attention has also been paid to select such kinds as would give a variety of flowers during the season, with the addition of the list of the Geranium, Camellia, &c., that are to follow. No particular attention has been paid to those plants of a recent introduction, unless they have been proved worthy of notice as standard varieties; the principal object of the list being to describe such plants *only*, as are hoped to be worthy *always* of a place in the green-house.

Those marked thus *, are running vines, adapted to train on walls, pillars, &c.; those marked with the initials, E. S., are evergreen shrubs; those with D. S., deciduous shrubs; and those with P. E., plants that require to be grown in dry peat earth.

Botanical Name.	English Name.	Color.	Height.	Time of flowering.
ACACIA.	ACACIA. E. S.			
verticillata	whorl-leaved	Yellow	6	March, April.
armata	prickly	Yellow	4	March, April.
suaveolens	sweet-scented	Yellow	3	Feb., June.
decipens	paradoxical	Yellow	3	March, June.
longifolia	long-leaved	Yellow	10	March, April.
lophanta	two-spiked	Yellow	8	March, April.
AGAPANTHUS.	AFRICAN LILY. <i>Fleshy rooted.</i>			
umbellatus	large-flower	Blue	3	April, June.
variegatus	striped-leaved	Blue	2	April, June.
BANKSIA.	BANKSIA. E. S.			
serrata	saw-leaved	Yellow	12	July, Sept.
grandis	great-flowering	Yellow	4	May, Aug.
speciosa	long-leaved	Green	5	May, Aug.
BUDDLEA.	BUDDLEA. E. S.			
globosa	round-headed	Orange	15	May, June.
BEAUFORTIA.	BEAUFORTIA. E. S.			
decussata	splendid	Scarlet	3	May, July.
sparsa	alternate-leaved	Red	3	May, July.
BOUVARDIA.	BOUVARDIA. E. S.			
triphylla	three-leaved	Scarlet	2	April, May.
versicolor	various-colored	Red	2	July, Sept.
BURCHELLIA.	BURCHELLIA.			
capensis	cape	Scarlet	3	March, June.
speciosa	showy	Scarlet	2	June.
CALCEOLARIA.	SLIPPERWORT.			
rugosa	rugose	Yellow	2	July, Sept.
Smithii	Smiths'	R. yellow	1	March, April.
venusta	veined	B. yellow	1	March, April.
angustifolia	narrow-leaved	Yellow	1	March, April.
metia	meteor-like	Bl. crim.	1	March, April.
CALLA.	CALLA.			
æthiopica	Ethiopian	White	2	March, June.
CORRÆA.	CORRÆA.			
alba	white-flowered	White	3	March.
speciosa	red-flowered	Red	3	March, April.
virens	green-flowered	Green	3	May, Nov.
*COBÆA.	COBÆA.			
scandens	climbing	Purple	15	May, Oct.
CORONILLA.	CORONILLA.			
valentina	nine-leaved	Yellow	3	March, Nov.
glauca	smooth	Yellow	3	Jan., March.

Botanical Name.	English Name.	Color.	Height.	Time of flowering.
CITRUS.	ORANGE-TREE.			
<i>myrtifolia</i>	Myrtle-leaved	White	3 ft.	April, May.
<i>limonum</i>	Lemon	White	12	April, May.
<i>Aurantium</i>	sweet	White	15	April, May.
<i>nobilis</i>	Mandarin	White	15	April, May.
CYCAS.	SAGO-PALM.			
<i>revoluta</i>	narrow-leaved		3	
DAPHNE.	DAPHNE.			
<i>odora</i>	sweet-scented	Purple	2	Feb., March.
<i>variegata</i>	variegated	Purple	2	Feb., March.
<i>indica rubra</i>	red	Red	2	Feb., March.
DIOSMA.	DIOSMA. P. E.			
<i>odora</i>	sweet-scented	White	2	March.
<i>capitata</i>	headed	Purple	2	March, May.
<i>hirsuta</i>	hairy-leaved	Pink	2	March.
<i>ciliata</i>	eye-lash	White	3	March.
<i>latifolia</i>	broad-leaved	White	3	March.
EPACRIS.	EPACRIS. P. E.			
<i>grandiflora</i>	great	Crimson	2	Feb., June.
<i>pulchella</i>	sweet-scented	Pink	4	April, June.
<i>purpuracens</i>	purpurascens	Purple	3	Jan., March.
FICUS.	FIG-TREE. E. S.			
<i>elasticus</i>	Indian Rubber		8	
FUCHSIA.	EAR DROP. D. S.			
<i>coccinea</i>	scarlet	Scarlet	3	April, Sept.
<i>gracilis</i>	slender	Scarlet	3	April, Sept.
<i>globosa major</i>	globe-flowered	Scarlet	2	April, Sept.
<i>microphylla</i>	small-leaved	Scarlet	2	April, Sept.
GARDENIA.	GARDENIA. P. E.			
<i>florida</i>	Cape Jasmine	White	4	May, Sept.
<i>radicans</i>	rooting	White	1	May, Sept.
GNAPHALIUM.	EVERLASTING-FLOWER. P. E.			
<i>glomeratum</i>	cluster-flowered	Yellow	1	March, June.
HELIOTROPIUM.	HELIOTROPE.			
<i>peruvianum</i>	Peruvian	Purple	2	March, Sept.
<i>grandiflorum</i>	large-flowered	Purple	3	March, Sept.
HOYA.	HOYA.			
<i>*carnosa</i>	fleshy-leaved	Pink	4	April, May.
HYDRANGEA.	HYDRANGEA.			
<i>hortensis</i>	changeable	Red, Blue		April, Sept.
ILLICIAM.	ANISEED-TREE.			
<i>floridanum</i>	red-flowered	Red	2	March, April.
IRIS.	IRIS.			
<i>chinensis</i>	Chinese	Blue	1	March, April.
<i>susiana</i>	Chalcedonian	Striped	1	Feb., March.
KENNEDIA.	KENNEDIA.			
<i>*rubicunda</i>	dingy-flowered	Scarlet	2	Feb., June.
<i>*coccinea</i>	scarlet	Scarlet	3	Feb., June.

Botanical Name.	English Name.	Color.	Height.	Time of flowering.
comptoniana	Compton's	Blue	6 ft.	March, June.
cordifolia	heart-leaved		6	March.
LAGERSTRÆMIA. LAGERSTRÆMIA.				
indica	Indian	Red	5	May, Sept.
LAVENDULA. LAVENDER.				
dentata	tooth-leaved	Lilac	2	April, May.
LINUM. FLAX.				
trigynum	three-styled	Orange	2	Dec., March.
MAGNOLIA. MAGNOLIA.				
purpurea	purple	Purple	2	March, April.
conspicua	downy-leaved	White	3	Dec., Feb.
grandiflora	laurel-leaved	White	4	
MANETTIA. MANETTIA.				
bicolor	two-colored	Red, Yell.	3	Jan., March.
cordifolia	heart-leaved	Scarlet	3	April, May.
MARICA. MARICA.				
cœrula	blue	Blue	1	Jan., March.
MYRTUS. COMMON MYRTLE. E. S.				
communis	common	White	3	
variegata	variegated	White	2	
METROSIDEROS. METROSIDEROS. P. E.				
saligna	willow-leaved	Crimson	4	March, May.
lanceolatus	spear-leaved	Crimson	4	March, May.
speciosus	showy	Crimson	4	March, May.
NANDINA. NANDINA.				
domestica	panicked		4	
NERIUM. ROSE-BAY. E. S.				
splendens	double-hybrid	Red	4	May, Sept.
album	white-flowered	White	4	May, Sept.
variegatum	variegated	Striped	4	May, Sept.
OLEA. OLIVE-TREE. E. S.				
fragrans	fragrant	White	3	March, May.
PASSIFLORA. PASSION-FLOWER.				
*alata	wing-stalked	Varieg.	15	March, Nov.
*princeps			15	March, Nov.
*racemosa	racemose	Striped	20	March, Oct.
*cœrula	blue-flowered	Blue	3	May, June.
Jefferiesi	Jefferies'	Crimson	10	Aug., Sept.
Loudoni	Loudons'	Scarlet	10	Aug., Sept.
PASSERINA. SPARROW-WORT. E. S.				
filiformis	heath-leaved	White	1	June, Aug.
grandiflora	great-flowered	White	1½	May, June.
PITTOSPORUM. PITTOSPORUM. E. S.				
tobira	Chinese	White	3	April, May.
undulatum	wave-leaved	White	3	April, May.
PLUMBAGO. LEAD-WORT.				
capensis	cape	Blue	2	April, May.

Botanical Name.	English Name.	Color.	Height.	Time of flowering.
POLYGLA.	MILK-WORT.			
myrtifolia	myrtle-leaved	Purple	3	March, April.
speciosa	showy	Purple	3	March, April.
cordifolia	heart-leaved	Red	3	March, April.
PROTEA.	PROTEA. E. S.			
speciosa	splendid	Purple	2	March, June.
longifolia	long-leaved	Purple	2	March, April.
STRELITZIA.	STRELITZIA. <i>Fleshy rooted.</i>			
reginæ	queens	Yellow	2	May, Sept.
THEA.	TEA-PLANT. E. S.			
veridis	green	White	3	March.
bohea	black	White	3	March.

ART. 6.—Tender Bulbous Rooted Plants.

The varieties named in the following list are of easy culture, and are deserving a place in every green-house. Most of them are natives of the Cape of Good Hope, or South America, and require to be placed, when in a growing state, in a warm part of the house, where they will flower in great perfection, if properly managed. A compost of two thirds good mellow loam, with a portion of good rotten leaf mould, and sand enough to give a free passage for the water to pass through readily, will answer most kinds of tender bulbs. One great point in the cultivation of these plants, is that they are allowed a certain time of *rest* natural to them, and the neglect of this, and endeavoring to keep them always in a growing state, is the cause of many failures in their cultivation.

Supposing the bulbs to be in a state of vegetation, pot them into the compost above recommended. In doing this, care should be taken that the *bulbs* are not buried too deep. They should be merely pressed into the compost, so that the crown of the *bulb* is above the surface of the earth when potted. When potted they should be placed in a dark situation for a few days, until they begin to make roots, the plants may then be moderately watered, and as the roots make their growth the watering and heat may be increased until they are in full growth, when plenty of heat

and water should be applied. After the flowering is over, and the plants have passed their vigor, the leaves will begin to have a yellow color, then the watering must be gradually decreased until the leaves decay, when the bulbs will require rest. They should then be placed away in the pots, in the earth, on dry shelves, and the watering must be suspended for a month or two until they are again in a state to commence vegetation. The great point in growing tender bulbs is to increase the watering and heat with their growth, and to decrease with their ripening to maturity, and keeping them dry when in a state of rest. In potting, the rule must be to pot the large kinds, as the *Amaryllis*, single, one bulb in a pot, and the *Babianas*, *Oxalis*, and the like, three or four bulbs in smaller sized pots to correspond. In the green-house the small varieties are particularly adapted for the front shelves or staging, whilst the larger species, as the *Amaryllis*, are the best adapted for the warmer parts of the house. All the *Oxalis* are much benefited by light and having the influence of the sun.

There are several varieties of tender bulbs which are planted in the ground about the middle of May, for summer or autumn blooming. The *Gladiolus* and *Tiger-flower* are of this kind, and are marked thus *, in the following list, as are all others used for that purpose. The management of these bulbs is simply to plant them in vacant places of the flower borders, or in separate beds, as directed for the Tulip and Hyacinth; the bulbs must be taken from the ground before the approach of winter, as they will not bear any frost. They are to be kept in boxes, in a dry room, or on shelves in the green-house, during winter, and be replanted in the proper season, as before recommended.

Tender Bulbous Rooted Plants.

Name.	Color.	Time of flowering.	Name.	Color.	Time of flowering.
ACHIMENES.			EUCOMIS.		
coccinea	scarlet	May, June.	punctata	variegated	June, July.
grandiflora	large flow'rd	May, June.	GLADIOLUS.		
hirsuta	hairy leaved	May.	versicolor	variegated	May, June.
longiflora	long flow'rd	May.	cardinalis	dark red	May, July.
picta	red & yellow	May.	psittacinus	yellow	
rosea	rose colored	May.	*floribundus	many flow'rd	blush.
ALSTRÆMERIA.			*roseus	rose colored.	
Pelegrina	striped	June, Sept.	*Colvillii	red & yellow.	
Ligtu	striped	Feb. March.	*formosissimus	splendid	scarlet.
Hookerii	roseate		*præcox.		
Flos Martini	w. pur. y.	Jan.	HÆMANTHUS.		
tricolor	three colored	May, June.	coccinius	scarlet	June, Aug.
AMARYLLIS.			carneus	red	June, July.
Johnsoni	crimson	April, May.	IRIS.		
*formosissima	crimson	May, June.	moræoides		April, Aug.
vittata	variegated	May, June.	persica	Persian	March.
psittacina	scarlet	May, Aug.	IXIA.		
insignis	scarlet	July, Aug.	crateroides	crimson	May, July.
equestris	scarlet	Aug. Sept.	conica	orange	May, June.
Belladonna	flesh color	July, Sept.	maculata	spotted	April, May.
ANTHOLYZA.			leucantha	white, blue	April.
æthiopica	orange	May, June.	LACHENALIA.		
vittigera	orange	Jan.	tricolor	three col'd	March, Ap.
BABIANA.			quadricolor	four colored	March, Ap.
rubro cyanea	red, blue	March, Ap.	pendula	variegated	May, June.
plicata	purple	March, Ap.	LILIUM.		
sulphurea	yellow	March, Ap.	longiflorum	long flowered	white.
tubiflora	yellow, red	June.	concolor	red flowered.	
villosa	hairy	March, Ap.	punctatum	spotted with red.	
BRUNSVIGEA			rubrum	blush, spotted with crim-	
Josephinæ	Brunsw'k lily	July, Aug.		[son, magnificent.	
multiflora	many-flow'rd	July, Aug.	Japonicum	branching	white.
CRINUM.			Japonicum nova	orange.	
americanum		July, Aug.	Thunbergia	dark red.	
Commelini		June, Aug.	NERINE.		
longifolium		June, Aug.	undulata	waved	May, June.
amœnum		June, Aug.	alba	white	May, June.
augustum		June, Aug.	venusta	scarlet	May, June.
amabile		June, Aug.	OXALIS.		
CYCLAMEN			versicolor	variegated	Jan. Mar.
coum	red	Jan. April.	caprina	red	Feb.
hederæfol.	purple	April.	crenata	red	March.
Europæum	light red	Aug.	fabæfolia	yellow	Oct.
Persicum	red & white	March, Ap.	rosacea	pink	Feb. Mar.
album	white	March, Ap.	Bowii	crimson	Sept. Nov.
DIANELLA.			ORNITHOGALUM.		
cærulea	blue	May, Aug.	niveum	white	Aug.
divaricata	blue	July, Aug.	flavum	yellow	June, July.

Name.	Color.	Time of flowering.	Name.	Color.	Time of flowering.
altissimum	white	June, Aug.	cerulescens	bluish	Ap. May.
PANCRATIUM.			cælestris	pale blue.	Ap. May.
angustum	narrow leaved	May, Aug.	tricolor	three colored.	
amœnum		May, Aug.	picta	painted.	Ap. May.
rotatum	wheel crowned	May, Aug.	TIGRIDA, TIGER-FLOWER.		
speciosum	showy	May, Aug.	*conchiflora	yellow	Aug. Sept.
POLIANTHES TUBEROSE.			*pavonia	red	Aug. Sept.
*tuberosa	tuberous	Aug. Sept.	TRITONIA.		
*pleno	double white	Aug. Sept.	crispa	flesh color	May, June.
SPARAXIS.			crocata	saffroned	May, June.
lutescens	yellow	Ap. May.	rosea	pink	June, July.

CHAPTER III.

On the Culture of the *Camellia Japonica*.

ART. I.—Remarks.

THE *Camellia Japonica*, or *Japan Rose*, may be considered as one of the nobles of the green-house, during the period of its flowering, which happens, in a good selection, from November until April. No collection of green-house plants can be said to be complete, unless it contains several varieties of these beautiful plants. The foliage is glossy, and of a perpetual green, which affords a striking contrast of shade with the flowers. When we consider its longevity, annual increase in magnitude and blossom, together with its easy and simple culture, under proper treatment, it is a most desirable plant. It should be cultured in the following manner:

In its location, either in the green-house or open air, during the summer season, the plants must be partially excluded from the burning rays of the sun, especially at mid-day, at which time it often burns and injures the leaves, and also damages the plant. Too much *fire heat*, in a confined situation, is also injurious to the *Camellia*, and frequently causes

the buds to fall off before they expand; every opportunity should be taken to afford it plenty of air.

Propagation.—The methods of increasing the Camellia are various, viz. by cuttings, layers, buds, and inarching the finer sorts on the single flowering red.

The most successful and generally adopted plan is, however, to propagate the single red, by cuttings from off the young wood, which should be taken from the plant in September or October, and rooted, either under hand or bell glasses. The method of performing this, is to prepare a sharp sandy loam, which is put into pots, or on a bed, with a quantity of old tan underneath; the cuttings are put into the pots in the usual manner. When the cuttings are well rooted, which will be in two or three months, they may be put into small pots of light earth, or sandy loam, mixed with a quantity of leaf mould. They should remain in these pots until they are filled with roots; they are then to be shifted into pots of a larger size, for the purpose of inarching; the best time for this is the latter end of February, or beginning of March, and the scion may be taken from the mother plant in August, if well united.

Management in the Green-house.—The Camellia should be placed in the house so as to be partially shaded from the sun; and if on the ground where some sand has been placed, the better. They will require a moderate watering, in order to fully expand their flowers; and if moderately syringed in fine weather at sun rise, they will be much benefited in their flowering: but care must be taken that it is not done too copiously, for if the water remains too long on the buds, it often causes them to fall off; if they are kept too dry, especially when much fire heat is applied, they will also fail. The leaves should be often sprinkled, morning and evening, as they absorb a considerable quantity of moisture; being elastic, the leaves of the Camellia perspire less than those of deciduous plants, and consequently act as a reservoir of nutriment, as we see by experiment; if a Camellia loses its

leaves death often ensues, which is not the case with deciduous plants and shrubs. I have had evident proof that by refreshing Camellias in this way, it gives health and vigor to them, and, at certain seasons, causes the sap to descend, and buds will burst forth from the bare parts of the plant even when it has been divested of all the fibrous roots but a short time before. And further, this process is essential to the flowering of the plant. I have seen instances of large flowers being produced from plants almost rootless; the watering, or sprinkling over of these plants, may be done more or less according to the season, and the state of the internal air in the situation in which they are growing.

In the spring, when the flowering is over and the plants begin to grow, refresh them often at their roots, as they require a considerable quantity of water when in a growing state.

Care should be taken, not to water the top of the plant while in flower, when the sun shines on it, which causes the blossoms to have spots on them, by the water collecting on their petals, and especially on the white kinds. This process may be omitted in cloudy weather, as they will not be in a proper state to imbibe the water; the plants will not dry their foliage or buds, in consequence of which the moistened buds will, in a measure, decay, and the calyx fall off when the flower expands; this appears to be owing to that part being moistened too long, which prevents respiration, in consequence of which it becomes inert, and putrefaction follows.

The heat of the house should be moderate, from forty to forty-five degrees, and at all times a wholesome and mellow internal heat and air, should be the principal aim of the manager; extremes of either are always injurious.

Repotting the plants.—Shifting or repotting the Camellia may be performed any time after they have done flowering, which is generally in the month of March; in doing this, care must be taken to give plenty of drainage, in order to let off the water, which sometimes settles at the bottom and satu-

rates the soil, and the consequence is the roots are often rotted off. Broken pots will answer the purpose for drainage.

The soil best adapted for the Camellia, is a good mellow loam, with a portion of leaf mould, well mixed together; if the loam is not of a sandy nature, some good sharp sand may be added, to make it more porous, for the fibrous roots to grow and work more freely in.

When the plants are potted, they are to be located in such a manner that they may have the full benefit of the air; if they are too much confined, they often become very weak; they seldom set their flower buds strong and vigorous, and, indeed, it often causes them to lose their buds, and, if not this, to flower weakly. The plants at this time require plenty of water, to cause them to grow freely and strong. As early as the weather will permit, the plants may be taken from the green-house, and placed in their summer situation, which should be in a north or northeast aspect; where they are fully exposed to the air and not under the drip of trees or buildings.

The following list of Camellias was kindly selected by Marshal P. Wilder, President of the Massachusetts Horticultural Society, and are varieties which he has proven to be worthy of cultivation.

Name.	Description.
CAMELLIA.	
Alba pleno	double white.
alba fenestrata	pure, white, regular and full.
amabile, (<i>Smith's</i>)	rose and red.
Baltimoreana	white, striped with rose. [fine.
Binneyii	dark crimson, sometimes with stripes, extra
Caroline Smith	crimson blush centre, superb.
Carswelliana	deep rose, striped with white.
Campomolendina	form and character of <i>C. imbricata</i> , fine.
Candidissima	white, very perfect.
Conspicua	very large red.
Chandlerii	Chandler's.
Celestina	very delicate rose, form regular.
Coquettii	rose, striped and spotted with white, fine.
Collettii	rose, profusely marked with white.

Name.	Description.
Donkelarii	white, scarlet and crimson, beautiful.
delicatissima	white, striped with rose.
Duchesse d'Orleans	white, striped and spotted with rose, fine form.
Estherii, (<i>Smith's</i>)	very large white, with rosy stripes.
eclipse	white, striped with rose.
elegans	beautiful rose, white centre. [with white.
elata	violet red, full, imbricated, occasionally tinted
erecta	crimson, full, regular and perfect.
fimbriata	fringed white.
Feastii	white, with spots and flakes of rose, superb.
Floyii	rosy red, large.
Fordii	rose, superb.
Glorie d'Italie	white, regular form.
Gilesii or Nancy Dawson	fine crimson and white.
imbricata	crimson, striped with white.
Imbricata alba	white, with pink.
Innocenza	white, regular, full, and double.
Jeffersonii (<i>Gunnell's</i>)	scarlet crimson, very perfect and beautiful.
Landrethii	pale rose, fine.
Martha (<i>Buist's</i>)	large white, very perfect.
Myrtifolia	light red and purple.
Monteronii alba	white, marked with rose, fine form.
Mrs. Gunnell	white, very double.
New York (<i>Floy's</i>)	crimson, very large.
Oxriglomana superba	blush, striped with carmine.
Palmer's perfection	dark rose, marked with white.
Prattii (<i>Buist's</i>)	beautiful rose, striped with white.
picturata	large white, marked with red.
Pictorum roseum	vivid rose, fine form.
Queen Victoria	cherry-red, striped and splashed with white.
Q. of England (<i>Fielder's</i>)	delicate rose, marked with white.
Sherwoodii	rosy crimson and white.
Spiraliter imbricata	rose, full, large, perfect.
Saccoi nova	clear rose, beautiful shape.
Serratifolia	dark rose, beautifully variegated with white.
Sarah Frost	rosy crimson, very regular and perfect. [good.
Sulcata	white, with yellowish stripe in each petal, form
tricolor	beautifully striped, semi-double.
Teutonia	remarkable variety—producing white and rose- [colored flowers on the same branch.
Violaacea superba	carmine and violet, very large. [large.
Victoria alba	white, occasionally touched with red, full and
Washington (<i>Boll's</i>)	white, shaded with rose. [perfect and superb.
Washington (<i>Gunnell's</i>)	light cherry red, faintly striped with white, very
Wilderii	beautiful rose, very distinct in color, regular and full to the centre, and of the most exquisite formation.

CHAPTER IV.

On the Culture of the Geranium, China Rose, and Verbena.

ART. 1.—The Geranium, or Pelargonium.

THIS beautiful tribe of plants are mostly natives of the Cape of Good Hope, and their elegance, when in a flowering state, particularly recommends them to every lover of flowers; indeed, no green-house is perfect without a good collection of them.

The general management of the *Geranium* is something different from the *Camellia*, although they will both thrive well in the same house, and with the same heat; but their location should be different, as they require to be situated so as to obtain the influence of the sun and air, and as near the glass as possible. If this is not done, the wood will grow weak and succulent, and, consequently, will seldom flower strong and healthy.

Propagation, or increase.—The Geranium is increased by cuttings, in the months of August and September, or at any time when the young wood is well ripened; or, by its roots being cut into joints and inserted in a pot of compost, and treated the same as cuttings.

The compost best adapted for this purpose, is one-third sandy loam, one-third peat, with a little rotten leaf mould, and some river sand.

When the compost is prepared, begin to propagate by cutting the ends of the cuttings to a joint, transversely, and in a clean manner; then take the pot, which should be six inches deep, and six wide at the top, and fill it two inches from the bottom with broken pots, beat fine with a hammer; after which, the remainder should be filled up to the rim with the soil, into which the cuttings may be inserted half way, in a neat manner; the pots are then to be shaken gently, to close

the earth to the cuttings; after which, they may be gently watered, and the pots plunged into the ground to the rim, in a shady situation, under a wall or fence. They will require to be watered when the soil appears dry. In four weeks, if carefully attended to, they will be rooted, and fit for potting off.

Potting the young plants.—When the cuttings are well rooted, they must be potted singly, into small pots, three inches deep, and the same in diameter. The manner of performing this work, is to put two or three small pieces of broken pots at the bottom, and on them a small portion of rotten leaves, and fill up with the same soil, as before recommended for the cuttings. When they are well rooted, they may be taken into the green-house.

The principal object in growing the *Geranium*, being to have a strong dwarf plant for flowering, care should be taken not to over-water it, nor keep it too warm. It should be always kept moderately dry about the roots, and in small pots during the winter season. When the plant is grown four inches high, the heart is to be pinched out, in order to make it form a bushy head.

About the beginning of February, *Geraniums* may be shifted into the pots they are intended to flower in; for this purpose, the soil should be similar to that recommended above, with this exception, that more rotten leaf mould, or manure, be added, with a portion of bone dust, at the bottom of the pot, which causes the plants to flower finer. They require a moderate portion of air to be given them, and more water, as the weather grows warm.

Remarks.—The principal thing to be considered in growing the *Geranium* to perfection, is to keep the plants in a dwarf, bushy state during winter, and not excite their growth by too much water or heat. They should be kept moderately dry, and as the sun increases, the plants should be encouraged to grow, by repotting them in larger pots of rich compost, and giving additional waterings.

The following List of Geraniums has been carefully selected from the best varieties of the present day.

Name.	Color, and Descriptive Character.
Alexandriana.	Fine white, with dark spots.
Alicia.	Blush, white and rich crimson.
Annette.	White; profuse bloomer.
Beauty of Ware.	Large crimson; free bloomer.
Blandina Multiflora.	Rose white and crimson.
Bridegroom.	Large blush, with dark crimson spot.
Climax.	Rosy crimson.
Calypso.	Superb pink; blooms profusely.
Corinne.	Delicate rose, with dark spot.
Coronation.	Salmon color; large, fine flower.
Dowager Queen.	Early white.
Discount.	Large rosy red.
Eliza Superba.	Fine, dark, rosy red.
Fosteri Rosea.	Rosy red.
Flash.	Dark red.
Flamingo.	Rose, shaded with bright red.
Fanny Garth.	Pale pink.
Florence.	Blush, with dark spot.
Gauntlet.	Very large bright red.
Grand Monarque.	Large scarlet crimson.
Henry Clay.	Bright red, with crimson stripes.
Harrisonii.	Dark rose, with crimson stripes.
Jewess.	Fine dark crimson.
King, (<i>Gaines'</i> .)	Superb rosy crimson.
Lady Dillon.	Rosy blush, with crimson stripe.
Lifeguardsmen.	Fine, dark, rosy red.
Lord Aukland.	Fine lilac and crimson.
Lenoxii, (<i>Buist's</i> .)	Bright and crimson; fine form.
Mrs. Clay.	Pure white, with crimson.
Mrs. Peck, (<i>Buist's</i> .)	Rosy white, marked with crimson,
Miss Percival, (<i>Buist's</i> .)	White, and dark crimson.
Mrs. Stiles, (<i>Buist's</i> .)	Bright crimson mark; profuse.
Oliver Twist.	Bright, clear red.
President.	Bright rose, with dark crimson.
President, (<i>Buist's</i> .)	Large salmon crimson spot.
Perfection, (<i>Dennis'</i> .)	Dark rose, tinged with purple.
Robert Buchanan, (<i>Ross'</i> .)	Delicate rose, dark spot; fine form.
Sylph.	Waxy pink, and crimson; superb.
Una.	Superb white, marked with red and
Vivid.	Rose, red, and crimson. [crimson.
Victory.	Pale rose, clouded with crimson; fine.
Vulcan.	Purple, crimson; large.
Witch.	Splendid white.

ART. 2.—The China Rose.

The green-house should always possess a good collection of the Chinese or Ever-blooming Rose, and particularly the choice varieties of the Tea Roses, which are delightful specimens for the spring flowering, although the common daily, and some of its varieties, are excellent for buds in the winter flowering, and are much admired in the bouquet.

To have roses in good perfection for the green-house, they should be well attended to in the autumn, by neglecting which, the China Rose makes but a poor show in the winter. The general method of allowing the plants of the China Rose to remain in the ground too late in the fall, is a bad system; for in that case the plants do not have the chance of being well established to the *pots*, before taken into the house, which is one reason of their flowering but indifferently during winter. To grow roses in good perfection in the green-house, the plants should be two years old, and the method I recommend is to strike the cutting in summer, as directed under the head for the culture of the rose. The cuttings may remain in the small pots during winter, and in the spring they may be plunged into the ground. These may be taken up and repotted about the latter end of August, in a compost of two thirds good mellow loam taken from the top of a rich piece of sod or pasture, and the remainder, well rotted manure or leaf mould, with a portion of good sharp sand; mix it well together and have your pots ready for the business.

Prepare some pots of a convenient size for the plants, by placing some pieces of broken pots at the bottom, to give a good drainage to the plants; cover these with some pieces of rotten sod from the compost, and put in a little of the compost, sufficient to receive the plants, which should be carefully taken from the ground with some earth attached to the roots, if possible. They may be potted in the same manner as directed under the head of "General Potting," in Part III., Chap. VII. When potted give them a good water-

ing, and place them in a shady situation, where they must be regularly watered. In this place, the plants will generally droop and lose their leaves for two or three weeks. When this is over, and they begin to be well established by rooting into the fresh compost, clean away all the dead leaves and give them an airy site, where they should have good attention, to grow the plants into a healthy state before they are taken into the house. By following this method, the plants will be in a fine flowering condition, and remain so all the winter, and in the spring may again be turned into the borders to remain; and if a succession of plants is yearly grown for this purpose, good roses may always be obtained in the winter.

The management in the green-house, is to place the plants in the front of the house, where they may receive the sun and light, and give them as much air as can be consistently admitted without injuring the other green-house plants; and in order to have them flower freely, a good watering or two, of manure-water should be given them during the season, and in other cases, the same treatment as other green-house plants will answer every purpose. For a collection of roses I refer the reader to their proper heads under the culture of the rose, in Part II., Chap. XIII.

ART. 3.—On the Culture of the Verbena.

The almost perpetual flowering of the Verbena, in connection with its hardiness and easy culture, renders it one of the most desirable classes of plants for the green-house and flower garden. Most of the present pretty varieties now to be found among florists have originated from two or three varieties, of which the old *Melindris* and *Tweedianii* were the original parents. These, with the old *White Teucroides*, have been crossed, and from them most of the present brilliant kinds have emanated.

Most varieties of this plant are trailing or running vines, and are propagated or increased freely, when planted out in

the garden, by rooting at almost every joint, in moist weather, in September and October, in the same manner as the garden Strawberry. There are, however, some of the upright-growing kinds, which do not increase so readily this way, but they all root freely, when the young shoots are layered into pots, or in the ground, when they are growing. The Verbena may also be propagated by cuttings, almost at any time, in the same manner as the Geranium, in pots filled with a compost of one-third sand, and the remainder loam and well rotted manure, or leaf mould. It is also increased, to obtain new varieties, by seed, which is ripe in October, and should be collected and saved until the spring, and sown in pots filled with the same compost as directed for cuttings.

The Verbena may be considered, strictly speaking, a greenhouse plant, although it is in the flower garden where its chief beauty is so desirable, particularly in the summer and fall of a dry season, when other flowers are almost perished, then this plant is almost the only *gem of flora*. In the flower-garden, it has a pleasing appearance in almost any location, and it is admirably adapted to be planted on the rockery, if there is one, or on any dry bank or rising ground, as it thrives well in any dry location, and is also often planted in masses in the flower borders, or in neat cut figures on grass plats, where the mingling of the different varieties forms a pleasing contrast with the green sod. When ornamental vases are introduced in grass plats, they may be filled with compost, and the Verbena planted there; and if properly managed, the vines will hang down in brilliant tresses of flowers of the most ornamental character. In many cases, they are also trained to small trellises, in the greenhouse or flower garden, of an ornamental character, in the form of a fan, a balloon, pyramid, or almost any form the taste may be inclined to select.

For the greenhouse, the plants should be selected in October, and planted into small pots, and taken into the house so soon as the first frosts appear. They should be placed on

shelves near the glass, in order to receive the sun, and be in a dry location, so congenial to the flowers; when the plants are over-watered, and kept too far from the glass, they draw into weak, slender growth, and generally damp off on the surface of the earth in the pot. In rooms, the same culture and management will be requisite. The plants, in this location, during the winter, should be moderately watered, care being taken not to saturate the earth with too much water, which is injurious to them.

List of Verbenas.

Name.	Color.	Name.	Color.
alba floribunda	white, with dark eye.	Pulchella	violet purple.
bicolor	fine scarlet, with crim- [son centre.	Queen	pure white.
Blue Queen	fine blue, pale centre.	Rose brilliant	light crimson, superb.
Chalmerii	white, pink centre.	Royal purple	deep, velvety purple.
candidissima	large white.	Sayersii	white, changing to [blush, free bloomer.
elegans	fine rose, red centre.	Stewartia	velvet maroon.
Emperor	pink and white.	Striata	pink and white.
Feastii	large white, changing [to purple.	superba	bright scarlet, yellow [eye.
Hendersonii	crimson purple.	Teucroides	old white, fragrant.
Hogg's red	red, with crim. centre.	Tweedianii	fine crimson.
Julia	fine rose.	Vesta	new, scarlet.
Magnet	rose, with bright crim.	Wilsonii	very dark purple.
Mestonii	bright scarlet.	Wilson's scarlet	white eye.
Melindris	bright scarlet.	Yarnellii	very dark crim. purple
Pearl	shaded blush.		



CHAPTER V.

On the Culture of the Erica, Azalea, and Rhododendron.

ART. 1.—The Erica.

THE Erica is one of the prettiest families of plants cultivated in the green-house; and its culture is highly deserving of more general attention than has hitherto been bestowed upon it. However, there are many pretty varieties finding their way into the various collections, which I hope will still receive additions. The plants are neat and pretty in habit, and, when in flower, form a lively contrast with other plants of the green-house: they are, indeed, a class of plants that are grateful to the common observer, claim the strict attention of the amateur, and are worthy the most minute examination of the curious and refined. In a good collection, they possess many shades of color, as *white, green, red, pink, &c.*; and in some instances they are variegated or checkered in a very pretty manner. The manner in which they flower is also various; as, in clusters, spikes, and in numerical order, which are designated as *biflora, triflora*, and so on; and in different habits, as pendulous, erect, &c. The formation of the flowers also varies, and has a definitive character, as that of *tubiflora, curviflora*, and the like regular forms. But their intrinsic value is only to be discovered by examining the flower *minutely*; when the neat form and prettily contrasted colors always reward those who bestow such pains with a rich treat of one of nature's most finished copies.

In the bouquet, the Erica is not surpassed by any flower of its season; and no flower keeps longer as a *cut* flower in water.

To my fair patrons, I must recommend the more general culture of this pretty family of plants, and hope the following little treatise will at least assist those who are desirous to

cultivate them in their *management*, which, when better understood, I am convinced will greatly add to the interest already manifested in the Erica.

ART. 2.—Culture and Propagation.

The culture of the *Erica* is, by many persons, considered very difficult, although, when practically understood, it may be said to be very simple. Soil, situation, and temperature, must be in accordance with the nature of the Erica, or it will never flourish and flower well. All kinds of the Erica require a black *peat*, or bog earth, to flourish in perfection; for the roots of the plants, being fine and thready, cannot perforate a heavy loam or close soil; and, on the other hand, a very spongy soil would be quite as uncongenial to its nature. In fact, two kinds of soil are requisite to grow the different varieties to perfection: the small, dwarf kinds require a dry peat, obtained from high, dry ground; and the tall, luxuriant kinds, a soil obtained from a low, moist ground. This is readily accounted for, as the dwarf varieties are found naturally growing on high ground, and the taller varieties on low grounds; but the nature of the soil is very similar. The situation of the Erica should always be that of a cool, shaded place. If the plants are exposed to the sun in summer, they will suffer at the root; and, if placed where they receive too much fire-heat in the winter, the leaves will be injured. It should be moderately watered, and should never be very dry at the root, or very moist: if the roots are allowed to become entirely dry, the plant will sicken accordingly; if too moist, they will make a slender, feeble growth at the leaf, and decay.

The Erica is propagated from seed, which I recommend to be sown in the month of December, or so soon as it is ripe, in a pot of black peat earth, and placed in the green-house. Care must be taken that the seed is not covered too deep;—if a quantity of white sand can be procured and placed on the earth, the better. When the seed is sown, the top of the pot

may be covered with glass, until the plants make their appearance, when it may be removed from them.

In the spring when the plants are grown an inch or two in height, they are to be potted off, in small pots, for flowering, which will be, in the dwarf varieties, in the following spring; the larger kinds will not flower until the second year.

The propagation by cuttings is performed by filling pots of soil, as before directed, and covering the top with white sand. The cuttings may be taken from the plant at a time when the young wood is grown an inch or two long, which will generally be in the month of September. They are to be taken off at a joint, the lower leaves taken off with a sharp pair of scissors, and the cuttings neatly pricked into the sand, and covered with a bell-glass; the bell-glass must be regularly taken off every day, and rubbed dry with a cloth, in order to remove any moisture, and prevent their being damped off. When they are well rooted, they are to be potted off, in small pots, as recommended for seedlings.

ART. 3.—Descriptive List of Ericas.

Those marked thus † are to be found in most collections, and seed freely.

Botanical Name.	English Name.	Color.	Height.	Time of flowering.
ERICA.	HEATH.			
†grandiflora	great-flowered	Yellow	3 ft.	May, Sept.
†cruenta	bloody-flowered	Dark red	2	May, Sept.
ignescens	fiery	Red	1½	March, June.
†tubiflora	tube-flowered	Pink	2	April, July.
Hibbertia	Hibbert's	O. yellow	2	June, Sept.
†colorans	coloring	W. red	2	April, June.
veridis	green-flowered	D. green	2	May, Sept.
Massoni	Masson's	R. green	3	July, Oct.
†bicolor	two-colored	G. red	2	March, Oct.
†ventricosa	Porcelain	Fleshed	1	April, Sept.
Aitonia	Aiton's	W. purple	2	June, Sept.
†baccans	Arbutus-leaved	Purple	2	April, June.
biflora	two-flowered	White	1	April, June.
†ardens	glowing	Scarlet	2	April, June.
†arborea	tree	White	4	Feb., June.
rubens	red-flowered	Dark red	1	June, Sept.
†gracilis	slender	White	1	Feb., June.
†persoluta	garland	Purple	1½	Feb., May.
†australis	Spanish	Purple	½	March, July.

Botanical Name.	English Name.	Color.	Height.	Time of flowering.
†Mediterranea	Mediterranean	Purple	4 ft.	Feb., May.
vagans	Cornish	Red	1	July, Aug.
formosa	beautiful	Red	2	June, Sept.
†pubescens	pale-downy	Purple	1½	Feb., Dec.
†concinna	blush	Flesh color	2	Sept., Oct.
coccinea	scarlet-flowered	D. red	1½	Jan., Sept.
Leeana	Lee's	O. yellow	2	Jan., August.
blanda	charming	L. purple	1	April, Sept.
Cliffordia	Lady Clifford's	White	1	April, May.
elegans	elegant	Green	1	March, Nov.
triflora	three-flowered	White	1	May, June.
rubella	thrift-flowered	Pink	2	June.
floribunda	many-flowered	Purple	1	May, June.
imbricata	imbricated	Pink	1	May, Aug.

ART. 2.—On the Culture of the Azalea.

The Azalea, like the Erica, is a favorite plant in the green-house, and requires nearly the same treatment. It seeds freely, and is readily cultivated from the seed; and many very splendid new varieties have of late years been raised in this manner, by hybridizing one variety with another. It is certainly one of the best families of flowers we are at present acquainted with; for, besides all the splendid Chinese varieties cultivated in the green-house, there are several beautiful hardy kinds, natives of Turkey, and over seventy varieties indigenous to North America, that inhabit swamps and dry places, which are found growing in all the eastern States, and are known by the name of the American Honeysuckle.

The Azalea thrives well in a dry, sandy, peat earth, and, when this is not to be found, a compost made of about two-thirds sandy loam, taken from a dry spot, beside of a wood, with a portion of well decomposed leaf mould, and a little charcoal dust, will answer well enough. A very great error is often made by those unacquainted with the culture of this plant, by collecting black, boggy earth from low places, which often contains a quantity of the oxide of iron, and other mineral qualities, highly detrimental to this class of plants; besides, such earth is often sour, owing to its being saturated with water, than which nothing can be more detrimental to the

growth of the Azalea, which delights to grow in a sweet, dry soil. When grown in the first named manner, the plants have a yellow, sickly appearance, and the leaves drop off the plants, a sure indication of their being in a bad state of health.

Saving the seed.—The seed may be sown in pots or pans of peat earth, when ripe, in the fall, and kept in the greenhouse during winter. The plants will generally make their appearance in the spring; in the following season, they may be potted off in small pots, and treated in every way the same as the flowering plants. It may also be propagated by layering down the young shoots in the spring, either in the pots or in a frame purposely adapted for the business; they will mostly be rooted in the fall, and may be taken from the mother plant and potted off in the proper compost, as before directed. To this may be added, the striking of cuttings, which may be taken off about the latter end of July, or the beginning of August; as soon as the young wood is ripe is the proper time. They will be well rooted in the fall, and may be potted off in the following spring.

The best time for repotting the flowering plants of the Azalea is in the spring, when the plants have done flowering; care should be taken to give plenty of drainage, so that the plants are not saturated by watering, which is injurious to them. They should be well potted, and the surface of the ball be a little below the top of the pot, so that it may be a little dishing, and receive the benefit of watering. When the plants are in a growing state, they should be abundantly watered, and kept in a free growing state; when the weather is sufficiently warm, they should be either plunged in the ground, in their pots, or placed in a frame, in a shady location, to remain during the summer; and in the fall, they may be again taken into the greenhouse with the other greenhouse plants.

Descriptive List of Azaleas.

Name.	Description.	Name.	Description.
AZALEA INDICA. CHINESE RED-FLOWERING AZALEA.			
alba	white.	Powellii	large rosy purple, [very profuse.
Copeii	large rose.	Phœnicea	bluish purple.
Danielsana	clear pale red.	superba	pale pur., dark spots.
elegans	light purple.	rubra pleno	d'bl. red, large flower
Gillinghamia	large lilac.	speciosa	very large rosy pink, [profuse.
hybrida	lilac, profusely spot'd	speciosissima	very large cherry red, [profuse.
ignescens	very br. red, profuse.	splendens	large salmon.
lateritia	salmon color, pro- [fuse flowering.	Smithii	Smith's scarlet.
Salmo tinctoria	salmon color, large.	variegata	rose and red margin- [ed, or var. with [white, superb.
Cambelii	Campbell's.	Cremeri, <i>Feast's</i>	superb.
fimbriata alba	fringed white.	Mount blanc,	<i>Feast's</i> beautiful, new, white
Danielsiana hybrida	pale red.	Phœnicia alba	very large, white.
" concessa	fine.	Gladstenesii	new white.
concolor	beautiful.	coccinea nova	new scarlet.
neriiflora	oleander-flowered.	rosea	very large, rosy, pur- [ple, fine.
macrantha	large white often se- [mi-double.		
magniflora	large purple.		
nova blanc	white, with greenish [spots.]		

ART. 3.—On the Culture of the Rhododendron.

The Rhododendron is very nearly allied to the Azalea, and requires nearly the same treatment, with the difference that it does not strike so readily by cuttings, and is therefore generally increased by layers, and sometimes the finer varieties are grafted on the common kinds to a good purpose. The growing of seedlings, potting, and repotting, is the same as the Azalea, with the exception that the Rhododendron is a larger growing plant, and consequently requires larger pots to grow it to perfection.

The plants are quite hardy in the green-house, and require to be placed in a good, dry, airy place to thrive well. In the summer they may be either plunged in the ground, in the pots, or placed in a shady situation, as they do not bear the extreme heat of the summers in this country, which retards their growth and prevents their setting off buds freely in the proper season.

Descriptive List of Rhododendrons.

Name.	Color.	Name.	Color.
RHODODENDRON.			
arborea	crimson Chinese.	Russellianum	rosy crimson.
album	white Chinese.	Smithii	dark red.
altaclarensis	deep crimson.	venustum	bright rosy red.
Cunninghamii	rosy purple.	multiflorum	profuse flowered.
fimbriatum	fringed white	Sir J. Broughton	dark red.
gloriosa	rich crimson.	spectabile	fine rose.
hybridum	rosy purple.	Nobleanum	fine rosy crimson,
purpureum	violet purple. [son.		[changing to white.
pictum	blush spotted crim-	cinnamomum	white, spotted with [red.

CHAPTER VI.

On the Culture of the Cactus and Succulent Plants.

ART. 1.—Culture of the Cactus.

MOST of the different varieties of the *Cactus* are natives either of the West Indies or South America, where the primitive kinds are found growing on, and in the chasms of rocks, and on old dead wood, where they often subsist for months without water. Indeed, there are few tribes of plants that will live and endure so long a period of drought as the *Cactus* and its natural families of the *Aloe*, and those plants which are denominated *succulents*,—as nature seems to have designed them to endure a recess of moisture, by their organization; being of a fat, fleshy texture, covered with a thick, tough, leather-like *coat* or bark, which does not respire, or at least admit of respiration so freely as deciduous plants; and hence, the plants being full of sap, or perhaps more properly a superfluous fluid, intended as a reservoir to sustain them when exigencies (as a long drought) require such provision; without which they could not subsist.

The mode of cultivation is to obtain new varieties by *seed* and cross impregnation, by mixing the pollen of one variety with another, by which the beautiful varieties of *Jenkinsonii*, *Ackermanii*, *Longworthiana*, and many others

(bearing the personal names of the lovers of the tribe) have been produced. The general mode of propagation adopted is, by cuttings of the leaf or stem of the plant, which in the *speciosa*, *Jenkinsonii*, and those kinds having joints, are cut at the joint; but those kinds which have long spaces between the joints, as the *speciosissima*, *cylindricus*, and the like tall growing kinds, may be cut into short pieces at the eye or bud. The preparing the cuttings of the Cactus is something different from almost any other kinds of plants.

The cuttings of the Cactus require to be laid on a dry shelf, previous to being inserted, so that the wound may be contracted and dried up. This treatment is necessary to all kinds of succulent plants, to avoid their rotting off at the wound. The cuttings being thus prepared, and the wound thoroughly dried up, (which will be in a week or ten days after their preparation,) they may be put into pots or pans of sand, in the usual manner of putting in cuttings.

The cuttings being potted, they may be placed over the flue, or in any dry, warm part of the house, and slightly syringed of a fine sunny morning, or of an evening when the fire-heat is sufficient to dry the leaf in a short time; water lying long on the leaves in this process, in many cases rots the entire cutting; and most generally, at all events, it decays close to the surface of the soil in the pot. When the cuttings begin to root they may be moderately watered, and when sufficiently rooted, potted off in the following manner, for flowering plants.

The best compost for potting the cuttings or young plants of Cactus that I am acquainted with, is about two parts of decomposed leaf mould, three or four years old, with the remainder mellow loam and a good portion of sand and some fine bone dust and charcoal beaten fine. The method of potting is to prepare a quantity of well-broken potsherds, beaten very fine, which are to be put at the bottom of the pot, about an inch thick; the soil is then to be used by placing it lightly in the pots until they are about three-fourths

full; the plants are then to be taken gently from the pots with a sharp pointed stick, then to be placed on the surface, the roots spread in a regular manner, and earth closed over them sufficient to cover them to a proper depth. After potting off, two or three shiftings are required in this tribe of plants, as in most others, when the pots are full of roots.

Mode of Culture.—The culture of the Cactus has been very much improved within a few years; indeed, the system has been entirely reversed from the former method of growing it in a dry, harsh, sandy soil or compost, to that of a light, rich soil, that shall be *porous* enough, with drainage to let off the superfluous water before it saturates and rots the roots, or the stem just above the surface of the soil;—hence, by the improved mode, this tribe of plants is grown and flowered in as good a manner and as large plants in one year as was formerly done in three or four. The present mode, then, consists in keeping the plants in a healthy growing state from the time they are first rooted as a cutting, until they are large enough for flowering plants; when a different process is taken, *to check the flow of sap* and growth of the plant, in order to set the buds thickly on the leaves.

The watering may be done with the Cactus as with other plants, when in a growing state, namely:—whenever the earth is dry in the pots, it may be moderately refreshed with water, but care must be taken to do so in such a degree that the earth shall not be saturated so as to be always moist, and thus rot off the plant, as before hinted. In every other department of culture, the Cactus requires good treatment until it is grown to a sufficient size for flowering, when an entirely different treatment may be given it. In the fall the plants intended for flowering may be placed on dry shelves in the green-house, where they are to remain, with a small portion of water, in order to set the flower buds in a firm manner. The plants are to remain in this state until New Year's, when they are again to be taken into a warmer place,

and treated in every manner as before directed for growing plants.

That a tribe of plants possessing the various traits of foliage, flowers, &c., that are natural to the Cactus, will at some future period engage much of the attention of the amateur and lover of flowers, cannot be doubted; for although in regard to appearance of foliage they cannot be said to vie with the *Cumellia*, yet there is a beautiful natural order in their nerves, and the spines or armature with which nature has endowed this family of plants, to guard against the intrusion of animals and other invaders, that most generally, when once made acquainted with their prickly coats, induce them to be careful how they again come in contact with so formidable a tribe of the vegetable kingdom.

Grafting the Cactus.—The engrafting of the weaker kinds of the Cactus on the grosser growing ones, is now becoming general among amateurs, as that of engrafting the *truncatus* on the *triangularis*; the *Jenkinsonii*, *May-fly*, and fine varieties of the *Epiphyllum* on the *Opuntia microdasys*; and the fine varieties of *Cereus* on the *Cereus cylindricus*. The *Cactus Periskia* is also an excellent stock for many kinds of Cactus, as the *Epiphyllums*, and some of the lesser varieties of the *Cereus*. In grafting Cactus, one principal object should be borne in mind to do the thing to perfection, namely, that the graft is to be improved in growth and magnitude by the stock; as for instance, the *Cactus truncatus* being engrafted on the *triangularis*, forms a most superb plant when fully grown. I saw some ten or a dozen plants of this kind last year, at the green-house of Mr. Longworth, under the management of Mr. Sleath, of this place, truly beautiful; each plant formed a beautiful head trained in a circular form, with pendulous branches, loaded with some two hundred flowers each, and this in the winter, at a time when few other plants were in flower. Such specimens contrasted with the *Echinocactus Eyriessii*, or Turk's cap, stuck on the stem of the *Periskia aculeata*, or Barbadoes

gooseberry, with the appearance of a *drum-stick*, for novelty's sake, is the best specimen I can give of such incongruities.

The operation is performed in various ways, as by taking off the top of the *cylindricus* and tall growing kinds, and making an incision in the top with the point of a sharp knife, downwards in the centre. The graft is then prepared by cutting it off at a joint, and paring off each side of the bark in the form of a wedge. The graft is then inserted in the incision and closed up with wax, tallow, or other pliable substance, to keep out the wet and air from the part where the scion and stalk are united. The *Opuntia* are grafted by cutting the top of the stock downwards in a transverse section; then cutting the graft in the form of a wedge, and inserting in the same manner as wedge grafting of fruit trees. These grafts are generally confined in their places by running through the stock and graft with the prickle of the stock, or a sharp pin made of wood, &c.

Culture of the Cactus in Rooms.—The Cactus does admirably well in the parlor or warm dry rooms, dry heat agreeing better with it than almost any other tribe of plants; but care must be taken that they are not allowed to be frozen, which is injurious to the tender kinds.

The management is simply this. In the winter months, keep the earth moderately dry, and at no time over-water them, as this is the season for them to lie dormant and form their flower-buds. When the spring advances, about the first weeks in March more water may be applied, and the roots kept moderately moist, but not too wet. The situation chosen should be where they may receive a full share of the sun, and if possible in the warmest part of the room. The guide given for the green-house, will answer, in every particular, for the parlor.

In selecting a List of Cactus, I have chosen those which are free flowering varieties, and will answer well for rooms. The height and time of flowering has been omitted, as most of the Cactæ are dwarf growing kinds, except those of the

hexanglaris, and the like tall varieties, which are kept in some collections merely as varieties. The object of this list is to give the best flowering varieties; it has therefore been selected accordingly.

Botanical Name.	English Name.	Color.
CACTUS CEREUS.		
<i>cylindricus</i>	cylinder like	
<i>flagelliformis</i>	creeping cereus	pink.
<i>triangularis</i>	triangular	white, fine for stocks.
<i>grandiflora</i>	night-blooming	creamy white.
<i>Scottii</i>	Scott's	scarlet and purple.
<i>Scottii violacea</i>	new	violet.
<i>speciosissimus</i>	most showy	crimson purple.
<i>Mallisonia</i>		scarlet.
<i>coccineus</i>	triangled	scarlet.
<i>Smithianus</i>	Smith's	superb flower.
CACTUS EPIPHYLLUM.		
<i>truncatum</i>	winter-blooming	pink.
<i>Ackermanii</i>	crimson	crimson.
<i>Russellianum</i>	Russell's	fine purple.
<i>May-fly</i>		very bright shaded.
<i>Spangii</i>	profuse flowering	red.
<i>speciosum major</i>	superb	large pink.
<i>coccineus</i>	triangular	scarlet.
<i>Smithianus</i>	superb flower	
<i>Jenkinsonii</i>	Jenkinson's	crimson.
<i>Longworthiana</i>	Longworth's	fine scarlet.
<i>violaceum</i>		white, edged with purple.
<i>formosissima</i>	beautiful	rosy purple.
<i>roseum</i>	bright rose.	
<i>Grahamii</i>		rosy violet.
<i>Chalmerii</i>	Chalmer's	bright scarlet.
CACTUS OPUNTIA, INDIAN FIG.		
<i>microdasys</i>	brown spined	
<i>dicipins</i>	various	
<i>fragilis</i>	brittle	
<i>lactæ spina</i>	white spined	
CACTUS PERISKIA.		
<i>longispina</i>	long spined.	
<i>aculeata</i>	Barbadoes gooseberry.	
CACTUS MAMMILEARIA.		
<i>stellata</i>	starry.	
<i>rubra</i>	red spined.	
<i>decora</i>	neat nipple.	
<i>simplex</i>	close.	
<i>discolor</i>	two colored.	
<i>pyramidalis</i>	pyramidal.	

Botanical Name. English Name.

CACTUS ECHINOCACTUS.

Eyriessii	Turk's cap.
rubra spina	red spined.
amabilis	neat headed.

ART. 2.—Culture of the Aloe and various Succulents.

The Aloe requires the same treatment as the Cactus, with the difference that they do not require so much water, and their treatment is regular, that is to say, they do not require at one time to be kept very dry, and at another to be more abundantly watered in order to make them flower; indeed the flowers are not the most beautiful, but it is the foliage these plants are cultivated for, as the partridge breasted, lizard tail, tongue, &c., which are represented in their leaves. These plants are propagated by taking off the young side shoots as they appear on the mother plant, and potting them in the same manner as their parent. To this class may be added the *Mesembryantheums*, *Stapelias*, and many other succulents, which are all propagated by cuttings, and require a dry place in the green-house, and but moderate watering.

I here with append a List of some of the most generally known varieties.

Name.	Description.	Name.	Description.
AGAVE.		MESEMBRYANTHEMUM.	
Americana	great American aloe.	grandiflorum	great flowered.
variegata	stripe leaved aloe.	californium	yellow.
ALOE.		barbatum	scarlet.
Socotrina	Socotrine	tigrinum	toothed.
ferox	hedgehog	minima.	
arborescens	tree.	tupinum.	
obscura	great soap.	lacerum	toothed.
variegata	partridge breast.	ROCHEA.	
obliqua	tongue	falcata	seckel leaved.
plicatilis	fan	perfoliata	perfoliate leaved.
verrucosa	pearl.	STAPELIA.	
margaritifera	great pearl.	ambigua v. fulva	brown flowered.
CRASSULA.		asterius	star-fish flowered.
coccinea	scarlet flowered.	grandiflora	large flowered.
versicolor	various colored.	variegata	variegated.
imbricata	whip cord.		

CHAPTER VII.

On Potting and Repotting Plants.

ART. 1.—Potting Green-house Plants.

[The following directions for potting green-house plants are equally applicable to hardy plants, &c.]

POTTING green-house plants is mostly done a short time previous to taking the plants into the house, which is generally the beginning or middle of September. In performing this business, the first thing to be attended to is the procuring of clean pots, compost, &c., to be used. The compost that will answer most plants, consists of about two-thirds of good mellow loam, taken from the top sod of a pasture, or other place where sheep, oxen, or other animals have lain and enriched it: this should be taken off about three inches deep, and laid in a heap some time, in order that it may rot and incorporate together. The loam may be mixed with one-third of well rotted leaf mould, or other rich old manure, that will mix and incorporate with the loam;—if the loam is not of a sandy quality, a little sand may be applied, in order to give a little drainage to the plants to be potted in it. For some families of plants, as the *Erica*, *Diosma*, &c., a black peaty, or bog earth, is the most proper, and must be obtained from the sides of woods, natural bogs, &c.

Having the soil prepared, the potting may be commenced by carefully turning the plants out of the pots, and paring off with a sharp knife part of the roots matted around the ball. This done, select a pot of a size to allow some fresh compost to be put into the bottom and side; then pot the plant thus:—lay a few pieces of pots, or other crockery, at the bottom of the pot, to act as a drainage; place two or three inches of the compost over the crockery, in the bottom of the pot, and then place the plant with the ball in the centre of it, filling the sides

between the pot and ball with compost, when the pot may have a gentle shake with the hands, to settle the earth about the ball and the roots of the plants. The plants may then have a gentle watering, and be placed where they are to remain until they are taken into the green-house.

ART. 2.—Potting of Plants taken from the Ground.

The beginning of September is the best time to take from the ground and pot such plants as are intended to be taken into the green-house or rooms. In performing this business, the plants must be taken as carefully as possible from the ground, with a portion of earth about their roots, and potted in the same manner as directed above; but their treatment requires to be something different, by placing them in a shady situation after being potted, in order that they may root more freely into the new soil that they are potted in. When the plants begin to make new roots into the fresh soil, they are to be divested of any dead leaves that may be about them, and more exposed to the sun, previous to their being removed to the green-house or rooms.

ART. 3.—Potting of young Plants from Cuttings.

All kinds of young plants, as *Geraniums*, *Roses*, and the like, propagated from cuttings, should be potted in small pots as soon as they are well rooted. Having your compost and pots (which should always be small for this purpose) prepared, commence the business by carefully turning out the cuttings, with the ball of earth entire; when the plants may be divided, with as much earth as possible about their fibres, and potted in the same manner as directed for the above. The plants when potted off, should be placed in a frame, where their rooting freely into the soil in the pots may be facilitated, by covering them when the sun shines strongly on them. If a frame is not at hand, the plants may be placed in a shady situation until they are well rooted.

CHAPTER VIII.

On the Management of Cut Flowers, Plants in Rooms, and Bulbs in Pots and Water Glasses.

ART. I.—Cut Flowers.

It being now an almost universal practice to have *cut* flowers in rooms, as natural ornaments, some hints relative to the management of them may perhaps be of service to their fair patrons. To preserve cut flowers, such as the *Dahlia*, and succulent kinds, in a fresh manner, and to keep them from wilting and fading in summer, they should be immediately immersed in clean water when cut from the plant; by this means, the pores will be filled with water, and exhaustion prevented, and, consequently, the flowers will remain in a fresh state.

Packing cut flowers.—In packing cut flowers to go some distance in the winter season, I recommend to put them in a wooden box, of a size corresponding to the quantity to be packed, the inside of the box to be lined with cotton wool, and the flowers to be laid loosely in the box, beginning at the bottom with the hardiest kinds, placing them in such a manner, that the flowers are upwards, and that the leaves intersect them; arranging the whole, so that one part will spring lightly on the other, in case of a sudden jerk in travelling: in this manner, proceed with the whole to the top, which cover with a lid lined with cotton wool like the sides. In this mode of packing, the wool serves to keep out the cold, and gives way to the flowers that press it, without bruising or injuring them.

For the preserving of flowers in rooms, I extract the following from *Sweet's Hot-house Manual*, which is the only article on this subject I have seen in print, and the best method I can recommend. He says:

“Many persons have expressed a wish to be acquainted with the best method of preserving cut flowers for a length of time in water; this we have never seen satisfactorily explained, though it is a very simple question: the only method we have seen adverted to, is to frequently change the water; this of itself is scarcely of any essential benefit: the only method is to cut off half an inch or an inch of the stem that has been in the water, according to the length of it; this will again open the pores that have become closed with glutinous matter, that has exuded from the stem when first cut, and the pores being stopt, very often before the stem is placed in the water, frequently occasions rapid withering: by cutting the bottom of the stem, the moisture immediately begins to flow upwards, and the branch soon recovers its vigor: the stems of flowers are also frequently kept in water until the bottom begins to rot and decay; those, if cut above that, will also recover again, and when placed in fresh water will frequently continue fresh for some time afterwards. Flowers bought in shops and markets, are often dried at the bottom, before restored again to the water; the bottoms of the stems of these should therefore be always cut before immersed in water again. Specimens of plants coming from a long distance are frequently much withered when they arrive; they should therefore be enclosed at the bottom with wet moss, tied round them before they are packed in a box or basket; we have frequently had them arrive much withered, and find the best way of recovering them to cut the bottom of the stem or branch, and place their ends in about an inch of water in the bottom of a large bread pan, or some such vessel, and sprinkle a little water on their leaves, and they will in general be all fresh in the morning: the vessel must be covered close with a wooden, or other cover, that fits close, and excludes the air.”

ART. 2.—Plants in Rooms.

In order to be as explicit as possible on the management of plants in rooms, I refer the reader to the first part of this book, and request him to peruse carefully the articles on the food of plants, and the necessary *stimulants*, as *heat*, *light*, *air*, &c., with the remarks on the *bud*, the *root*, and the *leaf*: which will give some useful hints on the tendency of plants to the presence of such natural food and stimulants as contribute to their health and well being.

After a careful reading of those articles, it will be seen that the management of plants in rooms is not so difficult a task as is generally supposed, and that much of the assiduous attention paid to them is more conducive to their sickness than to their health and vigor.

In most cases, plants are taken into rooms at an early part of the autumn on the approach of the frost, and are subjected to a sudden and injurious change of air, temperature and treatment. From receiving what nature bestowed upon them, as the dew, the sun, and air, they at once become the objects of the tender and diligent attention of their fair cultivators, who foster them in a close room, watering them frequently at a time when they require to be hardened, to withstand the severity of the coming winter. Under this management, the natural growth and quality of the plant is reversed, by its being forced into a *weak, slender habit and constitution*, and the consequence is, that having put forth its vigor at a time unnatural to vegetation, its property is partly exhausted, and a weakness ensues, from which it cannot possibly recover till its whole system undergoes a renovation, which will take a year at least, and in some cases, the plants never can be brought again to their proper *healthy* state.

Management of the plants.—Previous to the plants being brought into the room, they should be divested of any dead leaves, repotted and cleaned, as directed under the head of green-house plants, in the green-house department.

Much of the health and thriftiness of the plants will depend

on their being so situated, that they can enjoy the light from a window, and if in a situation to receive the morning and mid-day sun the better. The best manner of arranging them is on a *semicircular stage*, with running casters to it, by which it can be moved to any part of the room at pleasure; and as light will have no beneficial effect on plants at night, the stage may be removed to any part of the room most convenient, and corresponding to their nature. The dimensions and construction of the stage should be in proportion to the size of the window, and should be so made that the lower shelf is on a level with the bottom of the window, in order that the plants placed on it may receive the light. The plants should be placed on the stage in such a manner, that they can all receive the light from the window. They should often be turned, as all plants always incline to the light, and being reversed they reverse their position also, and hence they are by this method kept in handsome form, and every part of them will have an equal share of vigor.

Every opportunity should be taken to let in fresh air to the room; this may be done through the window, in fine, soft weather. So essential is fresh air to plants, that the least possible quantity let in mixes with the impure air and greatly rectifies it, and, of course, the more pure the air, the more healthy is the plant. Indeed, cleanliness and wholesome air are the two principal things to be attended to in this case.

Watering plants is by many persons considered as a very difficult point in growing plants in rooms; however, a few practical hints on the subject will, I think, so simplify it, that any person may water plants with the greatest advantage. The rule is, that all plants indicate when water is necessary to be applied, by their drying the earth in the pots. If the plants suffer for the want of proper moisture, they lose their leaves, and become infested with *scaly insects, red spiders, &c.*, (for a more particular notice of which, see the article on Insects, page 124.) On the other hand, when they are over-watered, the earth in the pots continues in a moist state, and,

from the effect of saturation, often *sours*, which is very injurious to the plants. Most kinds of fleshy plants, as the *Cactus*, *Aloes*, and the like, require but little water in the winter. *Camellias*, and hardy evergreens, require but little water in the winter months, and more when the flowering season comes on. Most plants in a growing state require to be often watered; but, at the same time, they should be as much as possible situated so as to receive the atmospheric *air*; and it should be at all times a consideration, to allow plants to grow as little as possible in rooms, or in a confined situation.

ART. 3.—Growing Bulbous rooted Plants for Rooms.

In the latter part of November, a compost of mellow loam mixed with a little sand and leaf mould, may be prepared for potting such bulbs as Hyacinths, Narcissus, and those kinds required to be grown in rooms. The pots may be filled with the above compost, and the bulb placed in the centre, by pressing it down in the earth, so that its crown is level with the earth; the pots must now be placed in a situation where they do not receive much light, as bulbs always strike root much better in darkness than when fully exposed to the light. Little water will be required to be given until the bulbs begin to grow, when the watering may be gradually increased as they increase in height, and when the flowers show they may be copiously watered. When the plants have done flowering, they may be placed in the ground as soon as the weather will admit, to renovate their strength.

ART. 4.—Growing Bulbs in Glasses.

Hyacinths and Narcissus may be grown to good advantage in glasses, in rooms. The best time to commence this business is in November: the glasses may be filled with clear water, and the bulbs placed in them; they should then be placed in a light, airy room, where the temperature of air is moderate, in order to start them in a vigorous manner; as often when they are placed where they are started into

growth too rapidly they are drawn very weak and flower badly. In the process of growing bulbs, the water should be changed every three or four days, and the fibrous roots rinsed in clean water, as any putrid substance or impure matter, that either collects about them or is in the water, is likely to injure them in the process.

If the weather is mild when the flowering is over, they may be managed like those in pots, by planting them in the flower beds, to regain their vigor.

CHAPTER IX.

Miscellaneous Tender Plants.

ART. 1.—Tender Green-house Plants for Winter Flowering and Planting in the Flower Garden.

THERE are several families of green-house plants that may be yearly renewed, and planted in the borders for summer flowering, that are not considered as important standard plants grown for the purpose of remaining several years, as the *Camellia*, &c.

The method adopted for this purpose is either to strike the cuttings in the summer or fall, and let them remain and flower in the green-house, and turn them out in the flower border in the spring; or to strike them early in the spring and plant them out so soon as the weather will permit.

The *Heliotrope* is one of these plants, and it should be propagated in July, when it will strike freely from the young wood. When well rooted, the cuttings may be potted off into small pots and placed in a shady place and well attended until fall, when they are to be shifted into another size of pots and placed in the green-house for winter flowering, and in the spring they may be planted in the flower borders,

where they will flower freely during the summer. These plants should never be stopped, but the branches be allowed to grow their full length and form their flower buds in the fall, before they are taken into the green-house.

The *Eupatorium elegans* and *E. cælistinum* are pretty plants for winter flowering, and should be cultivated precisely the same as the Heliotrope, and turned out in the borders in the spring; but they do not flower so profusely in the summer, although their flowers in the winter will pay for the trouble.

Justica speciosa, are delightful winter flowering plants. With these all the tender kinds of *Salvia*, as *Salvia splendens*, and its varieties are also desirable plants. These should be propagated in the fall and well established in the pots for winter flowering.

The *Lantana mutabilis*, and all its varieties, are also pretty varieties of summer flowering plants, and cuttings of every variety should be propagated in the fall for the purpose of planting out in the spring.

The *Cineraria* is also a pretty family of flowering tender plants, that may be either propagated by sowing the seed of the finer varieties in the fall, and potting them in rich compost, or they may be propagated by dividing the roots about the first of January, when they will make fine flowering plants in a few weeks.

The *Fuchsia*, or Ladies' Ear Drop, is also deserving more general cultivation than it receives. In many parts of Europe it is now becoming the *belle* ideal of parterres, in the summer, where it is cultivated to great perfection, and several of the new varieties are highly deserving a trial in this country.

The cuttings may be propagated in the spring, and turned out in a bed of good rich earth about the middle of May, to flower during the summer.

The *Erythrina crista galli*, or the Coral plant, and its varieties, is also a beautiful tribe of plants for the flower garden in the summer. The roots are tender, *tuberous*, and

require precisely the same winter treatment as the Dahlia, and of course must be taken up before the frost. In the spring, the old roots make several young shoots from the crown, which may be propagated and managed as directed for the Dahlia; which see, under that head.

Running Vines, as the *Maurandya Barclayana*, and several kinds of the Passiflora should also be propagated either in the fall or spring by cuttings, and grown expressly for growing in the flower garden during the summer. The manner of propagating them is the same as other tender plants.

In order to render the above subject interesting to lovers of the flower garden, I have here appended a list of the best varieties of plants adapted to the purpose.

Name.	Color.	Name	Color.
SALVIA.		robusta	dark red and pink.
fulgens	fulgent flowering.	Stanwelliana	red and purple.
involucrata	pink.	coccinea major	very large crimson.
splendens	splendid sage.	Fair Helen	light rose & scarlet.
patens	blue, large flowering.	red cross knight	red, large and fine.
CINERARIA.		Desdemona	flesh and ruby.
Kingii	white, tipped with	Eppsii	red and purple.
elegans	elegant. [purple.	Zenobia	crimson & carmine.
splendens	splendid.	Pride of Peckham.	
Hendersonii	large rosy purple.	Paragon	crimson and purple.
floribunda	profuse purple.	Baudoin	large red.
cœrulea	blue.	Audot	
triumphans	superb blue.	arborea conspicua	blush & scarlet.
FUCHSIA.		ERYTHRINA.	
Chauvierii	crimson and red.	herbacea	herbaceous coral tree.
Exoniensis	large crims. & pur.	crista galli	cockscorb.
Venus Victrix	white and purple.	caffra	purple.
elegans superba	large red.	princeps	large scarlet.
Laneii (<i>Lane's</i>)	crims., large & fine.	PASSIFLORA.	
Frostii	rosy crimson, fine.	princeps	fine passion flower.
tricolor	green, rose & white.	hybrida	hybrid.
Enchantress	rose and blush.	cœrulea	blue.
Williamsonii	crimson and purple.	alata	winged-leaved.
Monnypennii	crimson and purple.	edulis	eatable-fruited.
majestica	large bright red.	racemosa	
gigantea	large, free and fine.	fragrans	sweet-scented.

ART. 2.—Annuals and Biennials.

There are many kinds of annuals and biennials that are highly deserving the attention of the amateur, for winter and spring flowering in the green-house; the sweet-scented Mignonette is one of these, and there are several varieties of stocks of the annual and biennial kinds which will be enumerated in the list to follow. Those of the tender kinds are the best for the green-house; and the seed may be sown in pots, early in the fall, and placed in the front of the green-house, where they will flower, if properly managed in the winter and the spring. If a succession is wanted of the annuals, a second sowing may be made about the beginning of February, to succeed those sown in the fall. The biennials will require the same treatment as other plants in the house.

ART. 3.—Descriptive List of Annual Flowers.

[Those marked thus * are climbing plants; those marked thus § are delicate annuals, and should be sown in hot-beds in March, and transplanted into the open ground the end of May, or beginning of June.]

English Name.	Botanical Name.	Height.	Color.
Mexican Ageratum	<i>Ageratum mexicanum</i>	1½ ft.	Blue.
Sweet Alyssum	<i>Alyssum maritimum</i>	1	White.
Aster White	<i>Aster hortensis fl. alba</i>	1½	White.
“ Red	var. <i>fl. rubro</i>	1½	Red.
“ Lilac	var. <i>fl. carnea</i>	1½	Lilac.
“ Red striped	var. <i>fl. obscura</i>	1½	Striped.
“ Purple striped	var. <i>fl. striata</i>	1½	Striped.
“ Quilled red	<i>superba rubro</i>	1½	Red.
§ Blue Amethyst	<i>Browallia elata</i>	1	Blue.
§ White	<i>alba</i>	1	White.
Venus' Looking Glass	<i>Campanula speculum</i>	1	Purple.
Great American Centaurea	<i>Centaurea americana</i>	2	Pink.
Yellow Chrysanthemum	<i>Chrysanthemum fl. lutea</i>	2	Yellow.
White	<i>coronaria</i>	2	White.
Beautiful Clarkea	<i>Clarkea pulchella</i>	2	Purple.
Dwarf Convolvulus	<i>Convolvulus minor</i>	1	Tricolor.
Blue Commelina	<i>Commelina cœlestis</i>	2	Blue.
Elegant Coreopsis	<i>Coreopsis tinctoria</i>	3	Yellow.
Drummond	<i>Drummondi</i>		Yellow.
Elegant Escholtzia	<i>Escholtzia californica</i>	1	Yellow.
Variiegated Euphorbia	<i>Euphorbia variegata</i>	3	White.
Branching Larkspur	<i>Delphinium consolida</i>	2	Various.
Dwarf rocket	<i>ajacis</i>	1	Various.
Azure Blue Gilia	<i>Gilia capitata</i>	2	Blue.

English Name.	Botanical Name.	Height.	Color.
Double Balsams, mixed	<i>Impatiens balsamina</i>	2 ft.	Various.
Variegated	<i>variegata</i>	2	Striped.
Pure white	<i>alba</i>	2	White.
Crimson	<i>rubro</i>	2	Red.
*Scarlet Morning Glory	<i>Ipomea coccinea</i>	10	Scarlet.
*Cypress Vine	<i>quamoclit</i>	6	D. Red.
*White Sweet Peas	<i>Lathurus alba</i>	2	White.
*Scarlet	<i>fl. rosea</i>	2	Scarlet.
*Striped	<i>fl. striata</i>	2	Striped.
White Lupins	<i>Lupinus albus</i>	3	White.
Portulaca	<i>Thellusonii</i>	1	Fine scar.
Petunia	<i>nictagyna flora</i>	1	Purple.
Rose	<i>varius</i>	2	Rose.
Scarlet Malope	<i>Malope trifida</i>	2	Scarlet.
§Ice Plant	<i>Mesembryanthemum</i>	1	White.
§Sensitive Plant	<i>Mimosa pudica</i>	1	Pink.
Trailing Nolana	<i>Nolana prostrata</i>	1	Blue.
Hybrid Evening Primrose	<i>Oenothera hybrida</i>	1	Pink.
White	<i>tetraptera</i>	1	White.
Lindley's	<i>lindleyii</i>	1	P. White.
White Official Poppy	<i>Papaver somniferum</i>	4	White.
*Scarlet Flowering Bean	<i>Phaseolus multiflorus</i>	12	Scarlet.
Sweet Scented Mignonette	<i>Reseda odorata</i>	1	Cream.
Schizanthus	<i>Schinzathus pinnatus</i>	2	Various.
Double purple Jacobea	<i>Senecio elegans</i>	2	Purple.
Double white	<i>fl. alba</i>	2	White.
§White Egg Plant	<i>Solanum melongena</i>	2	White.
Vanilla scented Stevia	<i>Stevia serrata</i>	1	White.
*§Winged Thunbergia	<i>Thunbergia alata</i>	4	Y. purple.
*Great Nasturtium	<i>Tropæolum majus</i>	4	Orange.
Golden Eternal Flower	<i>Xeranthemum lucidum</i>	3	Var.

Descriptive List of Biennial Flowers.

[Those marked thus § are delicate, and require to be housed in the winter.]

English Name.	Botanical Name.	Height.	Color.
Rose Champion	<i>Agrostemma coronaria</i>	2 ft.	Red.
Dble. light blue Columbine	<i>Aquilegia vulgaris</i>	2	L. blue.
Dark purple	<i>fl. purpurea</i>	2	D. purple.
§Wall Flower	<i>Cheiranthus cheiri</i>	2	Var.
Chinese Imperial	<i>chinensis</i>	1	Red.
Sweet William	<i>barbatus</i>	2	Var.
§French Honeysuckle	<i>Hedysarum coronarium</i>	4	Scarlet.
Honesty, or Satin Flower	<i>Lunaria biennis</i>	4	Purple.
White Mallows	<i>Malva fl. alba</i>	2	White.
§Persian Stock Gilliflower	<i>Mathiola odoratissima</i>	2	Var.
§Russian	<i>var.</i>	2	Var.
§White wall leafed	<i>alba</i>	2	White.
§Prussian	<i>purp.</i>	2	Purple.

English Name.	Botanical Name.	Height.	Color.
§Twickenham	<i>incana</i> purp.	2 ft.	Purple.
§Scarlet	var. <i>coccinea</i>	2	Scarlet.
§Queen	var. <i>alba</i>	2	White.
Purple Topped Clary	<i>Salvia sclarea</i>	4	L. blue.

CHAPTER X.

On the Propagation of Green-house Plants.

ART. 1.—On Grafting.

GRAFTING is performed in various ways, although the principle is the same in each, which is to unite the inner rind, or bark, of the *scion*, or graft, with that of the *stock*, in such a manner, that the graft becomes a part of the stock, by which it is fed and nourished, in precisely the same manner as the *bud*, before spoken of.

Whip grafting.—The most common mode practised on fruit trees is exemplified in the preceding cuts, which is performed early in the spring, before vegetation takes place, or the sap is in motion. The grafts, 1 and 2, are taken from the tree of the last year's shoots, generally before the time of grafting, about the latter end of February, and are kept in earth in the cellar, or laid in, covered with earth, by the side of a fence, or other sheltered place, to keep them fresh, and from shrivelling, at time of grafting, which is just before the sap rises. They are *cut* into three eyes, or buds, and prepared, as shown in *Fig. 1*, by cutting half the side of the graft off, in a slanting manner; the stock is then prepared, by taking off the head at a smooth place, and cutting a piece of the bark and wood, in a slanting manner, upwards, as represented in *Fig. 3*, so that the graft will exactly *fit*; and that the inner bark of the graft and stock meet in such a manner that a union may take place when the sap rises, by the granu-

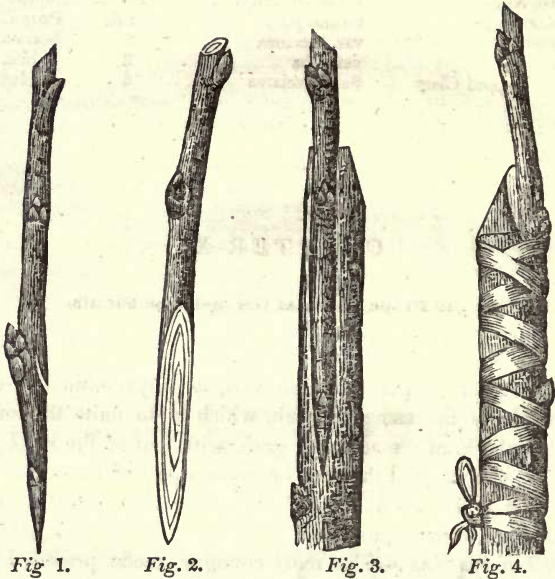


Fig 1.

Fig. 2.

Fig. 3.

Fig. 4.

lating of the sap of the stock with that of the graft. The graft is bound to its proper place, as seen in *Fig. 4*, with bass matting, when it is covered with clay, or composition, to keep out *wet, sun,* and *air*, from having any action on it until properly united, when the compost may be taken off, and the bandage loosened, to allow the graft to swell. When this is omitted, grafts are often much injured by the bandage cutting through the bark, and they are often blown down in this condition by the wind.

Cleft grafting is performed by cutting off the top of the stock and splitting it down the centre, so as to admit the graft, which is cut in the form of a wedge, and inserted in the same manner as represented by *Fig. 7*. When inserted, it must be bandaged, and treated in the same manner as recommended for the whip graft.

Grafting tuberous roots is exemplified by the following *cuts*, and is practised on the Pæony, of which *Fig. 7*, is a specimen. It is performed by simply taking a graft from the *tree* variety, cutting it into the form of a wedge, *Fig. 5*, when a tuber from the herbaceous kind, *Fig. 6* is prepared, by cutting off the top, and preparing it for inserting the graft, as seen in *Fig. 7*. The graft, when inserted, may be bandaged and managed as before stated; and the roots may be planted in a pot, or in the ground, in order to cause them to grow, when the graft will also make some progress in growth; and when united, must be unbandaged and treated the same as before directed.



Fig. 5.

Fig. 7.

Fig. 6.

The Dahlia, and many tuberous rooted herbaceous plants, may be propagated in this manner; and, indeed, the grafting



Fig. 8.

the roots of fruit trees and shrubs is now becoming very general, and will in a few years form a principal item in the science of horticulture. The work is generally performed in this way in winter, and the roots are grafted by the whip graft, and planted out in the spring, in the same manner as other nursery stock.

Grafting by the single eye is exemplified in *Fig. 8*, and is performed on Camellias, and green-house evergreens. It is done when the sap is beginning to rise, which is generally in February, and is performed in the same manner as the *cleft graft*, before spoken of, with the difference, that the plants should be kept moist, and in a growing state, to assist a speedy union; they should also be excluded from the sun, which

dries the grafts and deters their uniting with the stock.



Fig. 9.

Grafting by approach, or inarching, may be represented by *Fig. 9*; which is performed on evergreen plants, but more especially the *Camellia Japonica*, which the present cut represents as being grafted by a side graft, with the end in a bottle of water, to keep the sap in action in the graft until it can unite. The difference of this and the inarch is, that both the graft and stock are kept on the stock until united. The manner of doing it is to take two plants, the one for the stock, and that to be inarched from; put them together in a place in the green-house where they are to remain until they are united; proceed to place them so that they can be made to come into contact, as seen in the opposite cut, supposing

the graft to be the top of the inarch; having placed them together, cut off a thin slice of the stock upward, and another from the graft where it is intended to be united, in such a manner that when put together they make a complete fit, by the rind of the graft and stock coming together on each side. They are then to be carefully bound together, covered, and treated in the same manner as before named; and when united the inarch or graft may be cut from the mother plant, and the top from the stock, and placed in a shady situation.

ART. 2.—Propagating Green-house Plants by Cuttings.

There are various methods of propagating green-house plants by cuttings, although they all may be reduced to one principle, viz. the taking the young shoot of the plant at a *joint*, cutting it level just below an eye or bud, cutting off one or two of the under leaves, and preparing it in such a manner as described in *Fig. 10*, in order that it forms a callus over the wound, or cut part, from which, when properly covered, protrudes small fibrous roots, which finally make a young plant, and is to be potted and treated in



Fig. 10.

the same manner as the parent.

Cuttings may be divided into two classes—*soft* wooded and *hard* wooded; the former are exemplified in the Geranium, Rose, Verbena, &c.; the latter in the Camellia, Laurestina, and most evergreens. The time of taking cuttings from the plant is generally when the young shoots, which are the ones to be selected, are well ripened, which often happens soon after the plant has done flowering; but almost any season when sufficient heat can be applied will answer. The method of performing the business is to take off the young wood



Fig. 11.

two or three inches long, as represented in *Fig. 10*, being careful to cut it at a joint, from which a callus is formed, and the roots will emanate, as described in *Fig. 11*. The cuttings being thus prepared, proceed to pot them in moderate sized pots, well drained with broken pots, broken bricks, or any coarse substance that will drain off the water, which, if allowed to remain at the bottom of the pot and saturate the compost, is often the cause of cuttings rotting off at the wound where the roots should be made; having properly placed the drainage, fill the pots with compost, of good mellow loam, with a quantity of good sharp sand, in order to keep it free and open; shake the compost gently into the pot, and insert from six to ten cuttings in each pot about two inches in the compost; this done, give them a moderate watering, and place them in the front of the green-house, frame, or any situation where they can be shaded from the mid-day sun. In this situation, they will require good attention, by keeping them moderately watered, clearing away any dead leaves, or filth that may collect about them. By this treatment, most cuttings may be rooted in a month, or six weeks, when they may be potted off, in the same manner as recommended for "Potting Plants."

Hard wooded cuttings, as the *Camellia*, *Laurestina*, *Pittosporum*, and evergreens in general, belonging to the green-house, are taken from the plants when the young wood is well ripened, which is about the latter end of August or beginning of September. They are prepared in the same manner as recommended for soft wooded plants, and should be covered with bell glasses, which should be taken off every day and wiped dry, in order that they may not damp off, which will

be the case if impure moisture is allowed to remain on the inside of the glass. The cuttings may remain in this state until the spring, or so soon as they are well rooted, when they may be potted off, in the proper compost, recommended for the parent plant.

Erica, Diosma, and Epacris, with their natural families, may be propagated, by taking off the young shoots when well ripened, and preparing a compost of peat, as recommended for them under the proper heads. The pots may be filled with crocking at the bottom; then fill it up to within two inches with sharp white sand, into which insert the cuttings, which should be covered with bell glasses, and treated in the same manner as other cuttings.

Striking cuttings in water.—There are many kinds of soft-wooded green-house plants that are readily propagated in water, such as the Oleanders, Cape Jasmine, &c. This is generally done when the wood of the plants to be increased is tolerably well ripened; when the cuttings are to be taken from the plants and prepared in the usual way; they are then placed in glass phials, hyacinth glasses, or the like, filled with water, and kept in a temperature of 60°, until they make roots from the end of the cutting; they may then be potted as any other cutting, and managed in the same way. In this method, pure water is a principal item, and the water must be often changed, as for bulbs, &c.



GLOSSARY.

- Acaulis, having no stem. *Gentiana acaulis*, *Cnicus acaulis*.
 Acuminatus, pointed sharp. *Erica acuminata*.
 Acutus, sharp, pointed, acuminate. *Rumex acutus*.
 Alatus, winged; having membranous appendages. *Thunbergia alata*.
 Alburnum, the white wood near the bark of trees.
 Albus, white. *Populus alba*, *Azalea alba*.
 Amabilis, amiable; pleasing. *Crinum amabile*.
 Amphibium, amphibious; growing either in or out of the water.
 Angustus, narrow, straight, slender. *Kalmia angustifolium*.
 Apex, the summit; generally applied to anything terminating in a point.
 Apiculatum, (*apis*, a bee,) resembling a bee; as the flowers of *Delphinium elatum*, or Bee Larkspur.
 Aquaticus, (*aqua*, water,) growing in water. Water Lily, &c.
 Arboreus, shrubby; woody. *Daturea arborea*, *Erica arborea*.
 Ardens, bright; glowing; burnished. *Erica ardens*.
 Argenteus, silvery; white and shining like silver. *Protea argentea*.
 Armatus, armed with spines, aculei, &c. *Acacia armata*.
 Articulatus, jointed. *Cacalia articulata*.
 Asterias, (a star,) stellate. *Stapelia asterias*.
 Atropurpureus, compound of black and purple. *Camellia atropurpurea*.
 Augustus, imperial; grand; magnificent. *Pelargonium augustum*.
 Australis, southern; coming from the south. *Erica australis*.
 Azurea, (azure, sky blue,) sky blue colored. *Campanula azurea*.
 Barba, a beard; a species of rigid pubescence. *Chironia barbata*.
 Bicolor, (com. *bis* and *color*,) two colored. *Erica bicolor*.
 Biennis, of two year's duration. Canterbury Bell.
 Biflorus, (com. *bis* and *flos*,) two flowered. *Narcissus biflorus*, *Erica biflora*.
 Borealis, northern. *Linnea borealis*.
 Bractea, an ornamental leaf, exemplified in the Lime or Basswood.
 Cœruleus, sky colored. *Trachelium cœruleum*.
 Campanulatus, (*campana*, a bell,) bell shaped. *Ipomœa campanulata*.
 Capitatus, growing in a head; a species of inflorescence. *Diosma capitata*.
 Cardinalis, principal; chief; also scarlet, from the color of a cardinal's robe. *Lobelia cardinalis*.
 Carneus, (*carnis*, flesh,) flesh colored. *Veronica carnea*.
 Carnosus, (*carnis*, flesh,) fleshy; plump; thick; pulpy. *Hoya carnosa*.

Ciliatus, (*cilium*, the eye-lid,) edged with hairs like an eye-lid. *Erica ciliaris*, *Diosma ciliata*.

Coccineus, scarlet; a deep scarlet. *Salvia coccinea*.

Color, hue; a sensible quality distinguishable by the eye.

Colorans, (*color*,) a term used to express mutability and diversity of color. *Erica colorans*.

Coma, a head or tuft of hair; a terminal bractea, forming a tuft as in *Eucomis punctata*, *Lavendula spicata*.

Communis, common; general. *Pyrus communis*.

Compactus, close; compact; solid.

Concolor, one colored. *Erica concolor*, *Lilium concolor*.

Conspicuus, clear, apparent; excellent; very grand. *Erica conspicua*.

Corculum, (dim. of *cor*, the heart,) a little heart; the embryo of the future plant, contained in the seed.

Cordatus, (*cor*, the heart,) heart-shaped. *Diosma cordata*.

Cornutus, horned. *Erica cornuta*.

Corolla, a little crown; chaplet, or garland; *the painted leaves of a flower*.

Cortex, the outer rind or covering of trees and plants.

Coronatus, (*corona*, a crown,) resembling a crown. *Lychnis coronata*.

Corymbus, a cluster of ivy berries.

Crispus, crisped; curled; crumpled. *Ixia crispa*.

Cruentus, bloody; red like blood. *Erica cruenta*.

Cupreus, (*cuprum*, copper,) copper colored. *Iris cuprea*.

Cyaneus, of a bright blue color. *Arista cyanea*.

Cylindricus, (*cylindrus*, a cylinder or roller,) cylindrical. *Cactus cylindricus*.

Deciduous, subject to fall. A tree is deciduous when the leaves fall off in autumn.

Decorus, handsome; graceful. *Protea decora*, *Erica decora*.

Decussatus, (*decusso*, to divide crosswise,) A plant is decussate when its leaves point in four directions only, or crosswise. *Phlox decussata*.

Defoliation, (*de*, from, and *folium*, a leaf,) the shedding of leaves.

Dentatus, toothed; having notches like teeth. Mostly applied to the margins of leaves. *Lavendula dentata*.

Didymus, (twins,) two united. *Monarda didyma*.

Dipetalus, two petalled. *Pelargonium dipetalum*.

Discolor, (*two* and *color*,) two colored. *Tradescantia discolor*.

Divaricatus, growing in a disorderly manner; inclining. *Phlox divaricata*.

Dulcis, sweet; nectariferous. *Inga dulcis*, *Solanum dulcimeria*.

Echinatus, covered with prickles. *Pelargonium echinatum*.

Edulis, eatable; good for food. *Passiflora edulis*.

Elegans, elegant; handsome; neat; fine. *Eupatorium elegans*.

Ensiformis, sword-shaped. *Mimosa ensifolia*.

Equestris, (*equus*, a horse,) having the fancied resemblance of a horse's head. *Amaryllis equestris*.

Erectus, erect; upright; aspiring. *Clematis erecta*.

Erubescens, blush colored. *Erica erubescens*.

Eximius, choice; excellent; noble. *Gnaphalium eximium*.

Falcatus, (*falx*, a hook or sickle,) hooked; bent like a sickle. *Asparagus falcatus*.

Ferrugineus, iron-colored; rusty. *Lasiopetalum ferrugineum*; *Rhododendron ferrugineum*.

Filamentosus, (*filum*, a thread,) thread-shaped; producing filaments. *Yucca filamentosa*.

Fimbriatus, fringed; flounced. *Camellia fimbriata*.

Flagelliformis, (*flagellum*, a whip.) *Cactus flagelliformis*.

Floridus, florid; gay; fresh. *Gardenia florida*.

Fætidus, of a rank smell. *Pothos fætidus*; *Cerissa fætida*.

Folium, a leaf of a plant.

Formosus, beautiful; handsome; ornamental. *Potentilla formosa*.

Fragrans, having a smell, either agreeable or disagreeable; but generally applied to the former. *Olea fragrans*.

Fruticosus, (*frutex*, a shrub,) shrubby. *Althea frutex*.

Fulgens, shining; glittering; resplendent. *Lobelia fulgens*; *Salvia fulgens*.

Genera, plural of genus.

Genus, a kindred; a race; a family.

Gibbosus, (*Gibbus*, bunched out, gouty,) abounding with excrescences, particularly at the joints. *Pelargonium gibbosum*.

Giganticus, giant-like; huge. *Colotropis gigantea*.

Glandulosus, furnished with glands. *Hypericum glandulosum*.

Glomeratus, (*glomero*, to gather into a round heap,) collected together in a round assemblage. *Gnaphalium glomeratum*; *Mesembryanthemum glomeratum*.

Gloriosus, superb; grand. *Yucca gloriosa*.

Gracilis, slender; weak; lank. *Jasminum gracile*; *Fuchsia gracilis*.

Grandis, great; lofty; sublime. *Tectona grandis*; *Banksia grandis*.

Grandiflorus, (*grandis*, great, and *flos*.) *Cactus grandiflorus*.

Granulatus, (*granum*, a grain of corn.) Resembling a grain of corn in any part. *Saxifraga granulata*.

Gratus, grateful; agreeable. *Lonicera grata*.

Hepaticus, (*hepar*, the liver,) liver-colored; lobed like the liver. *Anemone hepatica*.

Hibernacula, winter quarters; a part of the plant which protects the embryo herb; *the covering of a bud*.

Hirsutus, rough; hairy; shaggy. *Epilobium hirsutum*; *Viola hirsuta*.

Hispidus, rough; bristly; rugged. *Robinia hispida*.

Hortensis, (*hortus*, a garden,) pertaining to or growing in gardens.

Hydrangea hortensis.

Hybridus, (a mongrel,) bastard; partaking of the nature of two species. *Passiflora hybrida*.

Ignescens, (*ignis*, fire,) fiery; ardent. *Erica ignescens*; *Pelargonium ignescens*.

Imbricatus, tile-like; laid over one another. *Aloe imbricata*; *Diosma imbricata*.

Immersus, immersed; growing under water.

Incanus, hoary; mouldy; colored. *Cistus incanus*.

Incanatus, (*in* and *caro*, flesh,) flesh colored. *Erodium incarnatum*.

Indigena Planta, a native; home bred. *American laurel* and *Honey-suckles*.

Infundibuliformis, (*infundibulum*, a funnel,) funnel shaped. *Erica infundibuliformis*.

Inodorus, having no smell. *Allium inodorum*; *Syringa inodora*.

Integra, entire; whole. *Clematis integrifolia*.

Involucrum, (*involvere*, to envelope,) wrap or fold in.

Laccatus, (*lac*, milk,) milky; also, improperly, lake colored. *Gladiolus laccatus*.

Lævigatus, (*lævis*, smooth.) *Prinos lævigatus*; *Calicanthus lævigatus*.

Lanatus, woolly; covered with a downy pubescens resembling wool.

Stachys lanata; *Geranium lanata*.

Lanceolatus, (*lanceo*, a spear or lance,) lance-shaped. *Acacia lanceolata*.

Latifolius, broad-leaved. *Kalmia latifolia*.

Liber, the inner bark of trees and plants.

Liliacea, plants resembling the lily.

Linguus, (*lingua*, a tongue) tongue-shaped. *Aloe lingua*.

Lobatus, (the flap of the ear,) lobate. *Pelargonium lobatum*.

Lophantus, a crest or mane. *Acacia lophanta*.

Maculatus, spotted; speckled. *Aram maculatum*; *Phlox maculatum*.

Major, the bigger; greater. *Tropæolum majus*.

Mammillaris, (*mammilla*, a little breast.) *Cactus mammillaris*.

Maritimus, growing near the sea. *Crambe maritima*.

Maximus, greatest; the superlative degree of dimension. *Convolvulus major*.

Meleagris, a *Guinea* fowl; speckled. *Fritillaria meleagris*.

Micans, glittering; shining. *Lavatera micans*; *Pelargonium micans*.

Microphyllus, small-leaved. *Edwardsia microphylla*; *Fuchsia microphylla*; *Rosa microphylla*.

Minor, (com. of *parvus*, little,) less; smaller. *Convolvulus minor*.

Monophyllus, one-leaved. *Kennedia monophylla*.

Monstrosus, monstrous; out of ordinary course of nature. *Hyacinthus monstrosus*.

Montanus, (*mons*, a mountain,) growing on mountains. *Veronica montana*.

Moschatus, having a musky smell. *Rosa moschata*.

Multiflora, (*multus*, many, and *flos*,) many flowered. *Rosa multiflora*; *Jasminum multiflorum*.

Muscousus, mossy; resembling moss. *Rosa muscosa*; *Moss Rose*.

Nanus, dwarf, of humble growth. *Philadelphus nanus*.

Naturalis, agreeable to nature.

Nectarium, (*nectar*, honey,) the part of a flower or plant that contains honey.

Niger, black; dark colored. *Orobus niger*.

Nobilis, notable, grand. *Laurus nobilis*.

Nocturnus, (*nox*, night,) night flowering; night smelling. *Ænethera nocturna*; *Cestrum nocturnum*.

Octagonus, eight angled. *Cactus octagonus*.

Odor, smell, either good or bad, but mostly applied to such as are grateful. *Daphne odorata*.

Orientalis, eastern. *Gnaphalium orientale*; *Papaver orientale*.

Pallidus, pale; of a dusky white color. *Crocus pallidus*; *Calceolaria pallida*.

Palustris, (*palus*, a marsh,) growing in marshes. *Caltha palustris*; *Hibiscus palustris*.

Paniculatus, (*panicula*,) panicle flowered. *Phlox panicula*.

Parvus, small; insignificant.

Pavonius, (*pavo*, a peacock,) spotted with gay colors as a peacock. *Gorteria pavonia*.

Pedunculus, (*pes*, a foot,) the proper footstalk of a flower.

Pencillatus, (*pencilum*, a painter's pencil,) painted as if with a pencil; delicately painted, as the lines or spots in the Pelargonium.

Pentagonus, five angled. *Cactus pentagonus*.

Pentapetalus, five petalled, flowers having five distinct petals, or flower leaves.

Persolutus, accomplished; elegant. *Erica persoluta*.

Pictus, (*pingo*, to paint,) painted. *Phlox pictum*.

Planta, a plant.

Plumatus, (*pluma*, a feather,) feathery, downy. *Erica plumosa*.

Polypetalus, many petalled, as the Rose and Dahlia.

Præcox, early. *Calycanthus præcox*.

Princeps, chief; principal. *Passiflora princeps*.

Prostratus, prostrate; lying flat. *Disandra prostrata*; *Banksia prostrata*.

Pulchellus, pretty; neat; elegant. *Clarkea pulchella*.

Pumilus, dwarf. *Iris pumila*.

Purpureus, purple colored. *Aster purpureus*.

Pyramidalis, pyramidal; tapering. *Phlox pyramidalis*.

Quadrangularis, four angled; square. *Passiflora quadrangularis*.

Quinquefolius, (*quinque*, five, and *folium*.) *Ampelopsis quinquefolia*.

Racemosus, (*racemus*, a cluster of grapes,) growing in clusters. *Symphora racemosa*.

Radicans, (*radix*, a root,) rooting; producing claspers resembling roots. *Bignonia radicans*.

Ramus, a bough or branch of a tree.

Reniformis, (*renis*, the kidneys,) kidney-shaped. *Pelargonium reniforme*.

Repens, creeping. *Ranunculus repens*.

Retortus, (turned backwards,) bent back; twisted. *Erica retorta*.

Revolutus, rolled backwards. *Cycus revoluta*.

Ringens, grinning; gaping. *Minulus ringens*.

Rivalis, of or pertaining to a river. *Minulus rivalis*.

Roseus, rose colored. *Ixia rosea*.

Rotatus, (*rota*, a wheel,) wheel-shaped. *Pancreatium rotatum*.

Rubellus, somewhat red; reddish. *Erica rubella*.

Rubens, ruddy; blushing. *Crassula rubens*.

Ruber, red. *Valeriana rubra*.

- Rubicundus, deep red; also, ruddy. *Kennedia rubicunda*.
 Rugosus, rough; wrinkled; furrowed. *Calceolaria rugosa*.
 Sanguineus, blood-colored. *Rosa sanguineum*.
 Scariosus, having longitudinal incisions or channels. *Liatris scariosus*.
 Sempervirens, evergreen. *Lonicera sempervirens*.
 Sparsus, scattered; spread abroad. *Beaufortia sparsa*.
 Spicatus, (*spica*, a spike,) spike-flowered. *Liatris spicata*.
 Splendens, glittering; splendid; beautiful. *Lobelia splendens*.
 Stamina, the male organs of a flower.
 Sterilis, barren. *Fragaria sterilis*.
 Stoloniferus, creeping. *Phlox stolonifera*.
 Striatus, channelled; also, striped. *Geranium striatum*.
 Strobilus, the Artichoke; the cone of a Fir.
 Suaveolens, (*suavis*, sweet,) smelling sweet; more commonly applied to strong scented. *Phlox suaveolens*.
 Sylvestris, (*sylva*, a wood.) *Anemone sylvestris*.
 Tardiflorus, (*tardo*, to be long in coming; and *flora*.) *Aster tardiflora*.
 Tenellus, slender, delicate. *Aster tenella*.
 Translucens, (*transluceo*, to shine through.) *Pelargonium translucens*.
 Tremulus, trembling; shaking. *Populus tremula*.
 Truncatus, (*truncus*, cut short, maimed,) leaves, roots, &c., are called truncate when they terminate bluntly, as if cut, or bitten off. *Cactus truncatus*.
 Tubiflorus, (*tubus*, a tube,) tube-flowered. *Erica tubiflora*.
 Umbellatus, (*umbella*), umbellate. *Agapanthus umbellatus*.
 Undulatus, (*unda*, a wave,) waved; when the margins of the leaves, or petals, are larger in proportion than their disks. *Pittosporum undulatum*; *Amaryllis undulata*.
 Variiegatus, (modern Latin,) having an intermixture of colors. *Iris variegatus*, *Pelargonium variegatum*.
 Vernus, pertaining to the spring. *Phlox vernus*.
 Versicolor, changing color; particolored. *Iris versicolor*; *Oxalis versicolor*.
 Verticillatus, whorl-flowered. *Acacia verticillata*.
 Viridis, green; flourishing. *Lachnelia viridis*.
 Vittatus, (a fillet, or ribbon) ribbon-like. *Amaryllis vittata*.
 Volubilis, twining round other bodies. *Hibbertia volubilis*.

ADVERTISEMENTS.

PATENT OFFICE.

DRAWINGS and Specifications for the **Patent Office**, and for every description of Machinery.

—ALSO—

For Landscape Gardens, Villas, Suburban Cottages, City Residences, &c., &c., and

Designs for Pictorial Works, by

GEO. H. KNIGHT,
Pennsylvania Hotel, East Front Street,
CINCINNATI.

☞ Instruction given in the above.

LAYING OUT GARDENS AND ORNAMENTAL PLANTATIONS.

B. SAYERS

BEGS leave to return his thanks to those who have been pleased to patronize him, and solicits a continuance of their favors.

In laying out Gardens and Ornamental Plantations, every attention will be given in the *selection* of Fruit and Ornamental Trees, Shrubs, Flowers, and Green-house Plants, which will be furnished at nursery prices.

A choice collection of Flower Seeds, selected from last year's growth, will be furnished at moderate prices.

The Pruning of Grape Vines, Ornamental Trees, Shrubs, &c., will also be performed.

All orders left at Ely & Campbell's Seed Store, No. 23, Lower Market-Street, Cincinnati, will be punctually attended to.

EDWARD SAYERS.

February, 1846.

SAYERS & HEAVER, NURSERYMEN AND FLORISTS.

READING ROAD NURSERY, One and a half miles from Cincinnati, on the Reading and Lebanon Turnpike.

THE Proprietors of this establishment offer for sale a large collection of **FRUIT TREES**, consisting of APPLES, PEARS, QUINCES, CHERRIES, PEACHES, APRICOTS, NECTARINES, PLUMS, GRAPE-VINES, CURRANTS, GOOSEBERRIES, RASPBERRIES, STRAWBERRIES, RHUBARB and ASPARAGUS, &c.

Also, a general assortment of

Ornamental Trees, Evergreens and Flowering Shrubs, Hardy Herbaceous Plants, &c.

Their stock of **ROSES** is extensive, containing over Two Hundred Varieties; embracing nearly all the new and esteemed varieties of everblooming kinds of BENGAL, BOURBON, TEA, NOISETTE, PERPETUAL and REMONTANTES.

Also, a large and general assortment of *GREEN-HOUSE PLANTS*, comprising CAMELLIAS, AZALEAS, CACTUS, FUCHSIAS, PELARGONIUMS, CALCEOLARIAS, VERBENAS, GERANIUMS, &c., &c.

A fine assortment of DAHLIAS, of more than One Hundred Varieties; PÆONIES, RANUNCULUS, and other Tuberous Plants.

Also, a general collection of **Bulbs**, consisting of TULIPS, HYACINTHS, TUBEROSES, NARCISSUS, GLADIOLUS, TIGRIDIAS, LILIES, CROCUS, &c., &c., with a general collection of **NURSERY STOCK**, too numerous to detail in the limits of an advertisement.

PAULOWNIA IMPERIALIS—a few strong plants of this rare and admired tree for sale.

TREES carefully packed, for forwarding to any part of the Union, (for which a reasonable price will be charged,) and delivered in any part of the city, or on steamboat, free of expense. ORDERS, directed to the subscribers, sent through the Post-office, accompanied with the cash or responsible city references, will be punctually attended to.

ELY & CAMPBELL, 23 Lower Market St., City Agents.

The subscribers, thankful for past patronage, beg to inform their friends and customers, that all new and valuable varieties of Fruit Trees and Flowering Plants will be added to their collections, as they become introduced and proved.

Feb. 1846.

SAYERS & HEAVER.

N. B. Catalogues forwarded gratis to all *post paid* applicants.

SPRING GARDEN NURSERY, NEAR CINCINNATI.



THE Proprietor respectfully calls the attention of the public to this establishment; which now embraces all the leading and **BEST FRUITS** of the country, with a very general and large stock of **Evergreen Trees and Plants, Ornamental Shade Trees, Shrubs and Plants, Roses, Vines, Creepers, &c.; Flowering Plants, Bulbs, &c.** All the new and best **Strawberries**, with a general supply of most things cultivated in the best **EASTERN NURSERIES**.

An unremitting personal attention to the business for the last ten or twelve years, with occasional visits to the best fruit regions of our country, and an extensive correspondence, have enabled the proprietor to make such a collection of valuable Fruits as cannot fail to prove satisfactory.

Communications and Orders, left at the Post-office, will receive the prompt attention of the proprietor. Articles designed for shipment carefully packed, and delivered in the city.

SPRING GARDEN, }
February, 1846. }

A. H. ERNST,
Proprietor.

S. S. JACKSON, NURSERYMAN & FLORIST;

Three miles below Cincinnati, on the River Road,

Between the residences of Major Wm. Oliver and S. S. L'Hommedieu,

Keeps constantly for sale

**Fruit and Ornamental Trees and Shrubs,
VINES, GREEN-HOUSE PLANTS, &c.**

☞ Cut Flowers at all seasons. ☞

SEED STORE
AND
AGRICULTURAL WAREHOUSE,
No. 23, LOWER MARKET-STREET,
CINCINNATI.
ELY & CAMPBELL

HAVE taken the store formerly occupied by Mr. S. C. PARKHURST, for the purpose of doing a Seed and General Commission Business, and beg leave to remind his numerous friends and customers, throughout the West and Southwest, that they will continue to carry on the Seed Business, at the old stand, No. 23, Lower Market-street, Cincinnati, which was originally established sixteen years ago.

They have recently enlarged their business in relation to Garden Seeds and Fruit and Ornamental Trees, and are now prepared to furnish, either at wholesale or retail, the Seeds of every variety of vegetables cultivated in this section of the Union, comprising early and late varieties of Peas and Beans, Beets, Cabbages, Carrots, Cauliflowers, Celery, Cucumbers, Lettuces, Melons, Onions, Parsnips, Radishes, Squashes, Turnips, Tomatoes, Sweet Herbs, Ornamental Flower Seeds, &c. Also, Bird Seed of all kinds, comprising Canary, Hemp, Millet, Rape and Maw Seeds.

Country Merchants can be supplied with boxes of any size, comprising a complete assortment of the best Seeds, warranted fresh and genuine, and neatly put up in small packages for retail, with printed directions on each package, and labeled, &c., on the most liberal terms.

Agricultural Implements, as Plows, Scythes, Rakes, &c., of the most approved construction for this market, constantly on hand, at manufacturers' prices.

Fruit and Ornamental Trees. Particular arrangements have been made with both Eastern and Western Nurserymen to furnish all kinds of Fruit Trees, as Apples, Pears, Peaches, Cherries, Plums, Nectarines, Apricots, Quinces, &c., of the best kinds now cultivated. Pamphlet catalogues, with directions for their management, so as to obviate the attacks of insects, supplied gratis.

Have now growing near the city, and will be prepared to furnish in the Autumn of 1846, 50,000 *plants* of the OSAGE ORANGE, raised from Seed procured in Texas, and are also receiving a large lot of fresh Seed.

Cash Paid for Clover, Timothy, and Blue Grass Seed, Flax Seed, Black Locust Seed, Mustard Seed, Beans, Dried Fruit, Cheese, and all kinds of Western Produce, at the highest market price. Catalogues of Seeds, Implements, &c., supplied Gratis, on application at the store, or by letter, post paid.

E. & C. also are agents for the ALBANY CULTIVATOR and OHIO CULTIVATOR, two of the most valuable agricultural works published in this country: Price \$1 per year, each.


Farm & Garden
SEEDS.

LANDRETH'S
SEED WAREHOUSE,

Farm & Garden
TOOLS,
BOOKS, &c

No. 65, Chestnut-Street,

PHILADELPHIA

 Extract from the "REPORT" of the "VISITING COMMITTEE of the PENNSYLVANIA HORTICULTURAL SOCIETY;" *unanimously adopted and ordered to be printed.*

"LANDRETH'S
NURSERIES AND GARDENS."

* * * * "Garden Seeds of the finest quality have been scattered over the country from these grounds, and may always be depended upon. The SEED ESTABLISHMENT of these HORTICULTURISTS is one of *the most extensive in the Union*, and its reputation is well sustained from year to year.

"To obviate the chance of mixture of the farina of the plants of the same family, they have established another nursery, at a suitable distance, so that degeneration cannot take place, and which secures to the purchasers 'a genuine article.' Knowing thus the age, quality and process of culture of every plant, *the supply from their grounds is recommended with great confidence.*"

↳ The SEED GARDENS, alone, cover fifty acres, and the whole is, as it has been for more than half a century, under the successive management of father and son, the most prominent in America.



THE LANDRETH



NURSERIES,



FEDERAL STREET, NEAR THE ARSENAL,



PHILADELPHIA.



THIS widely known establishment, formerly (and for nearly half a century) conducted by its founders, the late DAVID and CUTHBERT LANDRETH, and now in the hands of the subscribers, is furnished with a judiciously selected stock, comprising the CHOICEST FRUITS, MAGNIFICENT SHADE AND EVERGREEN TREES, FLOWERING SHRUBS, GREEN-HOUSE PLANTS, &c.

Perhaps there is no similar concern in the United States, where so select, and at the same time, general an assortment may be found.

In deciding on the Fruits to be propagated, the subscribers have been governed by a desire to cultivate only the more esteemed kinds, and not by an absurd ambition to possess all, without regard to merit; consequently they have confined themselves to a comparatively limited variety—rejecting many still disseminated to the eventual disappointment of purchasers. The assortment of DECORATIVE TREES, evergreen and deciduous, is particularly worthy of attention; and having been frequently removed in the nursery, may be transplanted with success: *EVERGREENS* have usually been deemed particularly liable to die on transplanting; but those grown on our damp soil, *succeed as well as any description of Trees.*

The collection of hardy **Shrubs** and **Roses** is numerous—the latter includes all the fine ones of recent introduction. Among the **Green-house Plants**, are upwards of *three thousand engrafted Camellias*, and innumerable beautiful Plants from all quarters of the globe.

Catalogues with prices annexed, may be had on personal or *post-paid* application at the HORTICULTURAL WARE-HOUSE of **D. LANDRETH, No. 65 Chestnut Street**, where orders for the Nursery are received.

*** The prices of most articles have been much reduced, trusting to an increasing demand for reimbursement.*

D. LANDRETH & FULTON.

Extract from the "REPORT" of the "VISITING COMMITTEE of the PENNSYLVANIA HORTICULTURAL SOCIETY;" *unanimously adopted, and ordered to be printed:*

L A N D R E T H ' S NURSERIES AND GARDENS.

"THESE extensive grounds are on Federal Street, near the Arsenal. * * * * The earliest collection of Camellias was made here. Some of those now in the possession of those distinguished nursery-men, are ten feet high. * * * * The selection of GREEN-HOUSE PLANTS is valuable and extensive.
* * * *

"In the NURSERIES we saw a great many *Magnolias*, of which there are no less than thirteen distinct species and three varieties. One plant of the *M. grandiflora* is twenty feet high and in full bloom. Here are likewise the *M. cordata* fifty feet high; a beautiful *M. elliptica* in flower, and a magnificent specimen eighteen feet high, of the *M. conspicua*; the curious Osage Orange, that retains its lucid foliage longer than any other deciduous tree. * *

"The NURSERIES are all *very correctly managed*, supplying every part of the Union; a detail of which would occupy too much of our space; we therefore content ourselves with stating that the stock is very large, and in every stage of growth, consisting of

Forest and Ornamental Trees, Shrubs, Evergreens, Vines and Creepers,

With a collection of Herbaceous Plants; FRUIT TREES of the best kind, and *most healthy condition*; large beds of Seedling Apples, Pears, Plums, &c., as stocks for budding and grafting; *a plan very superior to that of working upon suckers*, which carry with them into the graft all the diseases of the parent stock." * * * *

* * * Since the date of the "REPORT" from which the above is extracted, the ENTIRE ESTABLISHMENT has been GREATLY ENLARGED. The collection of *Camellias* embraces all the finer kinds, and consists of some thousands of various sizes; so likewise of *Roses*, and other desirable plants, both tender and hardy—Fruit Trees, etc.

H. HUXLEY'S
AGRICULTURAL & GARDEN SEED WAREHOUSE,
East Fifth-Street, Between Main and Sycamore,
CINCINNATI.

THE proprietor of this establishment respectfully invites the attention of his friends, and the citizens of the west generally, to his extensive stock of AGRICULTURAL IMPLEMENTS, and GARDEN TOOLS, all of the most approved construction and material.

Agricultural Seeds.—All the varieties of Grasses, Clovers; new and choice kinds of Wheat, Barley, Oats, Corn, &c.

GARDEN SEEDS.—A large and valuable assortment of Vegetable Seeds, comprising all the kinds most worthy of cultivation, together with many new and choice sorts.

Country Merchants supplied with boxes of assorted Vegetable Seeds, for retailing, each kind neatly labeled with the name, and directions for culture.

FLOWER SEEDS.—One of the most extensive collections of Flower Seeds in the United States, embracing all the varieties known to our Florists, with many new and rare kinds. The Flower Seeds will be sold in single packets, at five to ten cents; in packages containing thirty named varieties, one dollar; fifty varieties, one dollar and fifty cents.

AGRICULTURAL AND GARDENING BOOKS.—A full assortment of choice works upon Agriculture, Gardening, and Rural Economy.

MISCELLANEOUS ARTICLES.—Canary, and other singing Birds of approved song, Bird Cages, in great variety, Bird Seed of all kinds, Bulbous Flower-roots, Bulb-glasses, Bird-glasses for water and seeds, together with all other articles usually kept in establishments of the kind.

H. H. is agent for the sale of several extensive collections of Fruit Trees, Shrubs, and Flowering Plants, catalogues of which, together with those of the implements, tools, seeds, &c., can be obtained gratis at the Seed Warehouse.

HOOPER & FERRIS,
NURSERYMEN AND FLORISTS,
NEWPORT, KY.,

Keep for sale, Fruit and Ornamental Trees and Shrubs, Vines, Green-House Plants, &c.

 Cut Flowers at all Seasons.

All Plants, Trees, &c., are warranted to be as represented, and carefully packed so as to carry to any part of the country. Plants and Trees delivered in Cincinnati free of charge.

Orders directed to **J. C. Ferris**, Newport, Ky., or to **E. J. Hooper**, will be punctually attended to.

HOOPER & FERRIS.

February, 1846.

JAMES HOWARTH,
NURSERYMAN & FLORIST,

Two miles below Cincinnati, on the River road,

Offers for sale, at his Garden, a general assortment of

Fruit and Ornamental Trees, and Shrubbery,

of the most approved varieties; together with an extensive collection of GREEN-HOUSE PLANTS, and FLOWERS, at moderate prices. (Purchases exceeding Three Dollars delivered in the city free of expense.)

All Orders left at H. HUXLEY'S *Seed Store, next the Dennison House, on Fifth Street, Cincinnati,* will be punctually attended to.

☞ The Delhi Omnibuses pass the Nursery three times a day, from the Dennison House, which afford a most delightful ride, presenting a beautiful landscape, in connection with the river and the White Water Canal, which passes close by the garden gate.

The White Water Canal Packets pass the garden gate three times a day, during the summer, affording visitors one hour and a half for the inspection of the gardens, and then returning to the city by coach or boat.

JAMES HOWARTH.

WALNUT HILLS NURSERY,
CINCINNATI.
C. W. ELLIOTT.

NEARLY all the fine varieties of FRUIT TREES are for sale at this Nursery:—APPLES, PEARS, PEACHES, PLUMS, QUINCES, APRICOTS & NECTARINES, RASPBERRY, STRAWBERRY, &c., &c.

The severe winter has killed a great many of the young Cherry Trees, so that they can be furnished only in small numbers.

—Also, for sale—

DAHLIAS, ORNAMENTAL SHADE TREES, EVER-GREENS, ROSES *in variety*, (hybrid tender and half tender,) GREEN-HOUSE PLANTS.

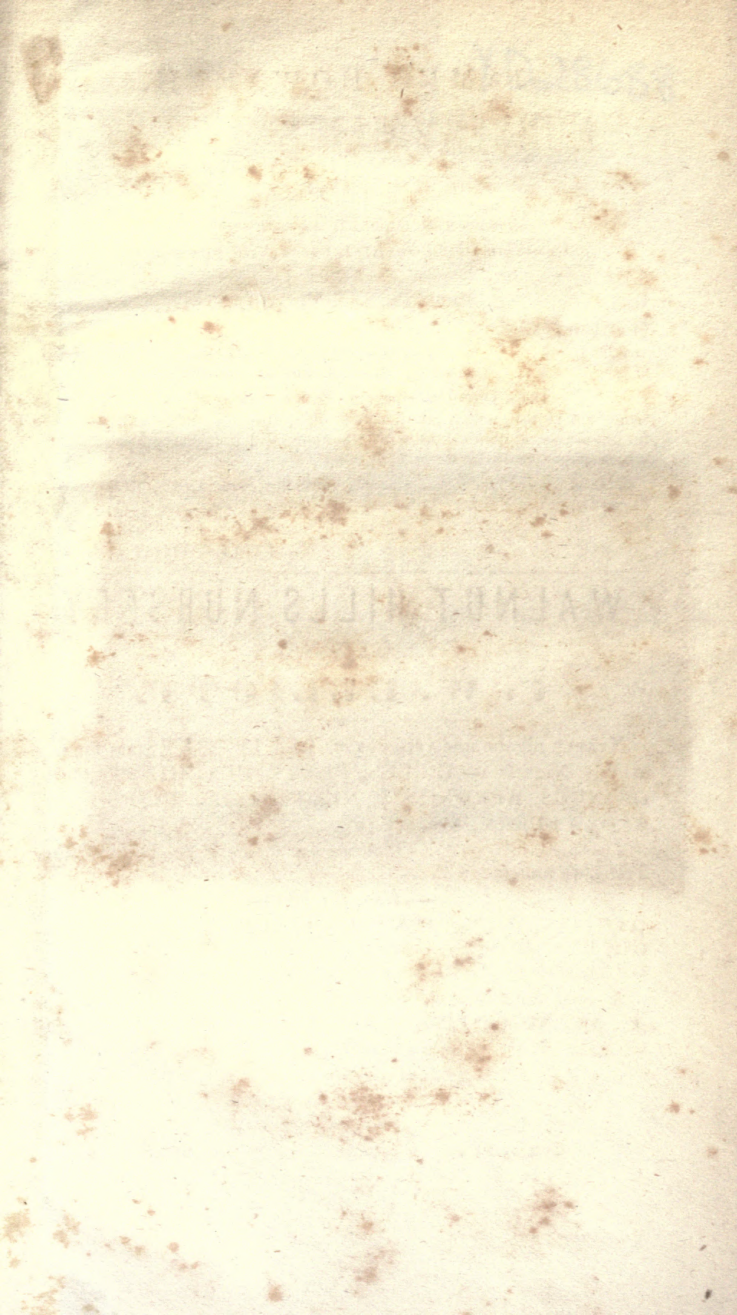
Agency in town is at Corner of Fourth and Sycamore Streets, **J. M. WADE'S**, where Orders will be received, and where is offered for sale a choice variety of fresh

Garden Seeds,

Flower Seeds,

Sweet Herbs, &c.

Catalogues sent on application—if by mail, post-paid.



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