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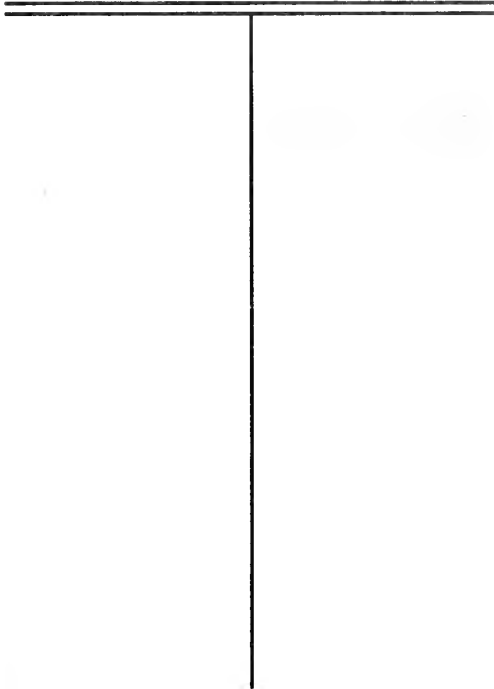
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EVERY LADY



ADDRESSED TO THE

INDUSTRIOUS AND ECONOMICAL.

CONTAINING

SIMPLE AND PRACTICAL DIRECTIONS

FOR

CULTIVATING PLANTS AND FLOWERS

IN THE GARDEN AND IN ROOMS.

BY LOUISA JOHNSON.

Revised from the Fourteenth London Edition, and Adapted to the

USE OF AMERICAN LADIES.

NEW YORK :

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PUBLISHER'S ADVERTISEMENT

THE Publisher, having found the want of small, cheap Books, of acknowledged merit, on the great topics of farming economy, and meeting for those of such a class a constant demand, offers, in his Rural Handbooks, of which this is one, works calculated to fill the void.

He trusts that a discerning Public will both buy and read these little Treatises, so admirably adapted to all classes, and fitted by their size for the pocket, and thus readable at the fireside, on the road, and in short everywhere.

C. M. SAXTON,

Agricultural Book Publisher.

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I HAVE been induced to compile this little work from hearing many of my companions regret that no single book contained a sufficiently condensed and general account of the business of a Flower Garden. "We require," they said, "a work in a small compass, which will enable us to become our own gardener; we wish to know how to set about everything *ourselves*, without expense, without being deluged with Latin words and technical terms, and without being obliged to pick our way through multiplied publications, redolent of descriptions, and not always particularly lucid. We require a practical work, telling us of useful flowers, simple modes of rearing them, simply expressed, and free from lists of plants and roots which require expensive methods of preservation. Some of us have gardens, but we cannot afford a gardener; we like flowers, but we cannot attempt to take more than common pains to raise them. We require to know the hardiest flowers, and to comprehend the general business of the garden, undisturbed by fear of failure, and at the most economical scale of expense. Who will write us such a book?"

I have endeavored to meet their views; and my plan of Floriculture may be carried into effect by any lady who can command the services of an old man, a woman, or a stout boy. In the present Edition, the publishers have added a paper on WINDOW GARDENING, written by Mr. M'Intosh—and another on DOMESTIC GREENHOUSES, an apparatus by which a small collection of exotics may be given in great perfection, and by a process which any lady may superintend with much gratification. In every other respect the work is the result of my own experience, and I dedicate it to all of my own sex who delight in flowers, and yet cannot allow themselves to enter into great expense in their cultivation.

LOUISA JOHNSON.

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LADIES FLOWER GARDENER.

CHAPTER I.

INTRODUCTION.

T has been well remarked that a garden affords the purest of human pleasures. The study of Nature is interesting in all her manifold combinations: in her wildest attitudes, and in her artful graces. The mind is amused, charmed, and astonished in turn, with contemplating her inexhaustible display; and we worship the God who created such pure and simple blessings for his creatures. These blessings are open to all degrees and conditions of men. Nature is not a boon bestowed upon the high-born, or purchased by the wealthy at a kingly price. The poor, the blind, the halt, and the diseased, enjoy her beauty, and derive benefit from her study. Every cottager enjoys the little garden which furnishes his table with comforts, and his mind with grateful feelings, if that mind is susceptible of religious impressions. He contemplates the gracious Providence which has bestowed such means of enjoyment upon him, as the Father whose all-seeing eye provides for the lowliest of his children; and who has placed the "purest of human pleasures" within the reach of all who are not too blind to behold his mercy. With this blessed view before his mental sight, the cottager cultivates his little homestead. The flowers and fruits of the earth bud, bloom, and decay in their season; but Nature again performs her deputed mission, and

spring succeeds the dreary winter with renewed beauty and two-fold increase. Health accompanies simple and natural pleasures. The culture of the ground affords a vast and interminable field of observation, in which the mind ranges with singular pleasure, though the body travels not. It surrounds home with an unceasing interest; domestic scenes become endeared to the eye and mind; worldly cares recede; and we may truly say—

“For us kind Nature wakes her genial power,
Suckles each herb, and spreads out every flower!
Annual for us, the grape, the rose, renew
The juice nectarious, and the balmy dew:
For us, the mine a thousand treasures brings;
For us, health gushes from a thousand springs.”

Eth. ep. i. ver. 129.

The taste for gardening in England began to display itself in the reign of Edward III., in whose time the first work on the subject was composed by Walter de Henly. Flower-gardening followed slowly in its train. The learned Linacre, who died in 1524, introduced the damask rose from Italy into England. King James I. of Scotland, when a prisoner in Windsor Castle, thus describes its “most faire” garden:—

“Now was there maide fast by the towris wall,
A garden faire, and in the corneris set
An herbere green, with wandis long and small
Railit about, and so with treeis set
Was all the place, and hawthorn hedges knet,
That lyfe was now, walking, there forbye,
That might within scarce any wight espie,
So thick the bowis and the leves grene
Bercandit all, the alleyes all that there were;
And myddis every herbere might be sene
The scharpe grene swete junipere
Growing so fair, with branches here and there,
That, as it seymt to a lyfe without,
The bowis spred the herbere all about.”

The Quair.

Henry VIII. ordered the formation of his garden at Nonsuch about the year 1509, and Leland says it was a “Nonpareil.”

Hentyner assures us of its perfect beauty, describing one of its marble basins as being set round with "lilac trees, which trees bear no fruit, but only a pleasant smell."

The pleasure-gardens at Theobalds, the seat of Lord Burleigh, were unique, according to the report of Lyson. In it were nine knots exquisitely made, one of which was set forth in likeness of the king's arms. "One might walk two myle in the walks before he came to an end."

Queen Elizabeth was extremely fond of flowers, and her taste ever influenced that of her court. Gilliflowers, carnations, tulips, Provence and musk roses, were brought to England in her reign.

William III. loved a pleasaunce or pleasure-garden; but he introduced the Dutch fashion of laying them out, which is still horrible in our eyes. His Queen superintended in person all her arrangements in the flower-garden,—an amusement particularly delightful to her. In those days, "knottes and mazes" were no longer the pride of a parterre, with a due allowance of "pleasant and fair fishponds."

Queen Anne remodeled the gardens at Kensington, and did away with the Dutch inventions. Hampton Court was also laid out in a more perfect state in her reign, under the direction of Wise.

Since that period, flower-gardening has progressed rapidly; and the amusement of floriculture has become the dominant passion of the ladies of Great Britain. It is a passion most blessed in its effects, considered as an amusement or a benefit. Nothing humanizes and adorns the female mind more surely than a taste for ornamental gardening. It compels the reason to act, and the judgment to observe; it is favorable to meditation of the most serious kind; it exercises the fancy in harmless and elegant occupation, and braces the system by its healthful tendency. A flower-garden, to the young and single of my sex, acts upon the


heart and affections as a nursery acts upon the matronly feelings. It attaches them to their home; it throws a powerful charm over the spot dedicated to such deeply-interesting employment; and it lures them from dwelling too deeply upon the unavoidable disappointments and trials of life, which sooner or later disturb and disquiet the heart.

An amusement which kings and princes have stamped with dignity, and which has afforded them recreation under the toils of government, must become for ever venerated, and will be sought for by every elegant as well as by every scientific mind. Floriculture ranges itself under the head of female accomplishments in these our days; and we turn with pity from the spirit which will not find in her "garden of roses" the simplest and purest of pleasures.



CHAPTER II.

GENERAL REMARKS.

N the laying out of a garden, the soil and situation must be considered as much as the nature of the ground will admit. Let no lady, however, despair of being able to raise fine flowers upon any soil, providing the sun is not too much excluded, for the rays of the sun are the vital principle of existence to all vegetation. The too powerful rays can be warded off by the arts of invention, but we have yet no substitute for that glorious orb. Unless its warm and forcing influence is allowed to extend over the surface of the garden, all flowers wither, languish, and die. Sun and air are the lungs and heart of flowers. A lady will be rewarded for her trouble in making her parterre in the country; but in large towns, under the influence of coal smoke, shade, and gloom, her lot will be constant disappointment. She can only hope to keep a few consumptive geraniums languishing through the summer months, to die in October, and show the desolating view of rows of pots containing blackened and dusty stems.

Many soils which are harsh or arid, are susceptible of improvement by a little pains. Thus, a stiff clay, by digging well and leaving it to become pulverized by the action of the frost, and then mixing plenty of ashes with it, becomes a fine mould, which I have ever found most excellent for all flowers of the hardier kind. The black soil is the richest in itself, and requires no assistance beyond changing it about a foot in depth every three years, as a flower garden requires renewing, if a lady expects a succes-

sion of handsome flowers. The ground should be well dug the latter end of September or October, or even in November, and if the soil is not sufficiently fine, let it be dug over a second or third time, and neatly raked with a very fine-toothed rake.

Stony ground requires riddling well, and great care must be taken to keep it neat by picking up the little stones which constantly force themselves to the surface after rains. Nothing is so unbecoming as weeds and stones in parterres, where the eye seeks flowers and neatness.

Almost every plant loves sand; and if that can be procured, it enriches and nourishes the soil, especially for bulbs, pinks, carnations, auriculas, hyacinths, &c. Let it be mixed in the proportion of a third part to the whole.

If the dead leaves are swept into a mound every autumn, and the soap suds, brine, &c., of the house be thrown upon it, the mass will quickly decompose, and become available the following year. It makes an admirable compost for auriculas, &c., mixed with garden or other mould.

If the ground be a gravelly soil, the flower-garden should not slope, for stony ground requires all the moisture you can give it, while the sloping situation would increase the heat and dryness. A moist earth, on the contrary, would be improved by being sloped towards the east or west.

The south is not so proper for flowers, as a glaring sun withers the tender flowers; but the north must be carefully avoided, and shut out by a laurel hedge, a wall, or any rural fence garnished with hardy creepers, or monthly roses, which make a gay and agreeable defense. Monthly roses are invaluable as auxiliaries of all kinds. They will grow in any soil, and bloom through the winter months, always giving a delicate fragrance, and smiling even in the snow. Monthly roses will ever be the florist's delight: they are the hardiest, most delicate-looking, and greenest-

leaved of garden productions; they give no trouble, and speedily form a beautiful screen against any offensive object. No flower garden should exist without abundance of monthly roses.

It has often been a disputed point whether flower gardens should be intersected with gravel walks or with grass plots. This must be left entirely to the taste and means of the party forming a garden. Lawn is as wet and melancholy in the winter months, as it is beautiful and desirable in summer; and it requires great care and attention in mowing and rolling, and trimming round the border. Gravel walks have this advantage: the first trouble is the last. They will only require an old woman's or a child's assistance in keeping them free from weeds; and a lady has not the same fears of taking cold, or getting wet in her feet, during the rains of autumn and spring.

Many females are unequal to the fatigue of bending down to flowers, and particularly object to the stooping posture. In this case, ingenuity alone is required to raise the flowers to a convenient height; and, by so doing, to increase the beauty and picturesque appearance of the garden. Old barrels cut in half, tubs, pails, &c., neatly painted outside, or adorned with rural ornaments, and raised upon feet neatly carved, or mounds of earth, stand in lieu of richer materials, such as vases, parapet walls, and other expensive devices, which ornament the gardens of the wealthy. I have seen these humble materials shaped into forms as pleasing to the eye, and even more consonant to our damp climate, than marble vases. They never look green from time, and are renewed at a very trifling expense. A few pounds of nails, and the unbarked thinnings from fir plantations, are the sole requisites towards forming any device which a tasteful fancy can dictate; and a little green paint adds beauty and durability when the bark falls from the wood it protects. I have seen fir balls nailed on to these forms in tasteful patterns; and creepers

being allowed to fall gracefully over the brims, give a remarkably pleasing and varied appearance to the parterre.

Where mould is not easily to be procured—as, for instance, in towns—the tubs or receptacles may be half filled with any kind of rubble, only space must be left to allow of two feet of fine mould at the top, which is quite sufficient for bulbous roots, creepers, &c. These receptacles have one powerful advantage over ground plots; they can be moved under sheds, or into out-houses, during the heavy rains or frosts of winter; and thereby enable a lady to preserve the more delicate flowers, which would deteriorate by constant exposure to inclement weather.

A lady requires peculiar tools for her light work. She should possess a light spade; two rakes, one with very fine teeth, and the other a size larger, for cleaning the walks when they are raked, and for raking the larger stones from the garden borders. A light garden fork is very necessary to take up bulbous or other roots with, as the spade would wound and injure them, whereas they pass safely through the interstices of the fork or prong. A watering-pot is indispensable, and a hoe. Two trowels are likewise necessary; one should be a tolerable size, to transplant perennial and biennial flower roots; the other should be pointed and small, to transplant the more delicate roots of anemones, bulbs, &c.

The pruning-knife must be always sharp, and, in shape, it should bend a little inwards, to facilitate cutting away straggling or dead shoots, branches, &c. The “avroncator,” lately so much in request, is an admirable instrument; but it is expensive, and of most importance in shrubberies, where heavy branches are to be cut away. The *Sieur Louis d’Auxerre*, who wrote a work upon gardening in 1706, has a sketch of the avroncator of the present day, which he designates as caterpillar shears.

A light pair of shears, kept always in good order, is necessary

to keep privet or laurel hedges properly clipped ; and a stout deep basket must be deposited in the tool-shed, to contain the weeds and clippings. These are the only tools absolutely *essential* to a lady's garden. I have seen a great variety decorating the wall of an amateur tool-house, but they must have been intended for show, not for use. A real artiste, in whatever profession she may engage, will only encumber herself with essentials. All else is superfluous.


I have reserved two especially necessary recommendations to the last, being comforts independent of the tool-house. Every lady should be furnished with a gardening apron, composed of stout Holland, with ample pockets to contain her pruning-knife, a small stout hammer, a ball of string, and a few nails and snippings of cloth. Have nothing to do with scissors ; they are excellent in the work-room, but dangerous in a flower garden, as they wrench and wound the stems of flowers. The knife cuts slanting, which is the proper way of taking off slips ; and the knife is sufficient for all the purposes of a flower garden, even for cutting string.

The second article which I pronounce to be indispensable is a pair of India rubber shoes, or the wooden high-heeled shoes called "sabots" by the French. In these protections, a lady may indulge her passion for flowers at all seasons, without risk of rheumatism or chills, providing it does not actually rain or snow : and the cheering influence of the fresh air, combined with a favorite amusement, must ever operate beneficially on the mind and body in every season of the year.



CHAPTER III.

ON LAYING OUT.

 HERE are many modes of adorning a small piece of ground, so as to contain gay flowers and plants, and appear double its real size. By covering every wall or palisade with monthly roses and creepers of every kind, no space is lost, and unsightly objects even contribute to the general effect of a "Plaisance." The larger flowers, such as hollyhocks, sunflowers, &c., look to the best advantage as a back ground, either planted in clumps, or arranged singly. Scarlet lychnis, campanula, or any second-sized flowers, may range themselves below, and so in graduated order, till the eye reposes upon a foreground of pansies, auriculas, polyanthuses, and innumerable humbler beauties. Thus all are seen in their order, and present a mass of superb coloring to the observer, none interfering with the other. The hollyhock does not shroud the lowly pansy from displaying its bright tints of yellow and purple; neither can the sturdy and gaudy sunflower hide the modest double violet or smartly clad anemone from observation. Each flower is by this mode of planting distinctly seen, and each contributes its beauty and its scent, by receiving the beams of the sun in equal proportions.

If the trunk of a tree stands tolerably free from deep overshadowing branches, twine the creeping rose, the late honeysuckle, or the everlasting pea round its stem, that every inch of ground may become available. The tall naked stem of the young ash looks well festooned with roses and honeysuckles.

Wherever creeping flowering plants can live, let them adorn every nook and corner, stem, wall, and post; they are elegant in appearance, and many of them, particularly clematis, are delicious in fragrant scent.

If flowers are planted in round or square plots, the same rule applies in arranging them. The tallest must be placed in the center, but I recommend a lady to banish sunflowers and holly hocks from her plots, and consign them to broad borders against a wall, or in clumps of three and three, as a screen against the north, or against any unsightly object. Their large roots draw so much nourishment from the ground, that the lesser plants suffer, and the soil becomes quickly exhausted. Like gluttons, they should feed alone, or their companions will languish in starvation, and become impoverished. The wren cannot feed with the vulture.

The south end or corner of a moderate flower garden should be fixed upon for the erection of a root house, which is not an expensive undertaking, and which forms a picturesque as well as a most useful appendage to a lady's parterre. Thinnings of plantations, which are everywhere procured at a very moderate charge, rudely shaped and nailed into any fancied form, may supply all that is needful to the little inclosure; and a thatch of straw, rushes, or heather, will prove a sure defense to the roof and back. There, a lady may display her taste by the beauty of the flowers which she may train through the rural frame-work. There, the moss-rose, the jessamine, the honeysuckle, the convolvulus, and many other bright and beautiful flowers, may escape and cluster around her, as she receives rest and shelter within their graceful lattice-work. There, also, may be deposited the implements of her vocation; and during the severe weather, its warm precincts will protect the finer kinds of carnations, pinks,

auricular, &c., which do not bear the heavy rains, or frosts of lengthened duration, without injuring the plant.

Flowers are divided into three classes:—annuals, biennials, and perennials.

Annuals are those flowers which are raised from seeds alone, in the spring, and which die in the autumn. They are again divided into three classes:—the tender and more curious kinds; the less tender or hardier kinds; and the hardiest and common kinds.

Biennials are those flowers which are produced by seed, bloom the second year, and remain two years in perfection, after which they gradually dwindle and die away.

Some sorts, however, of the biennials, afford a continuation of plants by offsets, slips, and cuttings of the tops, and by layers and pipings, so that, though the parent flower dies, the species are perpetuated, particularly to continue curious double-flowered kinds, as for instance, double rockets, by root offsets, and cuttings of the young flower-stalks; double wallflowers by slips of the small top shoots; double sweet-williams by layers and pipings; and carnations by layers.

Perennials are those flowers which continue many years, and are propagated by root offsets, suckers, parting roots, &c., as will be more fully particularised under the head of *Perennials*.

It has been a debated point among florists whether plots or baskets should be devoted each to a particular variety of flower, or receive flowers of different kinds, flowering at separate seasons. Thus, many ladies set apart one plot of ground for anemones only—another plot receives only pansies, and so on. There is much to be said on both sides the question.

If a plot of ground is devoted to one variety of flower only, you can give it the appropriate mould, and amuse your eye with its expanse of bright coloring. Nothing is more beautiful than a bed of pansies, or a bed of the bright and glowing scarlet ver-

bina ; nothing can exceed the gay and flaunty tints of a bed of tulips, or the rich hues of the lilac and the white petunia. A large space of garden allows its possessor to revel in separate beds of flowers, whose beauty is increased twofold by masses ; and from that very space, the eye does not so easily discover the melancholy appearance of one or more plots exhibiting nothing but dark mould, and withered stems, arising from the earlier sorts being out of bloom.

But in less spacious gardens, this gloomy and mournful vacuum must be avoided. Every border and plot of ground should exhibit a gay succession of flowers in bloom ; and that object can only be effected by a pretty equal distribution of flowers of early and late growth. As the May flowers droop, the June productions supply their place ; and these, again, are followed in succession, till the Golden rod and Michaelmas day daisy announce the decadence of the parterre for the year.

Yet every flower may be supplied with its favorite soil with a little patience and observation. A light soil suits all descriptions very well ; and I never yet found disappointment in any description of earth which was thoroughly well dug, and dressed yearly from the mound of accumulated leaves and soap-suds, alluded to in the first chapter. I particularly recommend a portion of sand mixed with the heap. All bulbs, carnations, pinks, auriculas, ranunculuses, &c., love a mixture of sand. I know no flowers of the hardy class which reject it. Mix sand well into your borders and plots, and you will not fail to have handsome flowers.

I subjoin a list of common flowers appertaining to each month, in order to fill the borders with one or more roots of each variety. I do not include the annuals.

JANUARY.

In this month the following flowers are in blow:—

Single Anemones	Primroses
Winter Cyclamens	Winter Hyacinth
Michaelmas Daisy	Narcissus of the East
Hepaticas	Christmas Rose

FEBRUARY.

Single Anemones	Single Yellow Gilliflower
Forward Anemones	Single Liverwort
Persian Iris	Winter Aconite
Spring Crocus	Hepaticas

MARCH.

Bulbous Iris	Hyacinths of all sorts
Anemones of all sorts	Jonquils
Spring Cyclamens	Yellow Gilliflower
Liverwort of all sorts	Narcissus of several kinds
Daffodils	Forward Bears'-ears
Crowfoots	Forward Tulips
Spring Crocus	Single Primroses of diverse colors

APRIL.

Daisies	Double Liverworts
Yellow Gilliflowers	Primroses
Narcissus of all sorts	Honeysuckles
Forward Bears'-ear	Tulips
Spring Cyclamens	Hyacinths
Crocus, otherwise called Saffron-flowers	Single Jonquils
Anemones of all sorts	Crown-Imperial
Iris	Yellow Gilliflowers, double and single
Pansies	Pasque-Flowers
Daffodils	March Violets

MAY.

Anemones	Mountain Pinks
Gilliflowers of all sorts	Pansies
Yellow Gilliflowers	Peonies of all sorts
Columbines	Ranunculuses of all sorts
Asphodils	Some Irises: as those which we call the Bulbous Iris, and the Chamæ-Iris
Orange, or flame-colored Lilies	Italian Spiderwort, a sort of Asphodil
Double Jacea, a sort of Lychnis	Poet's Pinks
Cyanuses of all sorts	Backward Tulips
Hyacinths	Julians, otherwise called English Gilliflowers
Day Lilies	
Bastard Dittany	
Daisies	
Lily of the Valley	

JUNE.

Snap-dragons of all sorts
 Wild Tansies
 Pinks, otherwise called Lychnises
 Irises
 Roses
 Tuberoses
 Pansies
 Larkspur
 Great Daisies

Climbers
 Cyanuses of all sorts
 Foxgloves of all sorts
 Mountain Lilies
 Gilliflowers of all sorts
 Monk's-hoods
 Pinks of all sorts
 Candy-tufts
 Poppies

JULY.

Jessamine
 Spanish Brown
 Basils
 Bell-flowers
 Indian Jacea
 Great Daisies
 Monk's-hoods
 Pinks
 Scabiuses
 Nigellas
 Cyclamens
 Lobel's Catch-flies
 Lilies of all sorts
 Apples of Love
 Comfrey
 Poppies
 Snap-dragons
 Double Marigolds
 Amaranthuses
 Hellebore
 Ox-eyes

Pinks of the Poets
 Bee-flowers
 Sea-hollies
 Foxgloves
 Wild Poppies
 Everlastings
 Roses
 Dittaries
 Bindweeds
 Lilies of St. Bruno
 Tricolors
 Squills
 Motherworts
 Climbers
 Oculus Christi
 Camomile
 Sunflowers
 Belvederes
 Gilliflowers of all sorts
 Thorn-apple
 Valerian

AUGUST.

Oculus Christi, otherwise called
 Starwort
 Belvederes
 Climbers of all sorts
 Apples of Love
 Marvels of Peru
 Pansies
 Ranunculuses
 Double Marigolds
 Candy-tufts
 Autumn Cyclamens
 Jessamines
 Sunflowers, vivacious and annual
 Indian Narcissus

Foxgloves
 Cyclamens
 Passion flowers
 Everlastings
 Tuberoses
 Monk's-hood
 Indian Pinks of all kinds
 Bindweed
 Passvelours
 Great Daisies
 White Bell-flower
 Autumnal Meadow Saffron
 Gilliflowers

SEPTEMBER.

Tricolors	Amaryllis
Love-apples	Autumnal Narcissus
Marvel of Peru	White Bell-flowers
Monk's-hood	Indian Pinks
Narcissus of Portugal	Indian Roses
Snap-dragons	Amaranthus
Oculus Christi	Pansies
Basils	Passion-flower
Belvederes	Autumnal Crocus
Great Daisies	Thorn-apple
Double Marigolds	Carnations
Monthly Roses	Ranunculuses planted in May
Tuberoses	Colchicums

OCTOBER.

Tricolors	Pansies that were sown in August
Oculus Christi	Passion-flower
Snap-dragons	Passvelours
Colchicums	Double Marigolds
Autumn Crocus	Some Pinks
Autumnal Cyclamens	Amaryllis
Monk's-hood	Autumnal Narcissus
Indian Pinks	

NOVEMBER.

Snap-dragons	Double Violets
Double and Single Gilliflowers	Single Anemones of all sorts
Great Daisies	Winter Cyclamens
Pansies sown in August	Forward Hellebore
Monthly Roses	Golden Rod

Rabbits are an intolerable nuisance in a flower garden, and in some country places they abound most destructively. A light wire fence about two feet high, closely lattice-worked, or a net of the same height, carried round the garden, is a sure defense from these marauders. But where these conveniences are unattainable, there are other modes which answer the purpose, but they require a little trouble and patience.

It is the well-known nature of Rabbits and Hares to dislike climbing or entangling their feet; and very simple inventions deter them from attempting to gnaw the roots and hearts of

flowers. They will not walk upon straw or ashes strewed thickly round any plant: they equally dislike a fence of sticks placed round a plot, with bits of white paper or card fastened to each stick; or a string carried round the sticks a foot or two high. If they cannot creep under a slight fence, they never attempt to leap over it. If a stick is run into the ground close to a plant, and other sticks are slanted from the ground towards the center, the plant will remain untouched, be the frost of ever so long duration.

Snails are disagreeable intruders, but the following method is an exterminating war of short duration:—

Throw cabbage leaves upon your borders over night; in the morning, early, you will find them covered underneath with snails, which have taken refuge there. Thus they are easily taken and destroyed.

Earwigs are taken in great numbers by hanging gallipots, tubes, or any such receptacle, upon low sticks in the borders over night. In these they shelter themselves, and are consequently victimized in the morning. The gallipots, broken bottles, &c., should be placed upon the stick like a man's hat, that the vermin may ascend into them.

Ants are very great enemies to flowers; but I know no method of attacking them, except in their own strongholds, which I have always done with cruel intrepidity and success. My only plan was to lay open the little ant-hill, and pour boiling water upon the busy insects, which destroyed at once the commonwealth, and the eggs deposited within the mound. In some places ants are extremely large and abundant, and they quickly destroy the beauty of a flower by attacking its root and heart.*

* The Emperor Pagonatus, who wrote a treatise upon agriculture, assures us, that to clear a garden of ants, we should burn empty snail shells with storax wood, and throw the ashes upon the ant-hills, which obliges them to remove. I never tried this method.

Mildew and blight infest roses and honey-suckles. Soap-suds thrown over rose bushes; heavy waterings with tobacco-water, or the water in which potatoes have been boiled, is successful in a degree, but the best way is a very troublesome one to persevere in. Pinch every leaf well which curls up, by which you may know a small maggot is deposited therein. By so doing you destroy the germ of a thousand little monsters.

Mildew and blight come from the east; therefore honeysuckles should be sheltered from that aspect; for, as they rise and spread widely, they are not so manageable as a rose-bush. A mass of luxuriant honeysuckles is beautiful to the eye and delicious in fragrance: but covered with mildew, it is a blackened and miserable object. Mildew, fortunately, does not make its appearance every spring; but once in four or five years it comes as a plague, to desolate the garden. A great deal may be raked away if taken off as soon as it spreads its cobwebs over these lovely flowers; but it should be done without delay.

I cannot lay too great stress upon the neatness in which a lady's garden should be kept. If it is not beautifully neat, it is nothing. For this reason, keep every plant distinct in the flower-beds; let every tall flower be well staked, that the wind may not blow it prostrate; rake away dead leaves from the beds, and trim every flower-root from discolored leaves, weeds, &c.; remove all weeds and stones the moment they appear, and clear away decaying stems, which are so littering and offensive to the eye. There is always some employment of this kind for every week in the year.

Old iron rods, both large and small, are to be procured cheap at the ironmongers. These old rusty rods, painted green, or lead color, are excellent stakes for supporting flowers, and do not wear out. The slighter rods are very firm upright supporters for Carnations, Pinks, &c., while the taller and larger rods are

the firmest and best poles for hollyhocks, sunflowers, and the larger class of plants. Fix the flower stem to its stake with string, or the tape of the bass matting, soaked in water to prevent its cracking, and tie it sufficiently tight to prevent the wind tearing it from its position. Tie the large stems in three places for security.

The term *Deciduous*, applied to shrubs, signifies that they shed their leaves every winter.

Herbaceous plants, signify those plants whose roots are not woody, such as stocks, wallflowers, &c. &c.

Fibrous-rooted plants, are those whose roots shoot out small fibers, such as Polyanthuses, violets, &c.

Tuberous-rooted plants, signify those roots which form and grow into little tubes, such as Anemones, Ranunculuses, &c.

PERENNIALS.

Perennials are flowers of many years' duration; and they multiply themselves most abundantly by suckers, offsets, parting the roots, &c. They require little trouble beyond taking care to renew the soil every year or two by a somewhat plentiful supply from the compost heap; and by separating the offsets, and parting the roots in autumn, to strengthen the mother plant. When the flowers are past and the stems have decayed, then the operation may take place. Choose a showery day for transplanting the roots, or give them a moderate watering to fix them in their fresh places. When you transplant a flower root, dig a hole with your trowel sufficiently large to give the fibers room to lie freely and evenly in the ground.

I have, throughout my little work, laid great stress upon possessing a heap of compost, ready to apply to roots and shrubs every spring and autumn. Wherever the soil is good the flowers

will bloom handsomely; and no lady will be disappointed of that pleasure, if a compost heap forms one essential, in a hidden corner of the flower garden. If you raise your perennials from seed, sow it in the last week in March in a bed of light earth, in the open ground. Let the bed be in a genial, warm situation, and divide it into small compartments; a compartment for each sort of seed.

Sow the seed thin, and rake or break the earth over them finely. Let the larger seed be sown half an inch deep, and the smaller seed a quarter of an inch. Water the beds in dry weather often with a watering pot, not a jug. The rose of the watering pot distributes the water equally among the seedlings; whereas, water dashed upon them from a jug falls in masses, and forms holes in the light earth, besides prostrating the delicate seedling.

About the end of May, the seedlings will be fit to remove into another nursery bed, to gain strength till October; or be planted at once where they are to remain. Put the plants six inches apart, and water them moderately, to settle the earth about their roots.

But it is rarely required to sow seed for perennial plants,—they multiply so vigorously and quickly of themselves, by offsets; and cuttings may be made of the flower stalks in May and June in profusion.

The double *Scarlet lychnis*, and those plants which rise with firm flower stems, make excellent cuttings, and grow freely when planted in moist weather. Double *Rockets*, *Lychnidea*, and many others, succeed well.

Carnation and *pink* seedlings must be taken great care of. They will be ready to plant out about the middle of June, and as innumerable varieties spring from sowing seed, they should be planted carefully in a bed by themselves six inches asunder, and they will flower the following year, when you can choose the

colors you most approve. Carnations properly rank under the head of biennials; but pinks are strictly perennial plants, and much has been written upon this hardy and beautiful flower. It comes originally from a temperate climate, therefore the pink loves shade: the fervid sunbeams cause its flowers to languish and droop. You may give them an eastern aspect.

Be careful to watch pinks when they are budding, and do not allow two buds to grow side by side. Pinch off the smaller bud, which would only weaken its companion. Keep the plants free from decayed leaves, and gently stir the earth round them occasionally with your small trowel. This operation refreshes them. Stake them neatly, that they may not fall prostrate after rain.

If you wish to preserve any particular pink, let it grow in a pot, or upon a raised platform, that it may be placed beyond the reach of hares, rabbits, or poultry, and be more easily sheltered from long and severe frost or rains in winter, and from the dry heats in summer, either of which destroys the beauty of the flower. The pots can be sunk in the ground in fine weather. Do not hide your pinks among larger flowers: let them be distinctly seen. If you water pinks too much, their roots become rotten; and if you suffer them to be too dry, they become diseased. Beware of extremes. The best rule is to keep them just moist. A fine pink should not have sharp-pointed flower leaves; they should be round and even at their edges, and the colors should be well defined, not running one into the other. The flower should be large; it should possess a great many leaves, and form a sort of dome. Piping and slipping, is the most expeditious mode of propagating plants from any selected pink.

Pansies, violets, &c., are very easily propagated by parting the roots when the flowers are past. Pansies are very beautiful flowers; and cuttings of their young shoots will grow very freely if kept moist and shaded for some little time. By refreshing the

soil every year, you insure large flowers. Pansies and violets bloom early in the spring.

Hepaticas must be parted like violets. They appear so very early in the year that no garden should exist without these gay and modest flowers. The leaves appear after the flower has past away.

The *Polyanthus* blooms among the early tribe. In planting this flower, be careful to insert the roots deep in the soil, so that the leaves may rest upon it, for the roots are produced high upon the stem, and those roots must be enabled to shoot into the soil. The polyanthus, like almost every other flower, loves a good soil, with a mixture of sand.

In dividing these fibrous-rooted perennial plants, take only the strong offsets, with plenty of fibers attached to them.

Polyanthuses, auriculas, double daisies, double camomile, London pride, violets, hepaticas, thrift, primroses, gentianella, &c., succeed well, taken up and divided in September, for they will all have done flowering by that time. Indeed, all perennial fibrous-rooted plants may be taken up in October to have their roots parted, and the soil refreshed round them.

Peonies, and all knob-rooted plants, should be taken up in October to part their roots and transplant them to their intended positions.

The saxifrage has very small roots, which are apt to be lost in borders if not very carefully looked after. Like the anemone, &c., sift the earth well for them.

Dahlias require a word or two upon their culture. They love sand, therefore allow them plenty of it, but do not put manure to their roots, which throws them into luxuriant leaf and stem, to the deterioration of the flower. Peat mould is good, if you can obtain it, to mix with the sand, as it assists the flower in developing stripes and spots. Train each plant upright, upon one

stem only, and give it a strong stake to support its weight, which soon succumbs under gusts of wind. Plant them in open and airy places. When the stems become black, take them up, separate the roots, and plunge them into a box of ashes, barley chaff, or sand, to protect them through the winter. Plant them out in May.

Dahlias grow from cuttings, which require care and a hot-bed to do well, but they multiply themselves very sufficiently without that trouble.

It is a great perfection to see every tall plant in a flower-garden well staked, and trimmed from dead straggling shoots. Let no branches trail upon the border, but, as in the case of Chrysanthemums, cut away the lowest branches or shoots, that each plant may stand erect and neat in its order, without intermeddling in its neighbor's concerns. There will be plenty of employment all through the summer in watching the growth of your plants, in cutting away decayed stems, and trimming off dead leaves. Let nothing remain in the flower's way after the brightness of its bloom has past by : cut off the drooping flower before it runs to seed, which only tends to weaken the other flowers, and leave only the finest flower to produce seed on each plant.

Perennials grow remarkably fine always in newly turned-up ground, but they gradually degenerate if they are allowed to remain above two years without replacing the substance they have exhausted in the soil. Add every year to that substance, by liberal supplies from the compost heap.

Be careful to multiply your supply of jasmines, honeysuckles, &c., by cuttings in their due season.

I subjoin a list of the hardier sorts of fibrous rooted Perennials, eligible to adorn a garden, from which my readers may stock their borders.

LIST OF HARDY PERENNIALS.

- | | |
|--|--|
| <i>Aster</i> , or Starwort | Red cob |
| Large blue Alpine | White stock |
| Common Starwort, or Michaelmas Daisy | Damask |
| Early Pyrenean | Mountain |
| Blue Italian Starwort | Matted |
| Catesby's Starwort | Old man's head |
| Dwarf narrow-leaved Starwort | Painted lady |
| Midsummer Starwort | Clove pink, and many other varieties |
| Autumnal white Starwort, with broad leaves | <i>Stock July-flower</i> , the Brompton |
| <i>Tripolian</i> Starwort | Double scarlet Brompton |
| Divaricated-branched | Single scarlet |
| Virginian Starwort, with spiked blue flowers | Purple |
| Early blue Starwort | White Brompton |
| Rose Starwort | Queen stock |
| Latest Starwort, large blue flowers | Purple double |
| New England Starwort | Striped double |
| Red-flowering | Single of each sort |
| <i>Apocynum</i> , Dogsbane | Twickenham stock |
| Red-flowering | <i>Lichnidea</i> , early blue |
| Orange-colored | Spotted-stalked, with purple spikes of flowers |
| Syrian | Virginia, with large umbels |
| <i>Arum</i> , Italian large-veined leaf | Low trailing purple |
| <i>Asclepias</i> , Swallow-wort | Carolina, with stiff shining leaves, and deeper purple flowers |
| White | <i>Cyanus</i> , broad-leaved |
| Yellow | Narrow-leaved |
| <i>Astragalus</i> , Milk-vetch | <i>Lychnis</i> , or Campion |
| <i>Alysson</i> , White | Single scarlet lychnis |
| Yellow | Double scarlet lychnis |
| Violet | Catchfly, double flowers |
| <i>Borage</i> , the Eastern | <i>Hepaticas</i> , single white |
| <i>Bachelor's Button</i> | Single blue |
| Double red | Single red |
| Double white | Double red |
| <i>Double Ragged Robin</i> | Double blue |
| <i>Campanula</i> , or Bell-flower | <i>Lineria</i> , toad flax |
| Double blue | Purple |
| Double white | Yellow |
| Double blue, and white nettle-leaved | <i>Bee Larkspur</i> |
| <i>Caltha</i> , double-flowered | <i>Frazinella</i> , white |
| Marigold | Red |
| <i>Cassia of Maryland</i> | <i>Gentiana</i> , great yellow |
| <i>Pinks</i> , double pheasant's eye | <i>Gentianella</i> , blue |
| Dobson | <i>Globularia</i> , blue daisy |
| Deptford | <i>Fox-glove</i> , red |
| Cob white | White |
| | Iron-colored |

- Perennial Sun-flower*
 Double yellow, and several other species.
Cyclamen, red
 White
Goldy Locks
Chelone, white
 Red
Lily of the Valley, common
 Double-flowering
Solomon's Seal, single
 Double
Filipendula, or Dropwort
Columbines, common blue
 Double red
 Double white
 Double striped
 Starry, double and single
 Early-flowering Canada
Thalictrum, feathered columbines
Pulsatilla, blue Pasque flower
Orobis, bitter vetch
Saxifrage, double white
 Thick-leaved
 Purple
Veronica, upright blue
 Dwarf blue
 Hungarian
 Blush
Golden Rod, many species
Valerian, red garden Valerian
 White garden
Rudbeckia, American sun-flower
 Dwarf Virginia, with large yellow flowers
 Dwarf Carolina, with narrow red reflexed petals and purple florets
 Virginia, with yellow rays and red florets
 Tall yellow, with purple stalks and heart-shaped leaves
 Taller, with yellow flowers and large five-lobed leaves, and those on the stalks single
 Tallest yellow, with narrower leaves, which are all of five lobes
Pulmonaria, Lungwort
 Common
 American
- Monarda*, purple
 Scarlet
Ephemeron, Spider-wort, or flowers of a day
 White
 Blue
Jucca, American knapweed
Primrose, double yellow
 Double scarlet
 White
Polyanthus, many varieties
Auriculas, many varieties
Violets, double blue
 Double white
 Double red
 Russian
 Banksia
Violet, the Major
Louison-pride, or None-so-pretty
Day-lily, red
 Yellow
Fumitory, the yellow
 White
 Bulbous-rooted
 American forked
Aconite, Monk's-hood, or Wolf's-bane
 Blue Monk's-hood
 Yellow
 White
 Wholesome Wolf's-bane
Winter Aconite
Hellebore, or Bear's-foot
 Common black hellebore
 Green-flowered
White Hellebore
Christmas Rose
Geranium, Crane's-bill
 Bloody Crane's-bill
 Blue
 Roman
 Bladder-cupped
Daisies, common double red garden daisy
 White
 Double variegated
 Cock's-comb daisies, white and red
 Hen and chicken, white and red
Dahlias, many varieties
Peony, double red
 Double white

Double purple	<i>Everlasting Pea</i>
Mae, with large single flowers	<i>Eupatorium</i> , several varieties
Sweet-smelling Portugal	<i>Eryngo</i> , blue
Double rose-colored	White
<i>Silphium</i> , bastard Chrysanthemum	Mountain, purple and violet
<i>Iris</i> , Fleur-de-lis, or flags	There are some other varieties
The German violet-colored	<i>Snap Dragon</i> , or Calf's-snout
Variegated, or Hungarian, purple	Red
and yellow	White
Chalcedonian iris	Variegated
Greater Dalmatian iris	<i>Moth Mullein</i>
There are several other varieties	<i>Angelica</i>
of Irises, all very hardy and very	<i>Asphodelus</i> , King's-spear
beautiful plants	<i>Lupins</i> , perennial, blue-flowered
<i>Cardinal Flowers</i> , scarlet	<i>Ononis</i> , Rest-har
Blue	Large yellow-flowered
<i>Rocket</i> , double white	<i>Tradescantia</i> , or Virginia Spider-
<i>Balm of Gilead</i> , sweet-scented; must	wort
be sheltered in winter	

The Saxifrage is propagated by cuttings and offsets, which the roots produce abundantly. Take the offsets and plant them out in August. The double white saxifrage is a beautiful flower, and blooms early in the spring. The pyramidal saxifrage is a very handsome decorative flower, but it must be planted in little clumps to make a showy appearance.

October is the busy month for transplanting and removing the offsets of all perennial and biennial plants. In this month every flower of summer has passed away, and the garden is free to receive all new arrangements in its future dispositions. Golden rod, Michaelmas daisies, everlasting sun-flower, and other branching plants, will require taking up every four years, to part the main root into separate plants, and replace them in the ground again. Peonies, lilies of the valley, fraxinellas, monk's-hood, flag-leaved irises, &c., must be increased or removed when required. All this is most effectually done in October.

In the same month, finish all that is to be effected among the perennial tribe. Campanulas, lychnises, polyanthuses, violets, aconites, cyclamens, gentianella, yellow gentian, double daisies,


hepaticas, saxifrage, &c., must be attended to, and propagated, by dividing the roots, before October closes. November is the season of fogs and severe frosts: if a lady is prudent, she will perform all these needful operations in October, and November will have no alarms for her.

All the double-flowering plants, such as double sweet-william, double rockets, double scarlet lychnis, &c., should be placed in sheltered situations in October, to weather out the storms of winter. Double flowers are very handsome, and deserve a little care.

The most charming little perennial flower which can adorn a lady's garden is the scarlet verbena, but it is very difficult to preserve through the winter. Its beauty, however, repays the care which may be bestowed upon it. This tender plant—the only really tender root which I admit into my work—is not only desirable from its fine, full scarlet blossoms, but it blooms from April to November. The scarlet verbena loves a rich, light, dry border or bed, in a sunny situation; they delight also in rock-work, where they have been known to exist through the winter. Plant the roots about six inches apart in the middle of April, and keep pegging down the shoots as they throw themselves along the bed. A profusion of flowers and plants are produced by this means. A bed or border sloping to the south is the best situation for the scarlet verbena.

CHAPTER IV

BULBS AND TUBEROUS-ROOTED FLOWERS—PERENNIALS.

 SHALL give the bulbous and tuberous-rooted flowers a chapter to themselves. They are the earliest treasures of the flower-garden, and deserve especial notice. There was a period when two hundred pounds was offered for a hyacinth root, and even the enormous sum of six hundred pounds was given for a *Semper Augustus* tulip, by the Dutch tulip fanciers. But though a few florists are still particularly nice with respect to their bulbs, the time is past for paying such splendid prices; and such an inexhaustible variety offer themselves to our notice now, that we are somewhat puzzled in making a choice collection. Seed produces immense numbers yearly, and an infinite variety of new colors in each species. The florist is lost in admiration of the magnificent blooms which meet the eye in every flower-garden which is carefully attended to.

Bulbs love a mixture of garden soil and sand, well mixed, and dug about two spades deep to lighten it. Break the mould fine, and rake the surface even. Plant the bulbs four inches deep, and let them be six inches apart, placing the bulb with care into the dibbled hole, and pressing the earth gently round each. All bulbs should be replanted in September, and taken out of the ground when they have done flowering. When the leaves and stems decay, dig them neatly up, in dry weather, with your garden fork; take the offsets carefully from the main root; spread them out to dry on a mat, and put them in a cool dry place to plant again in September.

The common bulbs, such as *Snowdrops*, *Crocuses*, &c., may be left two or three years untouched ; but at the end of that period take them up, to separate the offsets and small roots from the mother plants. You can replant them immediately, taking care to thin the clumps, and separate each root six inches from its neighbor, that they may rise healthy, and throw out fine blooms.

Narcissuses, *Jonquils*, and *Iris*es, may also remain two years untouched ; but if annually taken up, they will flower finer, and for these reasons.

By taking up your bulbs as soon as their leaves and stems decay, it not only allows you to separate the offsets, which weaken the parent bulb, but it prevents their receiving any damage from long drought, or the equally destructive moisture of heavy rains, which would set them growing again before their time, and exhaust them. The two or three months in which they are laid by contributes to their strength, by allowing them that period of complete rest.

The autumn-flowering bulbs, such as the *Colchicums*, the *Autumnal Crocus*, the *Yellow Autumnal Narcissus*, &c., should be taken up in May or early in June, when they are at rest. Transplant them now, if you wish to remove them ; part the offsets, and plant them six inches apart. If you keep them out of the ground, put them in a dry, shady place, till the middle of July or August, when you must plant them again, to blow in the autumn.

Be careful to take up bulbs as soon as the leaves decay. If they are incautiously left in the ground beyond that period, they begin to form the bud for the next year's flowers ; and the check of a removal would injure them. They might produce flowers in due time, but they would be weakly.

The little offsets will not flower for a year or two. They may

be consigned to a nursery-bed to remain for that time, in order to swell and strengthen by themselves.

If you wish to procure new varieties from seed, it must be sown in August. The healthiest flower-stalk should be chosen, and deposited in pots or boxes of fine light earth, for the convenience of removing under shelter in wet or frost. Keep the pots or boxes in the shade during the heats, but, as the cold weather advances, remove them to a warm sheltered spot. Litter will shelter them from the frost, if you cannot command any other covering. The plants will appear early the following May: they must be kept very clear from weeds, and be moderately watered in dry weather. These seedlings must be transplanted every summer to be thinned, and placed further apart from each other till they blow, when they may be removed into the flower-beds.

This method is troublesome, and requires patience. Tulip seedlings are seven years before they flower, and a lady may find her patience severely tried in waiting for their blooms. Seven years is a large portion of human life. If you can persevere, however, you will be rewarded by beautiful varieties of new colors and stripes.

Fine tulips should have six leaves, three on the outside and three on the inside, and the former should be broader than the latter. The stripes upon the tulip should also be defined and distinct, not mixing with the ground tints.

Hyacinth seedlings are four years before they flower; this is not so harassing a period as the Tulip requires; but every pleasure has its counterbalance. If you will have fine flowers, you must wait for them. These bulbs love a sunny situation.

The *Orchis* tribe prefer a moist ground and a northern aspect. Columella says, that when orchis bulbs are sown in autumn, they germinate and bear flowers in April.

The *Colchicums* or narcissus are hardy bulbs, and will grow in any sort of ground; only, the better the soil is, the finer they will flower.

The *Guernsey Lily* and *Belladonna* will not thrive in the open ground, therefore it is needless to speak of those very splendid flowers.

The Lily of the Valley, though scarcely to be classed among the lily tribe, is a beautiful flower, and as fragrant as it is lovely. They must be multiplied by dividing the roots, which should be parted with a knife, as they are very intricate: do this in December. Plant them three inches deep in the ground, and disturb them as little as you can help, as they do not like to be often moved. They are larger in their flowers when grown in the shade, but they are sweeter in perfume in the sun's full rays. Thin broad leaves are sufficient shelter to the flowers.

All bulbs love salt: be careful, therefore, to throw a portion of common salt or brine upon your compost heap. My cousin, Cuthbert W. Johnson, Esq., in his "Observations on the Employment of Salt," quotes a passage in a letter addressed to him by Mr. Thomas Hogg, the eminent florist, upon the advantages of salt in the cultivation of flowers. I will transcribe it here:—

"From the few experiments that I have tried with salt as a garden manure, I am fully prepared to bear testimony to its usefulness. In a treatise upon flowers, published about six years since, I remarked, that the application of salt, and its utility as a manure, was yet imperfectly understood. It is a matter of uncertainty, whether it acts directly as a manure, or only as a kind of spice or seasoning, thereby rendering the soil a more palatable food for plants.

"The idea that first suggested itself to my mind, arose from contemplating the successful culture of hyacinths in Holland. This root, though not indigenous to the country, may be said to be completely naturalized in the neighborhood of Haerlem, where it grows luxuriantly in a deep, sandy, alluvial soil. yet one great cause of its free growth, I considered, was owing to the saline atmosphere: this induced me to mix salt in the compost; and I

am satisfied that no hyacinths will grow well at a distance from the sea without it. I am also of opinion, that the numerous bulbous tribe of Amaryllisses, especially those from the Cape of Good Hope; *Ixias*, *Aliums*, which include Onions, Garlic, Shalots, &c., *Anemones*, various species of the *Lily Antholyza*, *Colchicum*, *Crinum*, *Cyclamens*, *Narcissus*, *Iris*, *Gladiolus*, *Ranunculus*, *Scilla*, and many others, should either have salt or sea-sand in the mould used for them.

“I invariably use salt as an ingredient in my compost for carnations; a plant which, like wheat, requires substantial soil, and all the strength and heat of the summer, to bring it to perfection; and I believe I might say, without boasting, that few excel me in blooming that flower.”

Colchicums, the Autumnal *Narcissus*, *Amaryllis*, and the Autumn *Crocus*, should be planted in August, to blow in September and October.

Replant all the bulbous tribe by the end of October, at the latest. Choose a mild, dry day to put them in the ground, and let each bulb be six or nine inches distant from its companion. All bulbs become weak by being placed too closely together, the soil becoming soon exhausted.

Bulbs of the more choice varieties are better attended to if they can be placed in beds or compartments by themselves; for they are more easily sheltered from frost and rain when in a body. The eye, also, is more delighted by the beautiful variety *en masse*. Their favorite soil, too, can be composed and preserved for them more exclusively, unexhausted by the roots of larger plants around them. Some of the commoner sorts can be planted out in patches, to add to the gay appearance of the borders, among the spring flowers.

Martagons, orange lilies, and bulbs, of tall growth, should never be planted among the smaller tribe; their large bulbs would exhaust the soil, and weaken the smaller flowers. They look very handsome in borders and plots, placed near, or in, their center.

LIST OF TUBEROUS AND TUBEROUS-ROOTED FLOWERS.

- Amaryllis*, comprising the autumnal yellow Narcissus
 Spring ditto
Crocus vernus, or spring-flowering crocus
 Common yellow
 Large yellow
 Yellow, with black stripes
 White
 White, with blue stripes
 Blue, with white stripes
 Deep blue
 Light blue
 White, with purple bottom
 Scotch, or black and white striped
 Cream-colored
Autumnal flowering Crocus, of the following varieties:—
 True saffron crocus, with bluish flower, and golden stigma, which is the saffron
 Common autumnal crocus, with deep blue flowers
 With light blue flowers
 Many-flowered
Snowdrop, the small spring flowering
 Common single
 Double
Leucojum, or great summer snowdrop
 Great summer snowdrop with angular stalk: a foot high, and two or three flowers in each sheath
 Taller great snowdrop, with many flowers
Ornithogalum, or Star of Bethlehem
 Great white pyramidal, with narrow leaves
 White, with broadsword-shaped leaves spreading on the ground
 Yellow
 Pyrenean, with whitish green flowers
 Star of Naples, with hanging flowers
 Umbellated, producing its flowers in umbels, or spreading bunches, at the top of the stalk
 Low yellow umbellated
Erythronium, lens canis, or dog's tooth
 Round-leaved, with red flowers
 Same, with white flowers
 The same, yellow
 Long narrow-leaved, with purple and with white flowers
 Grape hyacinth
 Purple
 Blue
 White
 Musk hyacinth
 White
 Ash-colored
 Blue feathered hyacinth
 Purple
 Musky, or sweet-scented, with full purple flowers
 The same, with large purple and yellow flowers
 Great African Muscaria, with sulphur-colored flower
Fritillaria checkered tulip
 Early purple, variegated, or checkered with white
 Black, checkered with yellow spots
 Yellow, checkered with purple
 Dark purple, with yellow spots, and flowers growing in an umbel
 Persian lily, with tall stalks, and dark purple flowers growing in a pyramid
 Branching Persian lily
Corona Imperialis, crown imperial, a species of *Fritillaria*
 Common red
 Common yellow
 Yellow-striped
 Sulphur-colored
 Large-flowering
 Double of each variety
 Crown upon crown, or with two whorls of flowers
 Triple crown upon crown, or with three tiers of flowers one above another
 Gold-striped leaved
 Silver-striped leaved

- Tulip*, early dwarf tulip
 Tall, or most common tulip
 Early, yellow and red striped
 White and red striped
 White and purple striped
 White and rose striped
 Tall, or late-flowering, with white bottoms, striped with brown
 White bottoms, striped with violet or black brown
 White bottoms, striped with red or vermilion
 Yellow bottoms, striped with different colors, called Bizarres
- Double Tulip*, yellow and red
 White and red
- Gladiolus*, corn flag, or sword lily, common, with sword-shaped leaves, and a reddish purple flower ranged on one side of the stalk
 The same, with white flowers
 Italian with reddish flowers ranged on both sides of the stalk
 The same, with white flowers
 Great red of Byzantium
 Narrow grassy-leaved, and a flesh-colored flower, with channeled, long, narrow, four-angled leaves, and two bell-shaped flowers on the stalk
 Great Indian
- Anemone*, wood anemone, with blue flowers
 White flowers
 Red flowers
 Double white
- Garden Double Anemone*, with crimson flowers
 Purple
 Red
 Blue
 White
 Red and white striped
 Red, white, and purple
 Rose and white
 Blue, striped with white
- Ranunculus*, Turkey with a single stalk, and large double blood-red flower
 Yellow-flowered
- Persian, with branching stalk, and large double flowers of innumerable varieties, of which there are Very double flowers
 Semi, or half double
 (The double are most beautiful, propagated by offsets)
- Pancratium*, sea daffodil
 Common white sea Narcissus, with many flowers in a sheath, and tongue-shaped leaves
 Selavonian, with taller stems and many white flowers, and sword-shaped leaves
 Broad-leaved American, with large white flowers, eight or ten in a sheath
 Mexican, with two flowers
 Ceylon, with one flower
- Moly* (*Allium*), species of garlic producing flowers
 Broad-leaved yellow
 Great broad-leaved, with lily flowers
 Broad-leaved, with white flowers in large round umbels
 Smaller white umbellated
 Purple
 Rose-colored
- Fumaria bulbosa*, or bulbous-rooted fumitory
 Greater purple
 Hollow-rooted
 American, with a forked flower
- Narcissus*, or daffodil, common double yellow daffodil
 Single yellow, with the middle cup as long as the petals
 White, with yellow cups
 Double, with several cups, one within another
 Common white narcissus, with single flowers
 Double white narcissus
 Incomparable, or great nonsuch, with double flowers
 With single flowers
 Hoop petticoat narcissus, or rush-leaved daffodil, with the middle cup larger than the petals, and very broad at the base

- Daffodil, with white reflexed petals, and golden cups
 White daffodil, with purple cups
Polyanthus Narcissus, having many small flowers on a stalk, from the same sheath. Of this are the following varieties:—
 White, with white cups
 Yellow, with yellow cups
 White, with yellow cups
 White, with orange cups
 White, with sulphur-colored cups
 Yellow, with orange cups
 Yellow, with sulphur-colored cups
 With several intermediate varieties
 Autumnal narcissus
scuil, common single
 Large single
 Common double
 Double, with large round roots
ium, the lily, common white lily
 With spotted or striped flowers
 With double flowers
 With striped leaves
 White lily, with hanging or pendent flowers
 Common orange lily, with large single flowers
 With double flowers
 With striped leaves
 Fiery, bulb-bearing lily, producing bulbs at the joints of the stalks
 Common narrow-leaved
 Great broad-leaved
 Many-flowered
 Hoary
 Martagon lily, sometimes called Turk's-cap, from the reflexed position of their flower-leaves. There are many varieties, and which differ from the other sorts of lilies in having the petals of their flowers reflexed, or turned backward. The varieties are—
 Common red martagon, with very narrow sparsed leaves, or such as grow without order all over the flower-stalk
 Double martagon
 White
 Double white
 White spotted
 Scarlet, with broad sparsed leaves
 Bright red, many-flowered, or pompony, with short, grassy, sparsed leaves
 Reddish hairy martagon, with leaves growing in whorls round the stalk
 Great yellow, with pyramidal flowers, spotted
 Purple, with dark spots, and broad leaves in whorls round the stalk, or most common Turk's-cap
 White spotted Turk's-cap
 Canada martagon, with yellowish large flowers spotted, and leaves in whorls
 Campscatense martagon, with erect bell-shaped flowers
 Philadelphia martagon, with two erect bright purple flowers
Squills, sea onion, or lily hyacinth, common lily hyacinth, with a lily root and blue flower
 Peruvian, or broad-leaved hyacinth of Peru, with blue flowers
 With white flowers
 Early white starry hyacinth
 Blue
 Autumnal starry hyacinth
 Larger starry blue hyacinth of Byzantium
 Purple star-flower of Peru
 Italian blue-spiked star-flower
Asphodel lily, African blue, with a tuberous root
Tuberose, or Indian tuberous hyacinth. It produces a small stem three or four feet high, adorned with many white flowers of great fragrance.
 The varieties are,—
 Fine double tuberose
 Single tuberose
 Small-flowered
 Striped-leaved
Iris bulbosa, or bulbous Iris, Persian, with three erect blue petals called standards, and three reflexed petals called falls, which

- are variegated, called Persian bulbous iris, with a variegated flower
- Common narrow-leaved bulbous iris, with a blue flower
- White
- Yellow
- Blue, with white falls
- Blue, with yellow falls
- Greater broad-leaved bulbous iris, with a deep blue flower
- Bright purple
- Deep purple
- Variegated
- Great, with broad and almost plain or flat leaves, with blue flowers
- Purple
- Of the above there are many intermediate varieties
- Hyacinth*, eastern, with large flowers. Of these there are many varieties, and of which there are innumerable intermediate shades or tints of color
- Of double sorts there are,—
- Blues
- Purple blues
- Agatha blues
- Whites
- Whites, with yellow eyes
- Whites, with red eyes
- Whites, with violet or purple eyes
- Whites, with rose-colored eyes
- Whites, with scarlet eyes
- Reds
- Incarnate, flesh or rose-colored
- Of single sorts there are,—
- Blues, of various shades, as above
- Whites
- Reds
- Rose-colored
- With many intermediate shades or varieties
- (*Muscaria*), or musk hyacinth
- Ash-colored
- White
- Obsolete purple
- Greater yellow African
- Grape hyacinth
- Purple
- Blue
- White
- Red
- Monstrous flowering, or blue-feathered hyacinth
- Comosed, or tufted purple hyacinth
- Amethystine blue hyacinth
- Nodding, spiked, red hyacinth
- Non-script small English hyacinth, or harebells, of the following varieties:—
- Common blue flowers arranged on one side of the stalk
- White
- Bell-shaped blue hyacinth, with flowers on every side of the stalk
- Bell-shaped peach-colored, with flowers on one side of the stalk
- These are very hardy, propagating by offsets
- Hyacinth, with a pale purple flower
- Colchicums* in variety
- Leontice*, lion's leaf, largest yellow, with single foot-stalks to the leaves
- Smaller pale yellow, with branched foot-stalks to the leaves
- Cyclamen*, sow-bread, European, or common autumn-flowering, with a purple flower, and angular heart-shaped leaves
- The same, with a black flower
- The same, with white flowers
- Red spring-flowering, with heart-shaped leaves, marbled with white
- Entire white, sweet-smelling
- Purple winter-flowering, with plain or circular shining green leaves
- Purple round-leaved autumn-flowering
- Small, or anemone-rooted, with flesh-colored flowers appearing in autumn: these plants have large, round, scolid roots; the flowers and leaves rise immediately from the root

Corona Regalis, or royal crown; re- | *Aconite*, the winter
quires shelter in the winter | *Sisyrinchium*

AURICULA, RANUNCULUS, ANEMONE.

These early and beautiful flowers deserve peculiar notice, for no garden looks well without them, and their bright tints delight the eye and mind. The commonest kinds are handsome and useful in small clumps, and a little care and trouble will raise superb varieties.

The Auricula loves a soil composed of kitchen-garden mould, sand, and cow-dung, well mixed together; they also like a cool situation. The seed should be sown in September, and when sown give it a gentle watering. By sowing the seed in pots or boxes, you can remove them from heavy rains, &c., without trouble, and shelter them in the outhouses or tool-house. The seed seldom appears under six months, and it has been sometimes a twelvemonth producing itself, therefore be not in despair, but remain patient; these freaks of nature cannot be accounted for. When they flower, you must single out the plants which bear the finest and most choice blooms, and transplant them into pots filled with the compost above described. The common sorts may be planted in the borders, to remain out and shift for themselves. By keeping the fine auriculas in pots, you preserve them through the winter easily, for heavy rains and cutting winds do them harm. You can sink them in their pots during summer in the flower-beds, but let them be sheltered during the winter, if you wish to preserve the blooms uninjured.

Auriculas multiply also by suckers, which grow on their roots. Take off these in February, and plunge them into pots of the mould they like best, to root freely. They will do so in two months. Auriculas should not be too much watered, as it makes them look sickly, and the leaves become yellow. When you pot

the auriculas, sink them up to their leaves in the soil, but do not press the mould round the plant, as the flowers bloom finest when the roots touch the sides of the flower pot.

The auricula is esteemed fine that has a low stem, a stalk proportioned to the flower, the eye well opened, and always dry. The glossy, the velvet, and the streaked auriculas are the most admired. The stalk should be decked with many flower-bells, to be handsome and healthy.

Take care to pull off all dead leaves round the plant at all times, that it may appear neat and clean. Neatness is favorable to its perfect growth, as well as decorating it to the eye.

The Ranunculus does not like being mixed up with other flowers, and from this "aristocratic principle" it is always planted in separate knots

This flower loves sun and warmth. The root must be planted in September, to bloom early in the summer, and it delights in a rich, moist soil, well dug, and raked soft and fine. When you plant them in beds or pots, they must be sunk two inches deep, and dibble the hole with a round, not pointed, dibble. Place the roots four or five inches apart, in the warmest situation in your garden. By planting ranunculuses in pots, you can more easily place them in warm situations, and withdraw them from heavy rains. The more room you give these roots the finer they will grow and blow. If your plots will allow of so doing, let the roots be planted six or seven inches apart. The flowers will repay your care. When ranunculuses in pots have flowered, remove them from the August rains, or take up the roots, to replant in September.

The Ranunculus with the double white flower must not be taken up until September, when it should be taken up quickly, its roots parted, and replanted immediately.

The Yellow Ranunculus with the rue leaf, prefers being potted to being planted in beds.

The Ranunculus propagates by seed as well as offsets. Sow the seed as you do that of the auricula.

The most admired ranunculuses are the white, the golden yellow, the pale yellow, the citron-colored, and the brown red. The red is the least esteemed. The yellow ranunculus speckled with red, is handsome,—also the rose-color with white inside.

Great varieties are obtained by seed.

The Anemones love a light soil, composed of kitchen-garden mould, and sand, and leaf mould, well mixed, and sifted fine. It should, if possible, be composed a year before it is used; the lighter it is the better for anemones.

The seed should be sown in September. The single flowers alone bear seed, which is fit to gather when it appears ready to fly away with the first gust of wind. As soon as the seed is lodged, and raked smoothly into its fine, light bed, strew the bed over with straw or matting, and give it a good watering. In three weeks the seed will begin to rise, when the straw may be removed. The young plants will flower in the following April.

When the roots are to be planted in September, sink them about three inches deep, and six inches apart, that they may come up strong and flower well. Make a hole in the ground for them with your finger, and set them upon the broadest side, with the slit downwards.

Those anemones planted in September will flower in March and April, and the roots planted in May flower in autumn, but the flowers are never so fine.

When anemones have done flowering, it requires some care in taking up the roots, in order to part and put them by till the time for replanting arrives. The roots or flaps are so small and difficult to distinguish, that the earth should be taken up and

laid upon a sieve to be sifted, when the flaps will alone remain behind, or the earth may be deposited upon an open newspaper or cloth, and well rubbed with the hand to feel for the minute dark-colored flaps, which may easily escape observation.

The beauty of this flower consists in its thickness and roundness, especially when the great leaves are a little above the thickness of the tuft.

Choose your seed from the finest single anemone, with a broad, round leaf.

The remaining tuberous-rooted flowers are very hardy.

BIENNIALS.

Biennial flowers, as the name implies, are plants that exist only two years. They are propagated by seed, rising the first year, and flowering the second. If they continue another year, they are sickly and languid. The double biennials may be continued by cuttings and slips of the tops, as well as by layers and pipings, though the parent flower dies—but they are not so fine. A lady should have a space of ground allotted to biennial seedlings, so that a fresh succession of plants may be ready to supply the place of those which die away. The seeds should be sown every spring in light, well-dug earth; the young plants should be kept very clean, and some inches apart from each other; and they must be finally transplanted in autumn into the beds where they are intended to remain.

But there is a great uncertainty as to raising the double flowers, therefore it is better to make sure of those you approve by perpetuating them as long as you can, by any root offsets they may throw off,—by pipings, cuttings, or by layers, as before noticed. I subjoin a list of the principal and useful biennials.

LIST OF HARDY BIENNIALS.

<i>Canterbury Bells</i>	<i>Poppy</i> , Yellow-horned (<i>Chelidonium</i>
Blue-flowers	<i>glaucum</i>)
White	<i>Rocket</i> , Dame's violet
Purple	Single white
Pyramidal	Double white
<i>Carnation</i> . All the varieties, some-	Double purple
what biennial-perennial.	Single purple
<i>Clary</i> , Purple-topped	<i>Rose Campion</i>
Red-topped	Red
<i>Colutea</i> , Æthiopian	White
<i>French Honeysuckle</i>	<i>Scabius</i> , double
Red	Dark purple-flowered
White	Dark-red
<i>Globe Thistle</i>	White
<i>Hollyhocks</i> . Somewhat biennial-per-	Starry purple-flowered
ennial; all the varieties; always	Starry white
by seed	Jagged-leaved starry
<i>Lunaria</i> , Moonwort or Honesty	<i>Stock Gilliflower</i>
<i>Mallow</i> (Tree)	Brompton
Red	Queen
Scarlet	Twickenham
Purple	<i>Sweet-william</i>
Red, white-bordered	Common upright tall yellow
Party-colored	Small-flowered
Variegated	<i>Wall-flower</i>
Painted Lady	Yellow-flowered
Double of each	Bloody
Mule, or Mongrel Sweet-william,	White
or Mule Pink	Double of each
<i>Tree Mallow</i> (<i>Lavatera arborea</i>)	<i>Petunia</i>
<i>Tree Primrose</i>	White
<i>Night Stock</i>	Lilac

When you make your seedling-bed or nursery, cover it over with straw, or fern, or matting, during frost; and to prevent the birds pecking up the seeds, it is requisite to protect the bed by strewing light boughs of thorn bushes over it, or fixing a net upon sticks as a covering, till the plants appear. If cats, dogs or poultry intrude into the flower garden, it is in vain to hope for enjoyment.

Sow your biennial seeds in March, April, or May. I recommend May, because the young plants in that month germ and

vegetate quickly, surely, and without requiring defences from the frost. Plant them out in October, with a ball of earth to each root, where they are to remain.

The Stock Gilliflowers in particular, having long, naked roots, must be planted out very young, otherwise they do not succeed well.

Honesty is a very early, rich-flowering biennial, which requires no care; they shed their seed, rise, and flower without any assistance, in profusion. The only trouble is to weed it out of the beds, that they may not stand in the way of other flowers.

Canterbury Bells are handsome flowers, and will bloom a long time, if you cut off the bells as they decay.

The deep crimson Sweet-williams are most esteemed; though every variety looks well.

Sweet-williams may be increased by layers and cuttings, which is the only sure way of securing the sorts you like; for you may sow seed every year, and not one in a thousand will reward you by coming up double.

Carnations are the pride of a garden, and deserve great care and attention. The common sorts, which are planted in borders, should have a good rich earth about them, and be treated like the pink; but the finer sorts should always be potted, to protect and shelter the plant from hares, rabbits, heavy rains, and severe frost in the winter. Refresh the top of the pots with new soil in June, and keep the plants free from decayed leaves. Gently stir the earth round each plant occasionally; and as plants in pots require more water than if placed in the ground, let the carnations be gently moistened about every other day during dry weather. Let the watering take place in the *evening*; no flower will endure being watered during the heat of a summer's day. Carnations love sand and salt in proper proportions. The brine which is deposited upon the compost heap will answer every purpose

of salts, (if it be regularly carried out), without adding common salt: but let this be particularly attended to. The cook should deposit her pickle and brine to good purpose upon the compost heap, instead of splashing it down in front of her kitchen door.

Let each plant be well staked, and neatly tied to its supporter; and do not allow two buds to grow side by side upon the same stem, for one will weaken the other. Pinch off the smaller bud. Carnations love warmth; therefore give them a sunny aspect to blow in. The seedling plants may be treated like young pinks, but this difference must be observed—pinks love shade, and carnations love warmth. A bed of carnations is a beautiful object. The pots can always be sunk in a border or bed in fine weather. Carnations may be layered, or piped, or slipped for propagation.

Water your carnations in pots once a week with lime water, if they appear drooping, for this proceeds from a worm at the root; but the brine will destroy all insects quickly, when poured upon the compost heap.

In propagating double Wall-flowers, take slips of the young shoots of the head: this will perpetuate the double property and color of the flower, from which they were slipped. In saving seed for wall-flowers, choose the single flowers, which have five petals or flower leaves. Double flowers have no seed.

Water the slips, and keep them shady and moist: they will root by September.

Plant your Hollyhocks in September or October, where they are to remain. Hollyhocks are a noble flower, and they love a strong soil. Let a succession of these flower plants be attended to in the biennial seed-bed. Keep them some inches apart from each other in the seedling-bed, for they form large straggling roots. The hollyhock looks well in clumps of three, at a good distance apart, in large gardens or shrubberies, but they are somewhat too overgrown for smaller parterres.

Be particular in gathering your seeds on a fine, dry day, and put each sort in a separate brown paper bag till you require them. The very finest seedlings are, after all, those which spring near the mother plant from self-sown seed, therefore, when you weed or dig your flower borders, be careful not to disturb any seedlings which may have sprung up. They always make strong, fine blooming plants.

Take care of your double-flowering plants in winter. The double wall-flower is hardy enough to exist in the borders, but the other double biennials deserve to be sheltered, for double flowers are very handsome, and heavy rains, snow, or severe frost, injures them. Take cuttings every year from them.

The Night Stock is tolerably hardy if sheltered during the frost by ashes or litter. The sweetness after night-fall must recommend it to all the lovers of fragrant flowers.

PROPAGATING BIENNIALS.

Every young lady must become acquainted with the manner of operating upon plants, to preserve the finer sorts, which they may wish to perpetuate. Raising from seed is slow, but it produces infinite variety. You, however, rarely see the same flower produced twice from seed; therefore you must propagate the biennial and perennial flowers by layers, slips, pipings, and cuttings, if you wish to preserve any particular sorts.

To effect layers, prepare some rich, light earth, a parcel of small hooked sticks, or little pegs, and a sharp penknife.

Now clear the ground about the plant you are going to layer; stir the surface well with your trowel, and put a sufficient quantity of the prepared mould round the plant as will raise the surface to a convenient height for receiving the layer.

Cut off the top of each shoot with your knife, about two inches,

and pull off the lower leaves; then fix upon a joint about the middle of the shoot, and, placing your knife under it, *slit* the shoot from that joint, rather more than half way up, towards the joint above it.

Now make an opening in the earth, and lay the stem, and slit or gashed shoot, into it, and peg it down; taking care to raise the head of the shoot as upright as you can, that it may grow shapely; then cover it with the new mould, and press the mould gently round it. Do this by each shoot till the plant is layered—that is, till every shoot is laid down. They must be watered often in dry weather, but moderately, not to disturb or wash away the soil round the layers. In six weeks' time, each gashed or slit shoot will have rooted, and become a distinct plant. They may be taken away from the old parent stem in September, and dug up with a ball of earth round each root, to be transplanted into the plots or borders where they are to remain.

Carnations, pinks, sweet-williams, double wall-flowers, &c., are the flowers most deserving of layers.

Piping, which belongs almost exclusively to carnations and pinks, is a most expeditious mode of raising young plants.

Take off the upper and young part of each shoot, close below a joint, with a sharp knife, and cut each off at the third joint, or little knob; then cut the top leaves down pretty short, and take off the lower and discolored ones. When you have piped in this way as many as you require, let them stand a week in a tumbler of water, which greatly facilitates their doing well. Indeed, I never failed in any pipings, slips, or cuttings, which I allowed to soak and swell in water previous to planting. When you plant the pipings, let the ground be nicely dug, and raked very fine; dibble no hole, but gently thrust each piping half way down into the soft earth, slightly pressing the earth round each, to fix it in the bed. Water them often if the weather is dry, but moder-

ately, just to keep them moist ; and shade them from the hot sun in the day. If pipings are covered with a hand-glass, they root earlier, by three weeks, than those which are exposed.

Laying, piping, and slipping, are done in June and July. The plants will be well rooted, and fit to plant out, in October.

The operation of slipping is easy. Tear the top shoots of the plant to be so propagated, gently from their sockets ; hold the shoot between your finger and thumb, as near the socket as you can, and it will tear as easily and neatly as you carve the wing of poultry or game. Place the slips in water for a few days previous to planting them, like pipings. They will root in six weeks or two months, if kept shady and moist.

Cuttings must be made of shoots of the last year's growth of roses, honeysuckles, &c., and planted in February. Choose the strong shoots, and do not cut them less than six inches long. Cut them with your knife in a slanting direction. Plant them in a shady place, each cutting half way in the ground, which should be cleaned, and well dug and raked, to receive them. Cuttings made in February will root well by October.

Cuttings of flower stalks, such as scarlet lychnis, should be done in May, June, and July. Take cuttings from the youngest flower stems, and plant them carefully in nice mould, like pipings. These flower cuttings should be in lengths of four joints each. Covering them with a hand-glass raises them very quickly. They root in two months.

Where hand-glasses are not to form any part of a lady's arrangements, oil-papered frames are equally useful. I have seen very economical and useful frames made of bamboo, in the form of hand-glasses, covered neatly with glazed white cotton or linen, or horn paper, made by a lady with great celerity and ingenuity ; and her cuttings and pipings succeeded under them admirably. Whatever shelters cuttings and pipings from the

rays of the sun effects a material purpose. Linen is the best shelter in the world from heat, but oiled or horn paper resists rain better.

Dr. Priestley is of opinion that salt water is very efficacious for cuttings, if they are placed in it for a few days previous to planting. He remarks that it is a custom with the importers of exotic plants to dip cuttings in salt and water, otherwise they would **perish** on the passage.



CHAPTER V.

ANNUALS.

ANNUALS, as I have observed before, are flowers that rise, bloom, and die in the same year; and must therefore be raised from seed every year.

The first class of annuals, being very delicate, and requiring great care, with the constant assistance of glass frames, I shall not even name, since they do not enter into the nature of my work.

I proceed to the second class, which are hardier than the above, though they should be raised in a warm border, and be covered with a hand-glass, if you wish them to flower in good time.

The ten weeks' Stocks will grow, if sown in a warm border, towards the end of March, and should be afterwards transplanted; but if brought up in a hot-bed, they will flower a month or six weeks earlier.

The China-aster, Chrysanthemum, white and purple Sultan, African and French Marigolds, Persicarias, &c., will grow well in a warm border of natural earth, if sown in April; but they also flower a month earlier if they are assisted by a hot-bed or glass. These annuals must be all planted out when tolerably strong, into the spots where they are destined to remain in the borders, taking care to allow to each plant plenty of space, that they may not crowd each other. The China-aster branches into many stems and flowers, therefore they may be planted singly, or not

less than six inches apart. The July flowers, or more commonly called gilliflowers, become expansive as they increase. They should not be crowded together; three in a group are quite sufficient, and they should be six inches apart. The same may be said of the stock varieties.

I have ever found the hardy annuals grow finest by allowing them to become self-sown. They flower some weeks earlier, and invariably produce larger and brighter flowers.

When gathering my flower seeds in August and September, I allow one half to remain sprinkled over the borders; and the young plants never fail appearing healthy and strong above ground in March and April, the months appropriated to sowing the seed. Thus, my Lavateras, Larkspurs, &c., are in beautiful blow, while the second crop, or seeds sown in spring, are but showing their green heads above the surface. I weed away the superfluous self-sown plants to my taste; but the birds take care that no one shall be encumbered with a superfluity. I have by this means a first and second crop of the same annuals, but the crop of self-sown are far superior. They are up before the heats come on, to dry the earth, and dwindle the flower.

Dig the ground well with your trowel, and rake it very fine, before you put in the seeds in spring. Annuals love a light, friable soil. All the hardy kinds may be sown in March, each sort in little separate patches, as follows:—

Draw a little earth off the top to one side, then sprinkle in the seed, not too plentifully, and cover it again with the drawn-off earth. Half an inch is sufficient depth for small seed. The larger kind, such as sweet-peas, lupins, &c., must be sown an inch in depth. When the plants have been up some time, thin them well. The more space you have, the finer the plants will rise.

The hardy annuals will not bear transplanting: they must be

left to flourish where they are sown. The large kinds, such as the lavatera or mallow, should only be sown in groups of three plants together. The lupin tribe should not exceed five plants in a group. The Convolvulus, also, requires four or five plants only in a group. Water the patches in dry weather moderately, and be careful never to use pump water. If you have no soft water, a tub should be placed in the garden to receive rain water; and if, as in towns, pump water must be chiefly used, let it remain a day or two in the tub, to soften in the air and sunshine.

The first week in April is the safest period for sowing annuals, as the cutting winds have ceased by that time, and frost is not so much to be apprehended. The soft rains, also, fall in warm showers, to give life and germ to seeds and plants, and they appear in a shorter space of time.

Those ladies who live in the vicinity of nursery gardens have a great advantage over the more remote flower-fanciers. They can be supplied, at a trifling expense, with all the tender annuals from hot-beds, either in pots, or drawn ready for immediate transplanting.

If you do not raise your own seed, be careful how you purchase your stock, and of whom you receive it. Many seedsmen sell the refuse of many years' stock to their youthful customers, and produce great disappointment. There is one way of ascertaining the goodness of the seed, which will not deceive. Previous to sowing, plunge your lupin, sunflower, &c., seeds into a tumbler of water: the good seed will sink, while the light and useless part remains floating on the surface.

If you grow your own seed, exchange it every two years with your neighbors. Seeds love change of soil: they degenerate, if repeatedly grown and sown upon the same spot, particularly sweet-peas.

Sweet-peas should be put into the ground early in March, for

they will bear the wind and weather. Make a circle round a pole, or some object to which they may cling as they rise ; and put the peas an inch deep, having soaked them previously in water well saturated with arsenic, to guard them from the deprecations of birds and mice. Add an outer circle of peas every month, so that a continual bloom may appear. The circle first sown will ripen and pod for seed in the center, while the outer vines will continue flowering till late in the autumn. When you have gathered a sufficient number of ripe pods, cut away all the pods which may afterwards form with your knife. This strengthens the vines, and throws all their vigor into repeated blooms.

Be very careful to throw away the arsenic water upon your heap of compost, and do not put that powerful poison into any thing which may be used afterwards in the house. Soak the peas in a flower-pot saucer which is never required for any other purpose, and keep it on a shelf in the tool-house, covered up. Three or four hours' soaking will be sufficient. If the wind and frosts be powerful and continued, shelter the peas through March, by covering them with straw or matting every evening.

I have got sweet-peas into very early blow by bringing them up in pots in-doors, and transplanting them carefully in April, without disturbing the roots. In doing this, push your finger gently through the orifice at the bottom of the flower-pot, and raise its contents "bodily." Then place the ball of earth and plants into a hole troweled out to receive it ; cover it round gently, and, if the weather is dry, water it moderately.

Ten-weeks' Stock is a very pretty annual, and continues a long time in bloom. Mignonette is the sweetest of all perfumes, and should be sown in September for early blowing, and again in March for a later crop. It is always more perfumy and healthy, if dug into the ground in autumn to sow itself. Venus' Looking-glass is a very pretty, delicate flower. Indeed, every annual is

lovely; and the different varieties give a gay and rich appearance to the flower garden during the three summer months.

The Clarkias are very pretty annuals, with a hundred other varieties lately introduced, and which are all specified in Mrs. Loudon's new work upon annuals. My plan is, to give a general idea of their treatment only, under the classification of hardy annuals, or those annuals which may be nurtured without a hot-bed.

Keep your annuals from looking wild and disorderly in a garden by allotting the smaller kinds their separate patches of ground; and trim the larger annuals from branching among other flowers. For instance, cut away the lower branches of the China-aster, the African marigold, &c., and train the plant erect and neatly to a slight rod or stick; cut away the flowers as they droop, reserving one or two of the finest blooms only for seed: and let each plant look clean and neat in its own order. By cutting away flowers as they droop, the plant retains vigor enough to continue throwing out fresh flowers for a long period.

SECOND, OR LESS TENDER CLASS OF ANNUALS.

<i>African Marigold</i> , the orange	White
Yellow	Red
Straw-colored	<i>Indian Pink</i> , double
Double of each	Single
Double-quilled	Large imperial
<i>French Marigold</i> , the striped	<i>Alkekengi</i>
The yellow	<i>Palma Christi</i> , the common
Sweet-scented	Tall red-stalked
<i>China-aster</i> , the double	Smaller green-leaved
Double purple	Smallest
Double white	<i>Tobacco</i> , long-leaved Virginia
Double-striped	Broad-leaved
<i>Marvel of Peru</i> , the red striped	Branching perennial
Yellow-striped	<i>Love Apple</i> , with red fruit
Long-tubed	With yellow fruit
<i>Chrysanthemum</i> , the double white	<i>Gourds</i> , the round smooth orange
Double yellow	Rock, or warted
Double-quilled	Pear-shaped yellow
<i>Sweet Sultan</i> , the yellow	Pear-shaped striped

Stone colored	<i>Zinnia</i> , red
<i>Bottle Gourd</i> , some very large, from two or three to five or six feet long, and of various shapes	Yellow
<i>Momordica Balsamina</i>	<i>Amaranthus</i>
<i>Persicaria</i>	<i>Tree Amaranthus</i>
<i>Indian Corn</i> , the tall Dwarf	Prince's feather amaranthus
<i>Nolana prostrata</i> , blue	Love-lies-bleeding amaranthus
<i>Convolvulus</i> , scarlet-flowered	<i>Cannacorus</i> , yellow
<i>Yellow Balsam</i> , or Touch-me-not	Red
<i>Capsicum</i> , long red-podded	<i>Chinese Hollyhock</i> , the variegated
Long yellow-podded	<i>Ten-week Stock Gilliflower</i>
Red, short, thick, roundish podded	The double red
With heart-shaped pods	Double white
With cherry-shaped fruit, red	Double purple
Cherry-shaped fruit, yellow	<i>White Ten-week Stock</i> , with a wall-flower leaf
<i>Basil</i> , the common, or sweet-scented	With double and single flowers
Bush basil	The double of this sort makes a pretty appearance

The following are hardy annuals, requiring no assistance of artificial heat, but should all be sown in the place where it is designed they shall flower:—


<i>Adonis Flower</i> , or Flos Adonis, the red-flowering	<i>Convolvulus</i> , major
The yellow	Minor
<i>Candytuft</i> , the large	Striped
Purple	White
White	Scarlet
<i>Larkspur</i> , the double rose	<i>Ketmia bladder</i>
Double-branched	<i>Starry Scabius</i>
Large double blue	<i>Hawkweed</i> , the yellow
Double white	Purple, or red
<i>Lupins</i> , the rose	Spanish
Large blue	<i>Carthamus tinctorius</i> , or saffron flower
Small blue	<i>Nasturtium</i> , the large
Yellow	Small
White	<i>Cerithe major</i> , or great Honey-wort
Scarlet	<i>Tangier Pea</i>
Marbled	<i>Sweet Pea</i> , the painted lady
<i>Sunflower</i> , the tall double	The purple
Double dwarf	White
<i>Lavatera</i> , red	Scarlet
White	<i>Winged Pea</i>
<i>Poppy</i> , the double tall striped variation	<i>Crowned Pea</i>
Dwarf-striped	<i>Nigella</i> , or devil in a bush the long blue, or Spanish
Double corn poppy	The white
Horned poppy	Oriental mallow, called

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| <p>Venetian mallow
 <i>Lobel's Catchfly</i>, white and red
 <i>Arbiscus</i>
 <i>Pimpernel</i>
 <i>Dwarf Lychnis</i>
 <i>Venus's Navel-wort</i>
 <i>Venus's Looking-glass</i>
 <i>Virginian Stock</i>
 <i>Strawberry Spinach</i>
 <i>Noli me tangere</i>, or <i>Touch-me-not</i>
 <i>Heart's Ease</i>
 <i>Snail Plant</i>
 Large ditto
 <i>Caterpillar Plant</i>
 <i>Hedgehog Plant</i>
 <i>Antirrhinum</i>, snap-dragon, the annual
 <i>Nolana</i>, blue
 <i>Cyanus</i>, or corn-bottle, the red
 White
 Blue
 <i>Roman Nettle</i>
 <i>Belvidere</i>, or summer cypress
 <i>Garden</i>, or <i>common</i>, <i>Marigold</i>, the
 common single
 Double orange</p> | <p>Double lemon-colored
 Double lemon-colored ranunculus
 marigold
 <i>Annual Cape Marigold</i>, with a violet
 and white flower
 <i>Mignonette</i>, or <i>reseda</i>, the sweet-
 scented
 The upright
 <i>Xeranthemum</i>, or <i>eternal flower</i>, red
 and white
 <i>Purple Clary</i>
 <i>Purple Jacobæa</i>
 <i>Dracocephalum</i>, the purple
 Blue
 <i>Capnoides</i>, or <i>bastard fumitory</i>
 <i>Ten-week Stock Gilliflowers</i>, in variety
 <i>Persicaria</i>
 <i>Tobacco Plant</i>
 Long-leaved,
 Round-leaved
 <i>Indian Corn</i>
 <i>Amethystea</i>
 <i>Globe Thistle</i>
 <i>Clarkias</i></p> |
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CHAPTER VI.

ROSES AND JASMINES.

HESE most delicious, most elegant flowers—in themselves a garden—are worthy of a chapter devoted exclusively to their culture. What cottage exists without its roses twined around the doorway, or blooming up its pathway? What is sentiment without its roses? What other flower illustrates the beauty and excellence of a loved one?—

“Oh! my love is like the red, red rose,
That sweetly blows in June.”

Every gentle feeling, every exquisite thought, every delicate allusion, is embodied in the rose. It is absurd to say the rose by any other name “would smell as sweet.” It is not so. Poetry, painting, and music, have deified the rose. Call it “nettle,” and we should cast it from our hands in disgust.

There are innumerable varieties of roses, from the cottage rose to the fairy rose, whose buds are scarcely so large as the bells of the lily of the valley. Mrs. Gore mentions some hundreds of sorts, but such a catalogue is too mighty to insert in my little work. I will name only the well-known hardy kinds, and refer my reader to Mrs. Gore herself for the complete collection. Seed yields such inexhaustible varieties, that a new list will be required every ten years.

The *Damask rose* is very useful from its properties, as well as its beauty and hardihood. Rose-water is distilled from this bright, thickly-blowing flower

The *Cabbage roses* is the most beautiful, as well as the most fragrant of roses. All others are varieties of roses, but this grand flower is the "rose itself."

It throws out suckers plentifully for propagating its kind ; and every two or three years, the root of each bush will part into separate plants. Cut the roots slanting with a sharp knife as you divide them. A very small bit of root is sufficient for a rose-bush, as they are hardy in their nature. Do not move roses oftener than you can help : they delight in being stationary for years.

In pruning roses of every description, which should be effected in January, shorten all the shoots to nine inches only, and cut away all the old wood, which becomes useless after two or three years' growth. This treatment insures fine flowers.

Roses love a good soil, as, indeed, what flower does not? Fresh mould applied to them every two or three years, or manure dug round them annually, preserves them in constant vigor and beauty.

Shoots of rose-bushes laid down and pegged like layers, only without gashing, when the flowers are in bloom, will root and become plants in the autumn. Pinch off their buds, that they may throw their strength into their roots.

Roses are often observed to change their color, which effect proceeds chiefly from bad soil. When this occurs, manure the root of the bush or plant. A clay soil, well dressed with ashes, is the best of all soils for the hardy roses.

Moss roses love a cool soil and a cool aspect. They soon fade in a hot sun.

A pyramid of climbing roses is a beautiful object in a garden. Iron or wooden stakes, twelve feet in height, gradually approaching each other, till they meet at the top, with climbing roses trained up their sides, is a pleasing and easily constructed orna-

ment. Fancy and taste may range at will in inventing forms to ornament the parterre with roses. Beds of roses, raised pyramidally, have a splendid effect. When the flowers die away in the autumn, the mass may be clipped again into form, with the garden shears, as you would clip a laurel hedge.

Standard roses, which are so much in fashion at this time, and which always remind one of a housemaid's long broom for sweeping cobwebs, are beyond a lady's own management, as budding is a troublesome business, and very frequently fails. I will not, therefore, touch upon that subject.

The *double yellow rose* is very elegant. It requires a western aspect, and even prefers north and east, but a warm aspect injures its beauty. It loves a good substantial soil, and will not bear much cutting or removing. Let it alone in its glory, only pruning away the old scraggy wood occasionally, to strengthen the plant.

The *monthly rose* is also a lover of the north and east. It blooms through the autumn and winter, has an evergreen leaf, and loves a strong soil. It must be propagated by cuttings, and parting the roots, as it never throws up suckers. Prune away the old wood, and make cuttings in June, July, and August, of the branches you clear away. Plant the cuttings in loose, moist earth, and do not let them bud till the following year. Let the cuttings be sunk two joints in the earth, leaving only one exposed. The monthly rose climbs, or creeps.

The *Austrian briar*, or *rose*, will not flower if exposed to the south. It bears a rich mass of flowers, yellow outside, and deep red within. Give it an eastern or western aspect.

The *perpetual*, or "four-season" rose, requires a rich soil. The flower buds appearing in June or July should be pinched off, and in winter the plant may be pruned as closely as its

hardier companions. Place the four-season rose in a sheltered situation from winds.

Among the hardy climbing roses, the *Ayrshire rose* is the most useful. Its foliage is rich, and it covers fences, walls, &c., with astonishing rapidity. It flowers in July. Place it in a warm situation, and it will extend thirty feet in one season.

Lady Banks's yellow rose is a pretty climber, and flowers early in all situations. So does the *Rosa sempervirens*.

Climbing roses will grow luxuriantly under the shade of trees, and form a mass of fragrant underwood in shrubberies. They grow with surprising vigor if allowed to remain prostrate. Plant these thinly, and lay in the most vigorous shoots, by pegging them down into the ground. This process increases the plants rapidly, and gives the gayest possible effect.

The *Rosa hybrida multiflora* is a hardy and rapidly growing rose. It flowers also from June to September. So does the red and crimson Boursault, and the *Rosa Russeliana*.

Roses are subject to the green fly, which disfigures their beauty, particularly the white roses. An excellent remedy for this annoyance is effected by moistening the plant, and then dusting it over with equal portions of sulphur and tobacco dust.

The following list of roses will not prove beyond a lady's management, being hardy, and requiring only pruning every January, and giving them a good soil. Prune the white rose-trees very sparingly, as they do not love the knife:—

Roses, early cinnamon
 Double yellow
 Single yellow
 Red monthly
 White monthly
 Double white
 Moss Provence
 Common Provence
 Double velvet

Single Ditto
 Dutch hundred-leaved
 Blush ditto
 Blush Belgic
 Red ditto
 Marbled
 Large royal
 York and Lancaster
 Red damask

Blush ditto	Virgin, or thornless
Austrian, with flowers having one side red and the other yellow	Common red
White damask	Burnet leaved
Austrian yellow	Scotch, the dwarf
Double musk	Striped Scotch
Royal virgin	Apple-bearing
Rosa mundi, <i>i. e.</i> , rose of the world, or striped red rose	Single American
Frankfort	Rose of Meux
Cluster blush	Pennsylvanian
Maiden blush	Red cluster
	Burgundy rose
	Perpetual, or four-season

HARDY CLIMBING ROSES.

The Ayrshire rose	Rosa sempervirens, three sorts
Double ditto	Rose ruga
Rose hybrida multiflora	Red Boursault
Rose Clair	Crimson ditto
Rosa Russeliana	Lady Banks' yellow rose
Reversa elegans	

JASMINES.

Jasmines grow in very irregular forms. Perhaps their luxuriant wild appearance constitutes their chief grace. The jasmine is a beautiful screen in summer, wreathing its festoons through trellis-work; and it appears to me that Nature presents not, in our colder climes, a more fragrant and beautiful bouquet than a mixture of roses and jasmines.

The common jasmine is hardy, and loves a good soil, by which term I mean kitchen garden soil. Trench round the stem occasionally to lighten the earth, and it will grow very freely. Put litter round the jasmine in severe frost; and if a very rigorous season destroy the branches, the root will be saved, and its shoots in the spring will soon replace the loss. If they shoot out with displeasing irregularity and confusion, take off the least healthy looking branches, and cut away those which grow *rumped*, for they only consume the juices of the plant to no purpose. The common jasmine is propagated by layers and slips.

The *Arabian jasmine* is very fragrant, but it does not endure cold, or much heat, therefore an eastern aspect suits it best. If the Arabian jasmine is grown in a large pot or box, it could be placed under cover during frost in the winter months; but do not place it in a green-house, which would be in the other extreme again.

The *yellow jasmine* may be treated like the common jasmine. It is not very fragrant, but it forms an elegant variety.

I have seen very fanciful and beautiful devices invented to display the beauty of the jasmine. Their shoots grow so rapidly and luxuriantly, that if the plant is allowed to luxuriate, it will soon cover any frame-work with its drooping beauty. The jasmine loves to hang downwards; and I have admired inventive little arbors, where the plant has been trained up behind them, and the branches allowed to fall over their front in the richest profusion, curtained back like the entrance of a tent. The effect, during their time of flowering, was remarkably elegant.


When you prune the jasmine, cut the branches to an eye or bud, just by the place from which they sprout, and that in such a manner, that the head when trimmed, should resemble the head of a willow. This method makes them throw out abundance of branches and fine flowers.

Give fresh soil to the jasmine every two years, or they will gradually become weakened in their blooms. The secret of having fine flowers is in keeping up the soil to a regular degree of strength, as the human frame languishes under change of diet, and becomes weakened for want of food. Thus it is with animate and inanimate nature.



CHAPTER VII.

ORNAMENTAL SHRUBS AND EVERGREENS.

 SHALL speak now of the ornamental shrubs which decorate a flower garden, and which a lady may *superintend* herself, if her own physical powers are not equal to the fatigue of planting. A laborer, or a stout active girl, may act under her orders, and do all that is necessary to be done, in removing or planting flowering shrubs and evergreens.

In planting flowering shrubs, be very particular to plant them at such distances that each plant may have plenty of room to grow, and strike out their roots and branches freely. If shrubs are crowded together, they become stunted in growth, and lanky in form.

If you are forming a clump, or even a plantation, let each shrub be planted six feet apart from its neighbor: but if you wish to plant roses, syringas, honeysuckles, lilacs, &c., in your flower borders, they should be from twelve to fifteen feet distant from each other, so as not to interfere with the flowers growing below them.

Do not plant tall shrubs promiscuously among low-growing ones. Let the taller shrubs form the back-grounds, that each shrub may be distinctly seen. The shrubs should be trained up with single stems, and they should be pruned every year, taking up the suckers, and removing disorderly branches.

By allowing each shrub plenty of room, it will form a handsome head, and throw out vigorous shoots. You will also have

space to dig between the shrubs, and the sun and air can benefit them.

Some of the more beautiful evergreens look extremely well dotted about the grounds singly or in clumps, but be very particular in planting your shrubs.

For instance, when you wish to transplant or plant a shrub, dig a circular hole sufficiently large to receive the roots of the plant, which must be laid neatly down, while some person holds the shrub in its proper position, straight and upright. Cut away any dead or damaged roots; then break the earth well with your spade, and throw it into the hole, shaking the plant gently, just to let the earth fall close in among the roots. When it is well filled up, tread the earth gently round the shrub to fix it, but do not stamp it, as I have seen people do.

But if you can take up shrubs with a ball of earth round their roots, they do not feel the operation, and their leaves do not droop. Water each shrub after planting: give each of them a good soaking, and let each plant have a stake to support it during the winter.

October is the autumn month for transplanting shrubs, and February and March are the spring months. I always prefer the autumn transplanting, as the rains and showers are so fructifying. March is the last month for transplanting evergreens.

Laurustinus, Phillyreas, and Laurel, are excellent shrubs to plant near buildings, or to hide a wall. They are evergreen summer and winter, very hardy, and quick growing.

The *Pyracantha* is an elegant shrub, with its clusters of red berries; and it looks gay during the autumn and winter.

The *Arbutus*, or strawberry tree, is loaded with its strawberries in August, September and October. This is a beautiful shrub, placed singly on a lawn, kept to one single clean stem, and a fine branching head.

Portugal laurels are beautiful: their deep green leaves, and scented feathery flowers, make them an important shrub in all gardens.

It has been ascertained by the late severe winter, that evergreens are extremely hardy, and will bear any severity of frost. All those evergreens considered most tender, such as Portugal laurels, rhododendrons, &c., were observed to brave the frost unhurt, which were placed in high unsheltered places, or facing the east and north. It was observed, also, that those evergreens were destroyed whose aspect was south and west, and which lay in warm and sheltered situations. The cause was this. The shrubs did not suffer which were not subject to *alternations* of heat and cold; while those which lay in warm situations, being thawed by the sun's rays during the day, could not endure the sudden chill of returning frost at night.

Plant your evergreens, therefore, fearlessly in exposed situations; and care only, in severe winters, for those which are likely to be thawed and frozen again twice in twenty-four hours.

Rhododendrons are very beautiful shrubs, and grow into trees, if the soil agrees with them. They love a bog soil.

The *Camelia japonica* is considered a green-house plant, but it becomes hardy, like the laurel, if care is taken to shelter it for a few winters, when it gradually adapts itself to the climate. This is troublesome, perhaps, as most things are, to indolent people; but the trouble is well repaid by the beautiful flowers of the japonicas, its dark leaves, and delicate scent.

The gum *Cistus* is a handsome evergreen, and looks well anywhere and everywhere. Some straw litter spread round their roots in winter is a great protection.

All evergreens of a hard-wooded nature are propagated rapidly by layers in June or July. This is the method:—Dig round the tree or shrub, and bend down the pliable branches; lay them

into the earth, and secure them there with hooked or forked sticks. Lay down all the young shoots on each branch, and cover them with earth about five inches deep, leaving the tops out about two, three, or four inches above ground, according to their different lengths. If these branches are laid in June or July, they will root by Michaelmas; but if they are laid in October, they will be a twelvemonth rooting.

The layers of *Alaternuses* and *Phillyreas* will sometimes be two years rooting, if done so late as October; therefore lay down your shoots, if possible, in June. Let the shoots which are layered be those of the last summer's growth.

You may propagate shrubs also from cuttings in February and October. Let strong shoots be chosen, of last summer's growth: choose them from nine to fifteen inches long, and, if you can, take about two inches of old wood with the shoots at their base. Trim off the lower leaves, place the cuttings half way in the ground, and plant them in a shady border to root. Do this in February, in preference to October, as everything roots earlier from spring operations. You may also plant cuttings in June, but keep them moist and shady.

October is a good month for taking up suckers of lilacs, roses, &c., and for all sorts of transplanting in its varieties. It is also the month to transplant the layers of such shrubs as were laid in the previous October.

I subjoin a list of hardy deciduous shrubs and evergreens, not too tall to admit into a moderately sized flower garden:—

DECIDUOUS SHRUBS OF LESSER GROWTH.

Arbutus, Strawberry tree
Common
Double-flowering
Red-flowering
Eastern, or *Andrachne*

Almond, common
White-flowering
Early dwarf, single flower
Double dwarf
Althæa frutex, striped

- Red**
White
Blue
Purple
 Pheasant's eye
Andromeda, striped
 Evergreen
Jalca, with red flowers
 White
Berry, common, red fruit
 Stoneless, red fruit
 White fruit
Bladder-nut, three-leaved
 Five-leaved
Broom, the Spanish
 Double-flowering
 Yellow Portugal
 White Portugal
 Lucca
Bramble, double-flowering
 American upright
 White-fruited
 Dwarf
 Thornless
Chionanthus, Fringe, or Snowdrop tree
Candleberry Myrtle, broad-leaved
 Long-leaved
 Fern-leaved
 Oak-leaved
Cherry, double-blossomed
 Cornelian
 Dwarf Canada
Currant, with gold and silver-blotched leaves
 With gooseberry leaves
 Pennsylvanian
Dogwood, the common
 Virginia
 Great-flowering
 Newfoundland
Empetrum, black-berried heath
Guelder Rose, common
 Double, or snowball
 Carolina
 Gold-blotched leaf
 Currant-leaved
Hydrangea, white-flowering
Honeysuckle, early red Italian
 Early white Dutch
 Late Dutch
 Late red
 Long-blowing
 Large scarlet trumpet
 Small trumpet
 Oak-leaved
 Early white Italian
 Early red Italian
Ivy, deciduous, or Virginian creeper
Jasmine, the common white
 Common yellow Italian
 Gold-striped leaved
 Silver-striped leaved
Lilac, blue
 White
 Purple, or Scotch
 Persian, with cut leaves
 Persian, white-flowered
 Persian, blue-flowered
Lonicera, upright Honeysuckle
 Red-berried
 Blue-berried
 Virginian
 Tartarian
Mezerion, white
 Early red
 Late red
 Purple
Mespilus, spring-flowering
 Lady Hardwick's shrub
Peach, double-flowering
Privet, common
 Silver-striped
 Yellow-blotched leaves
Ptelea, or American Shrub Trefoil
Pomegranate, single-flowering
 Double
Robinia, or false Acacia
 Common
 Yellow-flowered
 Scarlet-flowered, or rose acacia
 Caragana
Rhamnus, or Buckthorn.
 Common
 Sea buckthorn
 Yellow-berried
 Creeping evergreen
Raspberry, double-flowering
 Virginian sweet-flowering
Rose, in every variety
Spiræa frutex, common red
 Scarlet
 White

Sumach, scarlet
 Large downy
 White
 Virginia
 Elm-leaved
 Myrtle-leaved
 Carolina
Syringa, common
 Dwarf double-flowerin
Scorpion Senna

Smilax, broad-leaved
 Blotched-leaved
Tulip Tree
Tamarisk, the French
 German
Viburnum, or Wayjarer
 Common
 Stripe-leaved
 American broad-leaved
 Maple-leaved

EVERGREENS.

Alaternus, common
 Blotched-leaved
 Jagged-leaved, plain
 Ditto, striped
 Silver-striped
 Gold-striped
Cistus, or Rock Rose
 Gum Cistus, with spotted flowers
 With plain white flowers
 Purple sage-leaved
 Male Portugal
 Bay-leaved gum
 With hairy willow leaves
 Black poplar-leaved
 Waved-leaved
 Purple, or true Gum Cistus of
 Crete, with other varieties
Zytisus, Neapolitan
 Canary
 Siberian and Tartarian
Laurustinus, common
 Broad, or shining-leaved
 Rough-leaved
 Oval-leaved
Bay, broad-leaved
 Narrow-leaved
Phillyrea, the true
 Broad-leaved
 Privet-leaved
 Prickly-leaved
 Olive-leaved
 Gold-edged
 Silver-edged
 Rosemary edged
Juniper, common
 Swedish
 Sclavonian

Canada
Jasmine, evergreen
Pyracantha
Ivy, common
 Striped-leaved
 Virginian
 Irish, or quick-growing
Honeysuckle, evergreen
Rose, the evergreen
Rhododendron, dwarf Rose Bay
Kalmia, olive-leaved
 Broad-leaved
 Thyme-leaved
Coronilla, narrow-leaved
 Broad-leaved
Magnolia, laurel-leaved
 Lesser bay-leaved
Arbor Vitæ, common
 China
 American
Cypress, common upright
 Male spreading
Bignonia, the evergreen
Widow Wail
Locust of Montpellier
Medicago, Moon Trefoil
Stoncrop Shrub
Ragwort, the sea
Holly, the common
 Carolina broad-leaved
 Yellow-berried
 Many varieties
Laurels, common
 Portugal
 Alexandrian
Oak, Ilex, or evergreen
 Kermes, or scarlet-bearing.

Gramuntian, holly-leaved
 Carolina live.
Germander, shrubby, of Crete
Euonymus, evergreen Virginia
Virginia Groundsel Tree

Wormwood, lavender-leaved
Spurge, or wood laurel
Knechtolm, or Butcher's Broom
Horse-tail, shrubby


In pruning shrubs, be careful to cut out the long rambling shoots of the last summer's growth, which disfigures their appearance. Cut away, also, branches of shrubs which interlace each other, that every shrub may stand clear and well-defined. Take away their suckers, and let each shrub be kept to a single stem, as I have before observed.



CHAPTER VIII.

ON HOUSE AND WINDOW GARDENING.

(BY MR. CHARLES MACKINTOSH.)

HE culture of flowering and sweet-scented plants, as ornaments in human dwellings, has been practiced from such remote antiquity that no one can name the date of its origin. House plants are also a kind of ornaments which all the labors of the most refined art can never exceed or even reach; and hence in the most refined and luxurious states of society, flowers maintain a high place among the leading ornaments; and the assembly-rooms of beauty and fashion, and the banqueting-halls of the noble and the great, would look tame and barren without those most beautiful and most appropriate decorums.

Farther, it is one of the great merits of these lovely productions of nature, that they are for the humble as well as for the high. The humblest window in the most obscure and crowded court of a city may have its flower-pot; and they who are cut off by occupation or other circumstances from the free range of growing nature, may still command a little vegetable kingdom of their own in a few well-selected and carefully-attended flowers.

A species of ornament, which is in its own nature so pleasing and so innocent, which requires far less labor and expense than many other ornaments of very inferior value, and which adapts itself to every imaginable class of society, is surely worthy of the study, the encouragement, and the care of all who seek happiness to themselves, or wish to promote the happiness of others.

That there is no want of love for such plants is evident from the places in which they appear; but the kind and state of the plants very generally show that there is a great want of knowledge, both in their selection and their management. In order to contribute a little to the supplying of this defect, we propose to offer a very brief compendium of what the French and Germans call "Window Gardening;" and in order to render what we state as clear as possible, we shall divide it into several heads, or points.

PLANTS PROPER FOR WINDOW CULTURE.

As the situation of these plants is different from what they occupy in their natural state, it becomes necessary to select such as are capable of accommodating themselves to circumstances; and as the unfavorable circumstances of house plants are chiefly want of free and pure air, and of light, and in those species which are accustomed to long seasons of repose in the winter, to uniform temperature, these circumstances must be kept in mind in the selection. Rooms, especially in crowded cities, are the most unnatural, and, on that account, the very worst situations in which plants can be placed; and therefore, if healthy plants and an abundance of bloom are sought for, variety must be sacrificed.

Plants which will continue healthy for a long time in the confined air of rooms, are generally those which have a peculiar surface, or texture in the foliage: such are many of the *Aloes*, *Cactuses*, *Mesembryanthemums*, among what are called succulent plants; and, in a higher temperature, some of the curious *Epiphyta*, or the natural order *Orchideæ*. We recollect once seeing a very interesting collection of more than two hundred species, growing in a high state of perfection, in the house of an amateur of succulent plants, living in the Grand Sablon at Brussels. The

room containing them was fitted up much in the same way as an ordinary library, with abundance of light shelves round the walls, and a large table in the middle of the room, on which were placed the pots containing the plants. At night, the room was lighted up by an elegant glass lamp, and it was heated by one of those ornamental stoves which are so common on the Continent. Altogether, it had a very handsome appearance.

The Chinese are very attentive to the house culture of many of the orchideous epiphytæ, and thereby greatly increase the beauty and the fragrance of their apartments; they have them in ornamental vases and baskets, and even suspended in the air, where they last for many years and flower beautifully. Some of them continue in flower for many months, and diffuse the most delightful fragrance during the night.*

The reason why the succulent and epiphytous plants answer so well for house culture is, that their winter is one of drought and not of cold, and that the latter especially have little, and some of them no mould at the roots in their natural situations. But there has been hitherto a prejudice against, or at all events an ignorance of, and want of attention to, the culture of succulent plants in this country. This is unwise; for many of them are exceedingly beautiful, highly fragrant, and better adapted for house culture than any plants whatever. They are singularly curious and varied in their structures; and, generally speaking, they require less light, air, and moisture, than other plants.

Next to them, in point of eligibility for house culture, may be reckoned such plants as have coriaceous leaves, that is, have their leaves firm, and with a smooth and compact epidermis,—such as oranges, pittosporums, myrtles, and others of similar texture; these are found to have organs much better adapted to confined

* *Rynanthera coccinea* is one of the finest of these, and was first flowered in this country by the author of this paper.

air than plants which have the leaves small or of delicate texture. Some tribes, as the heaths, the *Ericaceæ*, and the whole race of pinnate-leaved and papilionaceous flowered plants, are wholly unfit for house culture.

TREATMENT OF HOUSE PLANTS.

Water, heat, air, and light, are the four essential stimulants to plants; water, heat, and air, to promote growth; and light to render that growth perfect.

Water, heat, and air, man can command at his pleasure by artificial means; but over light, as an element of the perfect growth of plants, we have less control. To be beneficial to plants, light must come directly from the sun; and therefore the plants should be so placed, as that it may act upon them with as little as possible of that refraction and decomposition which it suffers when it passes obliquely through glass, or any other medium except the air. Plants grown in the open air, and with such free exposure to the light as their habits require, not only develop all their parts in their proper form, but their leaves, flowers, and fruits, have their natural colors, odors, and flavors. Plants excluded from light have not their natural color, odor, nor flavor, they make little or no charcoal in the woody part, the leaves are not green, and if they do flower and fruit, which is rarely the case, the flowers are pale and scentless, and the fruit is insipid. This has been proved by many experiments, of which the blanching of celery and endive by earthing up, and that of a cabbage by the natural process of hearting, are familiar instances. A geranium placed in a dark room becomes first pale, then spotted, and ultimately white; and if brought to the light it again acquires its color.

If plants kept in the dark are exposed to the action of hydrogen gas, they retain their green color, though how this gas acts has

not been ascertained. Some flowers, too, such as the crocus and tulip, are colored though grown in the dark.

Light seems to be fully as essential to plants as air or heat, and while it acts beneficially on the upper surfaces of the leaves, it appears to be injurious to the under surfaces, at least of some plants; for in whatever way a plant is placed, it contrives to turn the upper surfaces of its leaves to the light. Professor Lindley is, we believe, making some experiments on this subject.

Plants in rooms turn not only their leaves, but their branches to the window at which the light enters, and a plant may, by turning it at intervals, be made to bend successively to all sides; but such bendings weaken the plant, and thus it is an excessive or unnatural action. This turning of the plant to the light is always of course in proportion to the brightness of that light as compared with the other sides of the plant. Flowers, too, open their petals to the light, and close them in the dark, or in some cases, as in that of the crocus, when a cloud passes over the sun. The same flower, and also some others, will open their petals to the light of a lamp or candle, and close them again when that is withdrawn.

It follows as a necessary consequence, that in rooms, plants should be placed as near the window as possible, that the windows should have a south exposure, and that they should be as seldom as possible shaded with blinds or otherwise. If placed at a distance from the windows, plants should be frequently changed, and to place them permanently on tables or man-shelves is bad management.

Air is as necessary to the health of plants as light; but air can find its way where light cannot, and therefore it requires less care from the cultivator. If the air is too close, opening the door and windows produces a change, the warm air escaping at top, and cold air coming in below; but on opening the windows of a warm

room in cold weather, care must be taken not to chill the plants by leaving them in the cold current.

The heat of ordinary dwelling-houses is quite enough for such plants as we would recommend for general culture in rooms, only, in very cold weather, the plants should be removed a little further from the windows. The blinds and shutters are usually a sufficient protection during the night ; and we may remark that plants in rooms are more frequently killed by too much heat than by too much cold.

Spring and autumn are the times of the year at which window plants require the greatest attention. It is usual to have the plants outside the windows even during the night in the summer season, and kept in the house both night and day in the winter season. In the intermediate seasons of spring and autumn the plants are frequently placed in their summer situation during the day, and it is desirable that then they should be placed in their winter situation during the night. Our climate is so variable at those seasons, that we not only have summer during the day, and winter during the night, but whole days of summer and winter alternating with each other. Sometimes we have warmer days in April than in May or June, and occasionally we have more severe frosts in the beginning of September, than any which occur again till November is nearly over. Now it is not the absolute heat or cold, but the rapidity of the transition from one to the other which is injurious to plants, and therefore it is absolutely necessary for all such as would have their house plants in the perfection of beauty, to attend to those circumstances. This is more especially necessary in towns, where the people are much less interested in the changes of the weather, and therefore much less observant of them than they are in the country ; and we have no doubt that more plants are destroyed from want of attention to those variable periods of the year than from any other cause. It is a safe

rule to trust no plant less hardy than a common *Geranium* outside the window all night, earlier than about the twentieth of June, or later than the first of September. No doubt there are many nights before the first of these times, and after the latter, during which the plants might remain in the open air without injury. There is, however, no knowing what a night may bring forth at those inconstant seasons, and therefore the safe plan is not to leave the plants to chance.

When, as often happens, plants get slightly injured by rost, cold water should be sprinkled on them before the sun reaches them, and this sprinkling ought to be continued as long as any appearance of frost remains on the foliage.

Water is often very injudiciously applied to plants in rooms, and the evil arises from falling into the opposite extremes of too much and too little. Fear of spoiling the carpet, forgetfulness, and sometimes a dread of injuring the plant, are the chief causes of an under supply of water. On the other hand, many have a notion that such plants should be watered every day, or at stated periods, without inquiring whether it be necessary or not. Saucers or pans are often placed under flower-pots to prevent the water, which escapes, from soiling the apartment, but in these cases the saucers should be partly filled with gravel, to prevent the roots from being soaked with water, or the water which lodges in the saucer should be removed.

Fanciful and elegant baskets of wire or wicker-work, and plant-tables are, perhaps, preferable to common stages. The baskets should have a pan, of zinc, copper, or other metal, and over this a bottom pierced with holes, or a grating of wire, on which the pots are to be placed. The pan is generally about an inch deep, and has a plug or other contrivance by which the surplus water may be drawn. Plant-tables can be constructed in the same manner, and admit of an endless variety of forms, according to the

taste of the owner. In either of these the pots may be wholly concealed by green moss, or cut paper, so that nothing but the plants themselves may appear.

Water is as essential to the whole plant as it is to the roots, because they are liable to collect dirt, and thereby to be injured; they should, therefore, be frequently washed over with a syringe having a rose to it, and in order to perform this operation properly, the plants must generally be removed to some other apartment where they should remain till they are dry. In winter this operation must be performed in mild weather only; it should be done in an apartment not colder than that in which the plants usually stand, and the water should be about milk warm. When the plants are in baskets or on tables, they can be removed and washed without deranging their order. Plants which have large and leathery leaves, such as oranges, pittosporums, camellias, and myrtles, may be washed with a sponge, or if very foul they may be washed with soap, and the soap carefully removed by pure water. Loose dust may be removed by a pair of bellows. Attention to cleanliness greatly increases the vigor of the plant.

House plants are greatly benefited by being placed out of doors in the summer months, especially during gentle showers; and such as have no other convenience may advantageously place them outside the windows. They may also be syringed and washed in this position, and if the owner is not in possession of one, a common watering-pot, held high, so that the water may fall on the plant with considerable force, is a tolerable substitute.

Plants respire by their leaves, as animals do by their breathing apparatus, and it is on this account that keeping the leaves clean is so very essential to the health of plants. Indeed, the dust which collects on them, and interrupts their respiration, is one of the greatest evils which can befall plants, especially in rooms and on balconies in towns. The respiring pores are generally large

in proportion as the leaves are so ; and this is one of the reasons why delicate-leaved plants are not so well adapted for house culture as those which have the leaves larger and firmer.

Light has also a considerable effect in promoting the healthy action of leaves, and many plants fold up their leaves in the dark, or even when the sky is lowering. This, though it has no resemblance to sleep in animals, has been called the sleep of plants, and the curious reader may find an interesting notice of it in the "*Amœnitates Academicæ*" of Linnæus.

THE SUPPLY OF HOUSE PLANTS.

There are many ways of doing this ; but to those who have the opportunity, and choose to be at the expense, there is, perhaps, none better than that of contracting for the year with some skilfull and respectable nurseryman ; in this case the plants will be attended by the contractor, and kept in the best condition. Much pleasure is, however, sacrificed by those who adopt this mode, inasmuch as the chief enjoyment of plants arises from the feeling that they are the nurslings of our own care ; and it is astonishing how strongly the judicious treatment of plants leads to judicious management in all other matters.

Plants, except such as are novelties and sought only by the curious, may always be had at moderate prices from respectable growers. Covent Garden furnishes an abundant supply for London, and those who are not so particular may have them of the hawkers. In dealing with these people, some care is however necessary ; very many of the plants which they offer for sale are thrown away or stolen, and in both cases they are taken up without any regard to the preservation of the roots, and thus there is a considerable chance against their success. Those injured plants are made to look healthy for a little time by means of an over

supply of water, but they soon languish in the possession of the purchasers.

Another very hazardous mode of purchasing plants is at those sales which are very frequently got up in the spring and autumn. At these, purchasers have no security that the plant is healthy, or that it is what it professes to be, and thus they often pay a higher price for a worthless article in a diseased state, than a regular nurseryman would charge them for a good plant in the finest condition. Such a nurseryman has always character at stake, but the other parties, generally speaking, have none.

MANAGEMENT OF BULBS IN GLASSES.

This is a favorite mode of house culture, and the bulbs best adapted for it are hyacinths, polyanthus-narcissus, Van Thol, and other tulips, crocus, Persian iris, narcissus, colchicum, Guernsey lily, jonquil, and others.

Spring-flowering bulbs are usually purchased in September, and the autumnal ones in July and August, and the largest and best-formed bulbs should be chosen; an abundant supply may be obtained at little cost at the seed-shops and nurseries. To be blown in winter or spring, the bulbs are placed in water in October, and so on in succession till February or March; and for autumn and early winter, they are placed in the water in August and September. Dark-colored glasses are the best, as they prevent the light from decomposing the roots of the plants. Rain water is preferable to any other, and it should be changed frequently, not less than once every third or fourth day, to prevent its getting putrid; and in performing this operation care must be taken both in withdrawing and in replacing the roots. This is necessary only till the flowers have expanded; for after this the plants may be left undisturbed until the flowers have decayed.

The water which is supplied must not be colder than that which is withdrawn, or than the general temperature of the apartment. Much heat is not necessary for such plants, because they flower better the more slowly their vegetation proceeds. Chimney-pieces and other warm situations are not nearly so well adapted for those bulbs as stages near the window, or the window-sill itself.

A better mode of growing those bulbs than the common mode in glasses, would be in a table with a deep pan, and a wire grating on the top. This might be placed about nine inches from the bottom of the pan, and the roots arranged on it, the taller ones in the center, and those of more lowly growth towards the sides. The water in the pan might be drawn off by a plug, and fresh water supplied, without in the least disturbing the plants.

Bulbs may also be grown in fine white sand, kept constantly moistened, and in this way very beautiful blooms may be obtained.

NOSEGAYS AND CUT FLOWERS.

Though these are very acceptable to most persons, there are few who rightly understand the art of keeping them long in a fresh state, or of reviving them when they have faded. It is true, that when a flower or branch is cut off from its parent plant, its support is thereby destroyed; but still some flowers may be kept in great beauty for a much longer period than others, and many for a far longer time than is generally done, or even supposed possible.

For this purpose, flowers should be gathered early in the morning, but not till the dew be nearly dried off them. They should be placed in a flat basket, or on a tray, so as not to press upon and crush each other; and they should be neatly cut, and not mangled or bruised. When thus gathered, they should be

covered with a sheet of paper, and immediately conveyed to the apartment where they are to be used, if that apartment be near at hand. But if they are to be sent to any distance, they should be placed in tin cases, such as botanists use when collecting specimens. We have sent flowers, in such cases, for several hundred miles, and found most of them in good condition at the end of a journey of three or four days' continuance. In this way the Dutch florists send specimens of their finest flowers not only to England, but to more distant parts of continental Europe. Our own florists send to the metropolis, for competition at exhibitions, flowers from Cornwall, from the north of England and from Scotland, and they arrive without the least decay. They are placed in wooden or tin boxes, having an internal arrangement of small phials, fixed under a covering of tin or wood, perforated with holes, just large enough to admit the stalks of the flowers, the ends of which are placed in the water of the phials, and in this way they are conveyed with perfect safety.

Flowers should not be cut during sunshine, or kept exposed to the solar influence; neither should they be collected in large bundles and tied tightly together, as this invariably hastens their decay. When in the room where they are to remain, the ends of the stalks should be cut clean across with a very sharp knife (never with scissors), by which means the tubes through which they draw the water are left open, so that the water ascends freely, which it will not do if the tubes of the stems are bruised or lacerated. An endless variety of ornamental vessels are used for the reception of such flowers, and they are all equally well adapted for the purpose, so that the stalks are inserted in pure water. This water ought to be changed every day, or once in two days at the furthest, and a thin slice should be cleanly cut off from the end of each stalk every time the water is removed, which will occasion fresh action and revive the flowers. Water,

about milk warm, or containing a small quantity of camphor, will sometimes revive decayed flowers. The best method of applying this, is to have the camphor dissolved in spirits of wine, for which the common camphorated spirits of the druggists' shops will be quite sufficient; and to add a drop or two of this for every half ounce of water. A glass-shade is also useful in preserving flowers; and cut flowers ought always to be shaded during the night, and indeed at all times when they are not purposely exhibited. The following are some of the genera of plants the flowers of which remain longest after being cut:—*Gnaphalium*, *Astelma*, *Helichrysum*, *Phænocoma*, *Aphelaxis*, and others, which the French have designated “immortal flowers,” from remaining unchanged by decay, hold the first rank. Next to these come the whole natural order, *Proteaceæ*, many of *Gramineæ*, several of *Cruciferae*, several in *Rhamnaceæ*, several in *Cassuviæ*—the genus *Acacia* in *Leguminosæ*, all *Calycanthaceæ*, most of *Myrtaceæ*, most of *Dipsacæ*, several of *Compositæ*, most of *Ericææ*—the genera *Lavendula*, *Sideritis* and *Phlomis*, in *Labiatae*, all *Orobanchææ*, all *Plumbagineæ*, all *Amaranthaceæ*, many of *Orchideæ*, *Strelitzia*, and *Heliconia* in *Musaceæ*.

INSECTS AND DISEASES OF HOUSE PLANTS.

Plants in rooms, especially geraniums and roses, are very liable to be attacked by aphides. These may be easily removed by tobacco smoke or tobacco water; and where the smell is not offensive, smoke blown from a common tobacco pipe is as effectual as any other method. Camphorated water may be used by those who dislike the smell of tobacco. Mildew, occasionally, though rarely, attacks house plants. It appears like a white powder, and is supposed to consist of minute fungi; but these fungi are not the original disease, but its consequences, and their

appearance shows that the plant has been in impure air or otherwise improperly treated. Sulphur or camphor will effectually remove this mildew; and a scaly insect of the coccus tribe, which appears occasionally on oranges, camellias, and similar plants, may be removed by a sponge and water.

Many persons have a dislike to plants in houses as being unhealthy; and as this dislike is in a great measure groundless, we may notice it. Dr. Priestley was the first to show that the leaves of plants absorb carbonic acid gas by their upper surfaces, and give out oxygen by their under ones, thereby tending to purify the air in as far as animal life is concerned; because carbonic acid gas is pernicious to animals, and oxygen is what that life acquires. It is in the light, however, that these operations are carried on; for in the dark, plants give out carbon; and this may be one reason why plants grown in the dark have little or no charcoal in their substance. It does not appear, however, that any of the scentless products given out by plants are injurious to human beings; because those who live among accumulated plants are not less healthy than others; though many persons feel dislike and even pain from the odors of particular plants, in a way not very easily accounted for.

On the Continent in general, and in France and Germany in particular, flowers of all sorts, but particularly the most fragrant, are admitted into the saloons, chambers, and even bed rooms of people of all classes; and they, rather than complain of any ill effects arising from their presence, complain more of the difficulty of procuring them in sufficient abundance. The flowers most in demand for the chambers of the French and Germans are, oranges, jasmine, carnations, honey-suckle, mignonette, olive, rocket, rose, violet, wall-flower, rosemary, stock, lavender, savory, oleander, hyacinth, lilac, syringa, heliotrope, narcissus, &c., all sweet-smell-


ing flowers; and these they indulge in to a very considerable extent.

We may safely conclude, then, that plants admitted into rooms to the extent that they are in general, can produce no effect injurious to the health of persons in general, but, on the contrary, will afford amusement to the mind and exercise to the body, both of which are so necessary towards the enjoyment of good health. The mind will be agreeably exercised in contemplating the beauty of the flowers, but more so still if the study of their respective parts, natures and structures, in a botanical or physiological point of view, be at the same time attended to. An agreeable and rational exercise will be provided for the body, if the proprietor, particularly if of the softer sex, take the entire management of her little *Window Garden* into her own hands.



CHAPTER IX.

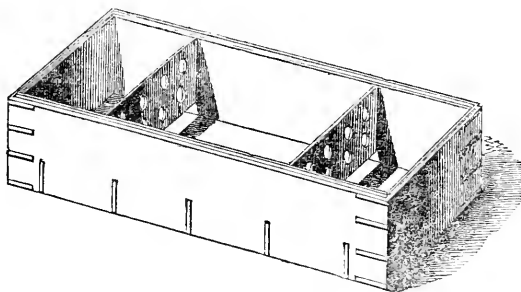
DOMESTIC GREENHOUSES.*

EFORE entering on a description of this apparatus, the circumstances under which it was discovered may be briefly adverted to. Mr. Ward, the gentleman to whom we are indebted for the discovery, is a surgeon, residing in Wellclose Square, London. From his earliest youth Mr. Ward has been attached to botanical pursuits; but living in a densely populated neighborhood, surrounded with manufactories, and enveloped in the smoke of London in its very worst form, he had been compelled to give up the cultivation of plants, until the following simple incident seemed to point out a mode by which he could follow his favorite amusement with some degree of success. He had buried the chrysalis of a sphinx in some moist mould, which was inclosed in a glass bottle covered with a top. In watching the bottle from day to day, he observed that when exposed to the warmth of the sun the moisture rose from the mould, and became condensed on the inner surface of the glass, and again fell back upon the mould during the night, thus keeping up a continual moisture in the atmosphere within the glass; he also observed about a week prior to the final change of the insect, a seedling fern and grass appear on the surface of the mould. After having secured the insect, Mr. Ward set himself to observe

* The materials for this paper are chiefly from Chambers's Edinburgh Journal, with some slight additions from Mr. Ellis's paper read to the Botanical Society of Edinburgh.

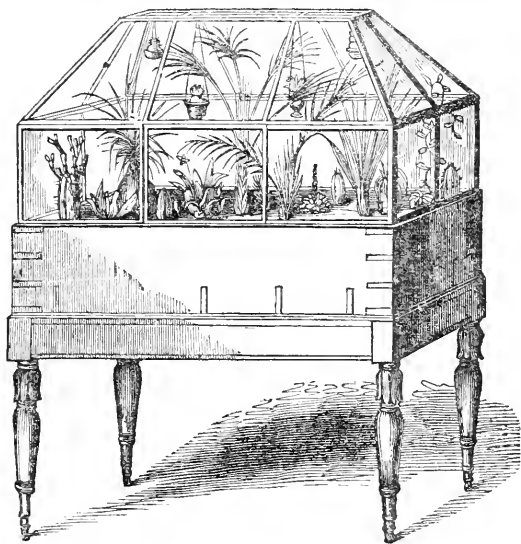
the development of these plants in this confined situation. He placed the bottle outside the window of his study, where the plants continued for several years to exhibit a healthy vegetation, suggesting at the same time further experiments, which have led to a most extraordinary result, when we consider, that by this simple application of the laws of nature as regards atmosphere, the most forbidding local circumstances may be overcome, and that any person, whether inhabiting the most humble or the most splendid dwelling, provided it be freely exposed for a few hours every day to the sun's light, has it in his power to rear and cultivate a miscellaneous collection of plants, to enjoy the beauty of their appearance, and to watch their progress through all the stages of their growth, at an expense so insignificant as to be within the means of every man even in very moderate circumstances.

To do this he must provide an apparatus consisting of a box, a stand, and a glass roof, of a size according to his desires and means. We shall suppose one is wanted of a small size to stand in a window in an apartment of limited dimensions. The stand,



we will suppose, is one foot ten inches in height, the box which is to contain the mould eight inches and a half, and the glass frame one foot seven inches and a half;—in all four feet two in-

ones in height by three feet in length and a foot and a half in breadth. If elegance is aimed at, the box should be made of mahogany, and supported on four legs, furnished with movable castors; the box which is to contain the soil, eight and a half inches in height, should be made of well-seasoned St. Dominge mahogany, steeped in Kyan's composition, for a fortnight; the sides, one and a quarter inches thick, mitered and dove-tailed together at the corners. The bottom of the box should be Honduras mahogany, one inch thick, formed of numerous small pieces,



framed and flush-paneled, and arranged so as best to resist the yielding of the wood. To give it greater strength, two cross pieces or ties stretch from side to side at equal distance from each other; these are dove-tailed on each side, thus dividing the box into three compartments, but leaving open spaces under the

ties and holes through their centers to permit the moisture to percolate freely through the whole of the mould. The bottom being properly fitted, the sides are fixed to it with brass nails—no iron being used in any part. When completed and filled with plants, the apparatus appears something like the cut on p. 93.

At the upper edge of the box a groove is sunk to receive the lower edge of the glass roof which rests securely in it. This groove is lined with brass; its inner lip is one sixteenth of an inch lower than the outer, and at each end is a notch one fifth of an inch only above the bottom of the groove to allow the condensed moisture which trickles down the inside of the glass to flow back into the mould.

The frame-work cover of which we have now to speak is made of brass, with a door on one side, made to fit close. The glass used for it may be of flattened crown-glass; that for the door should be plate-glass. The panes must be fitted in the frames with great care, and with a putty specially made for the purpose, which should, when dry, receive three coats of paint. Along the top of the roof, hooks or brass rods may be placed, from which small pots may be suspended. The whole of the frame-work should be well fitted, and nicely put together, so as to preclude as far as possible all interchange between the air in the case and that in the room.

We now come to the preparation for the plants. Lay the bottom of the box with pieces of broken earthenware, to a depth of two inches, as an open subsoil. Next, lay a stratum of turfy loam one inch deep, and fill in the remainder of the space with soil, composed of equal portions of peat and loam, mixed with about one-twentieth part of rough white sand, free from iron. The artificial garden-plot is now ready to receive the plants. Plant these in the usual manner, and then shower over them, with a fine rose watering-pot, from three to four gallons of water, till

the soil be pretty well saturated, and the liquid begins to run off by the two openings in the bottom. After draining thus for twenty-four hours, cork up the holes, place the glass-case on the box, and the operation will be finished.

After the first preparation, the plants require little or no care ; the case need only be opened for the removal of dead leaves, or for a little trimming, when required. Plants in open flower-pots are exposed to the vicissitudes of change of climate, and require constant watering ; but the plants in these cases seem to be independent of any change of temperature in the air, and water themselves. The moisture rises by the sun's influence from the moistened earth, cherishes the leaves of the plants in its aerial condition, and during the cool of night falls to the earth again like rain or dew. In this manner there is a constant succession of rising and falling of moisture, in imitation of the great processes of nature, daily going on in the fields around us. The plant-case is a little world in itself, in which vegetation is supported solely by the resources originally communicated to it.

Not the least remarkable part in the economy of the case is the preservation of atmospheric purity. To all who reflect for the first time on this subject, it will seem incomprehensible how the plants can possibly thrive and blossom without the occasional interchange of fresh air with the atmosphere. This certainly does appear extraordinary, yet it is ascertained by experiment that no such reinvigoration is requisite. To account for the phenomena, it will be necessary to explain the constitution of atmospheric air, and the means adopted by nature for its purification.

Air consists of three gases in close mechanical union—nitrogen, oxygen and carbonic acid, in the proportion of about 79 of nitrogen, 20 oxygen, and 1 of carbonic acid, in 100 parts of pure air. In this mixed composition, the essential element for the support of respiration in both animals and plants, and also for combustion,

is the oxygen, the nitrogen being little else than a diluent to modify the strength of the oxygen. It was long believed by men of science that plants possessed the power of exuding oxygen, and so formed a prime agent for restoring vitiated air to purity. Later investigations, however, chiefly by French chemists, have made it evident that plants have no such power, unless when placed under the influence of the sun's rays, or, in other words, that solar light is the grand cleanser of the atmosphere, and without which both plants and animals languish and die. With respect to plants in particular, it is ascertained that, while inhaling oxygen and expiring carbonic acid, their leaves possess the remarkable property, in conjunction with the sun's light, of re-transforming the carbonic acid into oxygen. At night, when the light of day has departed, the expired carbonic acid may be detected in the neighborhood of plants; and hence one cause of injury to health by breathing night air; but when the morning sun again bursts upon the scene, a great chemical process commences in the atmosphere—the carbonic acid is decomposed, oxygen is evolved, and all nature rejoices in a recreation of its appropriate nourishment.

A question will here readily occur—what species of plants are best adapted for these domestic greenhouses? We are fortunately enabled to answer this inquiry by referring to a learned paper on the subject by Mr. Ellis, which was read to the Botanical Society of Edinburgh, January 13, 1839, and afterwards published in the Gardener's Magazine, and also as a separate pamphlet. According to this gentleman's statement, the plants most suitable are "those which partake largely of a cellular structure, and possess a succulent character, and especially those which have fleshy leaves; whilst, on the contrary, the continued humidity is unfavorable to the development of flowers of most exogenous plants, except such as naturally grow in moist and shady situations." Plants, therefore, which have to grow and

bloom in cavernous and moist situations, or in moist and warm climates, are best adapted for these cases. However, within this class of vegetables there are many beautiful and highly luxuriant plants, which it would afford no small pleasure to contemplate. The following is a list of plants from various countries, which were set in a box, under Mr. Ellis's directions, and examined from nine to twelve months afterwards :

BOTANICAL NAMES.	COUNTRY.	REMARKS.
<i>Chamærops humilis</i>	Italy, Sicily, Spain	Increased 1-4th its original size
<i>Centiana verna</i>	England	Flowered, but no difference in size
<i>Adiantum Capillus Veneris</i>	England	Increased 1-8th
<i>Primula farinosa</i>	Scotland	Flowered; atmosphere rather damp for it
<i>Primula scotica</i>	Scotland	Flowered; atmosphere rather damp for it
<i>Verbascum Myconi</i>	Scotland	Increased 1-8th
<i>Androsace villosa</i>	Scotland	Flowered; not very healthy
<i>Chamærops Palmetto</i>	Carolina	Increased 1-3d
<i>Dionæ'a Muscipula</i>	Carolina	Made 1-8th
<i>Sarracenia purpurea</i>	Carolina	Increased 4 times its original size
<i>Epigæ'a repens</i>	Carolina	Increased one-half
<i>Testudinaria elephantipes</i>	Cape of Good Hope	Made a shoot 10 inches long
<i>Aloe retusa</i>	Cape of Good Hope	Made 1-3rd, showing flower
<i>Rhododendron chrysanthum</i>	Siberia	Increased one-half [spikes]
<i>Chamæcistus</i>	Austria	Increased 1-3d
<i>Cycas revoluta</i>	China	Increased 1-8th
<i>Nepenthes distillatoria</i>	Ceylon	Increased 2-3ds
<i>Cypripedium venustum</i> in- signe	Nepal	Increased 1-5th
<i>Agave geminiflora</i>	Nepal	Increased 1-4th
<i>Agave geminiflora</i>	Mexico	Increased 1-3d
* <i>Goodyera discolor</i>	Mexico	No perceptible difference
* <i>Echinocactus multiplex</i>	Mexico	Increased one-half
* <i>peruviana</i>	Mexico	Increased one-half
<i>myriacantha</i>	Mexico	Increased one-half
* <i>formosa</i>	Mexico	Increased 1-3d
<i>O'ttoni</i>	Mexico	Increased 1-4th
<i>candida</i>	Mexico	Increased one-half
<i>Epiphyllum truncatum</i>	Brazil	Increased 2-3ds
<i>Cereus flagelliformis</i>	Peru	Increased one-half
<i>Lycopodium stoloniferum</i>	Cuba	Very luxuriant

Those marked thus * are growing in fancy pots, and suspended from the roof of the plant-case.

The alternate action of vitiation and purification is emphatically described as follows by Mr. Ellis, in the pamphlet before us:—
“ Under a bright sunshine, the two processes by which carbonic acid is alternately formed and decomposed go on simultaneously ; and their necessary operation, in as far as regards the condition of the air, is that of counteracting each other. Hence, though both may be continually exercised in favorable circumstances, the effects of neither on the atmosphere can be ascertained by ordinary means ; and, consequently, though, in the experiments of De Saussure with common air, the production and decomposition of carbonic acid by plants in sunshine must have been continually going on, yet, in all the analysis which he made, the air was found unchanged, either in purity or volume ; in other words, the processes of formation and decomposition of this acid gas exactly counterbalanced each other.

“ Of the two processes which have now been described (continues our authority), each may be considered as in its nature and purpose quite distinct from the other ; hence their efforts may be readily distinguished ; neither do they necessarily interfere, when actually working together. The first or deteriorating process, in which oxygen gas is consumed, goes on at all times and in all circumstances when vegetation is active. It requires always a suitable temperature in which to display itself ; and when that temperature falls below a certain point, which is very variable in regard to different plants, the process is more or less completely suspended, again to be renewed when the temperature shall return. This conversion of oxygen into carbonic acid is as necessary to the evolution of the seed as to the growth of the plant, and is all that is required for germination. But the plant requires something more ; for if light be excluded, vegetation proceeds imperfectly, and the plant does not then acquire its proper color, and other active properties which it ought to have. The chief

organs by which the consumption of oxygen gas is effected are the leaves; and its purpose, in great part at least, seems to be that of producing some necessary change in the sap during its transmission through those organs, on its way from the vessels of the wood to those of the inner bark, whereby it may be rendered fit for the purposes of nutrition and growth. In its nature and object, therefore, as well as in the specific change which it produces in the air, this process closely resembles the function of respiration in animals, and may thus with propriety be deemed a physiological process. The second, or purifying process, in which oxygen gas is evolved, differs in all respects from that which has just been described. It is in a great measure independent of temperature; at least it proceeds in temperatures too low to support vegetation, provided light be present—an agent not required for germination, nor essential to vegetable development. The organs by which this process acts on the air are, as before, the leaves; not, however, by changing the qualities of the sap in the vessels of those organs, but by producing changes in the chromule, or colorable matter, in their cells, to which it imparts color and other active properties. In doing this, it does not convert the oxygen gas of the air into carbonic acid, but, by decomposing that acid gas, restores to the air the identical portion of oxygen of which the former process had deprived it. The former process, carried on by the agency of the oxygen gas of the air, was essential to living action, and affected the well-being of the whole plant; that exercised by the agency of light is not necessary to life, is local, not general in its operation, and is capable of proceeding in circumstances and under conditions incompatible with living action. By withdrawing the air altogether, or depriving it of oxygen gas, vegetation soon ceases through the whole plant; but the exclusion of light from any part of the plant affects that part only; and even the total exclusion of that agent only de-

prives the plant of certain properties necessary to its perfection, but not essential to its life. These differences in the processes by which oxygen gas is alternately consumed and evolved, during the vegetation of plants in sunshine, are so manifest, both in their nature and effects, as to satisfy the ascription of a name to the latter process distinct from that given to the former. It might, perhaps, be denominated the chemical process, in contradistinction to that named physiological.

“It would contribute much, we think, to simplify our inquiries concerning vegetation, to bear in mind these distinctions; to consider the one process as accomplished by the agency of the air, and essential to the life and growth of the plant; the other, as subordinate, depending on the agency of light, and though necessary to the perfection of vegetation, yet not essential to its existence. In this manner each process may be followed out separately, both in regard to its immediate effects and remoter consequences, without clashing with the other; and the apparently discordant and even contradictory phenomena which on a first view they seem to exhibit, may be reconciled, and considered, not less in theory than in fact, as conspiring together to form one harmonious and perfect whole.”


After these explanations, little need be added respecting the supply of pure air to domestic greenhouses. The deterioration of the atmosphere in the case is daily counteracted by an opposite process of purification, so that amidst the vicissitudes of perpetual change, the air is maintained in a state of nearly uniform composition and purity, and serves over and over again for all the purposes of vegetation. It may, however, be stated, to prevent misconception, that the more pure the air of the apartment, the plants will have the better chance of thriving, because there must necessarily be an interchange to some extent betwixt the air of the room and the case, in consequence of the daily expansion

from heat, and nightly condensation from cold. This interchange will be effected by the minute crevices in the apparatus, and therefore requires no special provision.



CHAPTER X.

MONTHLY NOTICES.

 RECAPITULATION of the work which each month presents to the gardener's notice will be useful. By occasionally glancing over the Monthly Notices, the memory is refreshed; and it will be found that even the three winter months allow the young gardener no remission from labor. There is something to be done in every week in the year—something to be attended to, which amuses the mind, interests the imagination, and benefits the general tone of mental and physical health.

JANUARY.

Let your *lawn* and *grass walks* be kept neat and smooth, by rolling, this month; and if any part of the grounds require fresh turf, this is the season for cutting and laying it down. If you live in the neighborhood of a common, that is the best ground for cutting turf, as the herbage is short, and free from nettles, docks, &c. Lay it down firm and even, allowing for the sinking of the newly-laid earth, about an inch or two. Roll it well, after having laid down the turf.

Keep the *gravel walks* also from weeds and moss, and roll them in dry weather. If you attempt to roll gravel in wet weather, the gravel clings to the roller.

Dig the clumps or spots where you mean to plant evergreens, in February and March, that the ground may be trenched in

readiness. The frost of this month will render newly-dug earth more friable, and the snow will enrich it.

If the weather is very settled and mild, you may still plant out hardy deciduous shrubs, such as sweetbriars, double bramble, double-blossomed cherry, dwarf almond, jasmines, honeysuckles, roses, lilacs, laburnums, guelder rose, *Spiræa frutex*, mezezeons, &c. Transplant each shrub with a good ball of earth round its roots.

Prune flowering shrubs now, where they require it, with a sharp knife, not with shears. When I say "flowering shrubs," I do not mean shrubs *in* flower, but shrubs that *do* flower.

Transplant suckers from the hardy flowering shrubs, if they have not been done before. Take them up with good roots, and support them neatly with stakes.

Cuttings of young shoots of hardy deciduous shrubs may be planted in mild weather, to root, and form good plants in the autumn. Layers may be also formed.

Protect all the choicer kinds of flowering shrubs, and all cuttings of every kind, from severe frosts, by spreading litter over them.

Plant tulips now—always providing the weather is mild—to blow late in the year; but they will not be so handsome as those which were planted again in September and October.

Plant any ranunculuses, anemones, &c., you may have out of the ground, to come in late blowing; but, like the tulips, they will not bear such fine blooms. Protect everything from severe weather, as well as you can, this month, particularly your choicer sorts of bulbs, and tuberous-rooted perennials.

FEBRUARY.

February is the first spring month, and the parterre will begin to make gradual approaches to gaiety and life. The anemones.

hepaticas, &c., will now bud and flower, if the weather is genial ; and the crocus and snowdrop will put forth their blooms to meet the sun on his returning march.

About the end of this month, you may begin to sow the hardy annuals. I prefer April, but it may not be convenient always to wait so long ; therefore sow now the seeds of hawkweed, lavatera, Venus's looking-glass, Venus's navelwort, candytuft, larkspurs, lupines, convolvulus, flos Adonis, dwarf lychnis, nigelia, annual sunflowers, &c.

This month, you may plant and transplant, fearlessly, all hardy, fibrous-rooted flowering perennials and biennials, such as saxifrage, gentianella, hepaticas, violets, primroses of all sorts, polyanthuses, double daisies, thrift, &c. ; rose champions, rockets, campanulas, sweet-williams, hollyhocks, scarlet lychnis, carnations, pinks, monk's-hood, perennial asters and sunflowers, &c.

Plant cuttings of roses, honeysuckles, and jasmines.

If the weather is mild, you may transplant many kinds of evergreen shrubs, such as phillyreas, alaternuses, laurels, laurustinus, pyracanthas, cistuses, &c. Let there be a ball of earth round their roots, when you take them out of the ground.

If box edging is required, plant it now ; water it, and the plants will soon root.

Dig the borders, carefully and lightly, with your garden fork ; make the garden look neat, and free from weeds ; clear away dead leaves ; sweep the lawn and walks ; and let spring advance in its proper order.

MARCH.

Now plant away. Evergreens cannot be moved at a better period. Deciduous flowering shrubs may also be still planted, such as *Althæa frutex*, *syringas*, roses, honeysuckles, mezereons,

sumach, laburnums, lilacs, jasmines, candleberry myrtles, guelder roses, &c.

Where the borders require filling up, the following plants may still be moved, but do it early in this month :—

Lychnises, campanulas, Canterbury bells, tree primroses, rockets, sweet-williams, wallflowers, columbines, monk's-hood, rose campions, perennial asters and sunflowers, foxgloves, &c.

Sow perennial and biennial flower seeds about the last week in this month. Stake your hyacinths, when the flower stems are tall.

Plant out layered carnations of last year, into the places where they ought to remain.

Give fresh earth to any plants in pots, such as carnations, pinks, auriculas, double sweet-williams, double stock gillyflowers, rockets, &c.

Sow annuals of all hardy kinds.

Transplant any hardy roses, which you may wish should blow late in the year.

Plant box, for edgings, still; and roll the lawn and grass walks.

Transplant any tenderer kinds of annuals which you may have been at the pains of raising in, or procuring *from*, a hot-bed.

Keep the garden quite free from weeds and dead leaves.

APRIL.

Now place sticks to every plant or stalk requiring support. Fix the sticks, or light iron rods, firmly in the ground; and tie the stems to each stick neatly, in two or three places.

Some *evergreens* may yet be removed, as laurels, laurustinus, Portugal laurel, cistuses, arbutus, magnolias, pyracanthas, &c.

Propagate auriculas, by slipping off their suckers and offsets, this month.

Sow carnation and polyanthus seeds still. Sow, also, perennial and biennial seeds.

Where any perennial or biennial fibrous-rooted flowers are wanted, transplant them only in the first week of this month, and they must have each a good ball of earth attached to them; but this work should be completed in February, or March at farthest.

Every sort of annual may now be sown.

Take care of your hyacinths, tulips, ranunculuses, and anemones now, for they will be hastening into bloom.

Place your auriculas, hyacinths, &c., which may be in pots, in a sheltered place, during heavy rains or winds; and shelter those flowers which are in the borders as well as you can. Trim them from dead leaves.

Keep your lawn and grass walks nicely mown and rolled, and your borders free from weeds and rubbish.

MAY.

Propagate perennial fibrous-rooted plants by cuttings.

Propagate double wall-flowers by slips of the young shoots of the head.

Sow annuals for succession; such as sweet-peas, nasturtiums, lavatera, lupines, flos Adonis, &c.

Take up those hyacinths, tulips, &c. which have done flowering, and dry them in the shade to put away.

Weeds grow quickly now: hoe them up wherever you see them. Support all flowers with sticks; train them upright. Clear away all the dead leaves from your carnations, and gently stir the earth round them with your smallest trowel.

Look round the borders now, and take off irregular shoots.

JUNE.

Propagate carnations by layers and pipings. Propagate double sweet-williams and pinks by layers and cuttings, or slips.

Propagate perennial fibrous-rooted plants by cuttings of the stalks.

Transplant the large annuals from the seedling bed to the places where they are to remain. Let this be done in showery weather, if possible.

Take up all bulbs, ranunculuses, and anemone roots, &c., as the flowers and leaves decay.

Water the delicate plants, if the weather proves dry: give a moderate watering every evening, but never in the heat of the day.

Sow yet some hardy annuals, such as ten-week stocks, virgin stock, &c.

Plant out China-asters, Chinese hollyhocks, ten-week stocks, large convolvulus, &c., but let each root have a ball of earth round it.

Examine the perennial and biennial plants, to cut off all dead, broken, or decaying shoots. Trim the African and French marigolds from their lower straggling shoots, that they may present a neat, upright appearance. Trim the chrysanthemums, which are apt to branch too near the root, and stake them neatly.

Plant out carnations and pink seedlings into their proper places.

Keep everything just moderately moist, if there is a long drought in this month.

JULY.

You may lay carnations and double sweet-williams still; but let it be done before the end of the second week in this month.

Propagate pinks by slips and pipings

Transplant the seedling auriculas which were sown last year, as also the seedling polyanthus.

Transplant the perennial and biennial seedlings which were not done last month, to remain till October.

Take up all bulbs as fast as they decay their leaves. If this month prove hot and dry, place your potted carnations in a sheltered situation, and keep them just moist.

Support flowering shrubs and plants, and cut away decayed stems. Keep the borders clean. Mow the lawn and grass walks. Plant autumnal bulbs.

AUGUST.

You may now begin to propagate some double-flowered and approved fibrous-rooted plants the end of the month, if they have done flowering—such, for instance, as the double rose campion, catchfly, double scarlet lychnis, double rocket, double ragged robin, bachelor's buttons, gentianella, polyanthuses, auriculas, &c.

Sow auricula and polyanthus seed on a warm, dry day; and remove carnation layers to some place where they may remain till October to gain strength.

Sow seeds of bulbs.

Sow anemone and ranunculus seed.

Remove all bulbs which have done flowering.

Cut and trim edgings of box. Clip holly, yew, and privet hedges.

Gather flower seeds.

Plant autumnal bulbs, if any are still above ground, such as colchicums, autumnal narcissus, amaryllis, and autumn crocus.

Trim the flower plants; mow the lawn and grass walks, and keep every department in neat order.

SEPTEMBER.

Transplant, in any moist or showery weather this month, the perennial and biennial seedlings to their proper situations, with a ball of earth round their roots.

Propagate fibrous-rooted plants.

Prepare the spots where you mean to deposit anemone and ranunculus roots any time between the end of this month and the end of October; and dig all beds and borders which are vacant, to prepare them also for receiving roots and plants next month.

Transplant peonies, flag irises, monk's-hood, fraxinella, and such like plants, to part their roots and remove each root to its destined position.

Transplant evergreens.

Plant cuttings of honey-suckles, and other shrubs.

Plant hyacinth and tulip roots for early spring bloom.

Plant box by slips or roots.

Mow grass lawn and walks. Clear away flower stems, and trim flowering plants.

Sow seeds of bulbous flowers, if not done last month.

OCTOBER.

This is a very busy month; for the garden should now be cleared and arranged for the season.

Transplant all sorts of fibrous-rooted perennial and biennial plants now where they are intended to remain.

Put the bulbs into the ground again; and transplant the different layered plants into their respective places.

Prune flowering shrubs of all sorts. Plant and transplant all hardy deciduous shrubs, and their suckers.

Dig up and part the roots of all flowers which require so doing, and replant them.

Plant cuttings of honeysuckles, laurels, &c.

Take up the roots of dahlias, and put them carefully away till May.

Trim evergreens.

Plant box edgings ; cut away the long, sticky roots, and trim the tops even.

Mow grass walks and lawns, and weed gravel walks.

NOVEMBER.

Prepare compost for a new year by raking dead leaves, soil, sand, &c., in a heap, to turn well over occasionally. Pour the brine, soap-suds, &c., from the house over it.

Transplant still all hardy kinds of flowering shrubs, suckers, &c.

Clear the borders from dead annuals, leaves, stumps, &c. ; shelter the choice bulbs and double-flowering plants.

DECEMBER.

Take care of every thing. Protect the more delicate roots from severe frost, by strewing ashes, sand, or litter over them. Prune shrubs, and dig between them.

If the weather is open, you may still plant hardy sorts of flowering shrubs.

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SAXTON'S COTTAGE AND FARM LIBRARY.

THE
AMERICAN ROSE CULTURIST;

BEING A

PRACTICAL TREATISE

ON THE

PROPAGATION, CULTIVATION, AND MANAGEMENT

OF

THE ROSE

IN ALL SEASONS; WITH A LIST OF CHOICE AND APPROVED VARIETIES,
ADAPTED TO THE CLIMATE OF THE UNITED STATES.

TO WHICH ARE ADDED

FULL DIRECTIONS FOR THE TREATMENT OF

THE DAHLIA.

Illustrated by Engravings.



“———No flower that blows
Is like the Rose, nor scatters such perfume.”

NEW YORK :

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ADVERTISEMENT.

THE marked effect with which the "Cottage Bee Keeper" was received, as the first of the series of "**Saxton's Cottage and Farm Library,**" has led the Publisher to issue the present treatise on the Rose and the Dahlia.

No pains will be spared in bringing out the succeeding volumes agreeably to the plan of the original design; and if practicable, it is hoped that they will be still more deserving of success than those which have already appeared.

The publisher acknowledges his indebtedness to Messrs. Lea and Blanchard, of Philadelphia, for the permission granted for using Landreth's "Dictionary of Modern Gardening," in the compilation of this work. He also takes this occasion to thank Mr. William H. Starr for the use of several engravings herein employed.

C. M. SAXTON,
AGRICULTURAL BOOK PUBLISHER,
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THE ROSE.

INTRODUCTION.

Rose ! thou art the sweetest flower
That ever drank the amber shower ;
Rose ! thou art the fondest child
Of dimpled Spring, the wood nymph wild.

ANACREON.



THE Rose, the emblem of beauty and the pride of Flora, reigns Queen of the Flowers in every part of the globe ; and the bards of all nations and languages have sung its praises. Yet what poet has been able, or language sufficient, to do justice to a plant that has been denominated the Daughter of Heaven, the glory of spring, and the ornament of the earth ? As it is the most common of all that compose the garland of Flora, so it is the most delightful. Every country boasts of it, and every behold-

er admires it. Poets have celebrated its charms without exhausting its eulogium ; for its allurements increase upon a familiarity, and every fresh view presents new beauties, and gives additional delight. Hence it renovates the imagination of the bard, and the very name of the flower gives harmony to his numbers, as its odors give sweetness to the air.

To paint this universal emblem of delicate splendor in its own hues, the pencil should be dipped in the tints of Aurora, when arising amidst her ærial glory. Human art can neither color nor describe so fair a flower. Venus herself feels a rival in the Rose, whose beauty is composed of all that is exquisite and graceful. It has been made the symbol of sentiments as opposite as various. Piety seized it to decorate the temples, while Love expressed its tenderness by wreaths; and Jollity revelled adorned with crowns of roses. Grief strews it on the tomb, and Luxury spreads it on the couch. It is mingled with our tears, and spread in our gayest walks; in epitaphs, it expresses youthful modesty and chastity, while in the songs of the Bacchanalians their god is compared to this flower. The beauty of the morning is allegorically represented by it, and Aurora is depicted strewing roses before the chariot of Phœbus:

“When morning paints the orient skies,
Her fingers burn with roseate dyes.”

The Rose is thought to have given name to the Holy Land where Solomon sang its praises, as Syria appears to be derived from *Suri*, a beautiful and delicate species of Rose, for which that country has always been famous; and hence called *Suristan*, or the “Land of Roses.” The island of Rhodes owes its name to the prodigious quantity of roses which formerly grew upon its soil.

Of the birth of the Rose, it is related in fable, that Flora having found the corpse of a favorite Nymph, whose beauty of person was only surpassed by the purity of her heart and chastity of her mind, resolved to raise a plant from the precious remains of this daughter of the Dryads, for which purpose she begged the assistance of Venus and the Graces, as well as of all the deities that preside over gardens, to assist in the transformation of the Nymph into a flower, that was to be by them proclaimed Queen of all the vegetable beauties. The ceremony was attended by the Zephyrs, who cleared the atmosphere, in order that Apollo might bless the new-created progeny by his beams. Bacchus supplied rivers of nectar to nourish it, and Vertumnus poured his choicest perfumes over the plant. When the metamorphosis was complete, Pomona strewed her fruit over the young branches, which were then crowned by Flora with a diadem, that had been purposely prepared by the celestials to distinguish this Queen of flowers.

Anacreon's birth of the Rose stands thus translated by Moore :

“ Oh ! whence could such a plant have sprung ?
 Attend—for thus the tale is sung ;
 When, humid from the silvery stream,
 Venus appeared, in flushing hues,
 Mellowed by ocean's briny dews —
 When, in the starry courts above,
 The pregnant brain of mighty Jove
 Disclosed the nymph of azure glance—
 The nymph who shakes the martial lance !
 Then, then, in strange eventful hour,
 The earth produced an infant flower,
 Which sprung, with blushing tinctures drest,
 And wantoned o'er its parent's breast.
 The gods beheld this brilliant birth,
 And hailed the rose—the boon of earth !
 With nectar drops a ruby tide,
 The sweetly-orient buds they dyed,
 And bade them bloom, the flowers divine
 Of him who sheds the teeming vine ;
 And bade them on the spangled thorn
 Expand their bosoms to the morn.”

The first Rose ever seen was said to have been given by the god of love to Harpocrates, the god of silence, to engage him not to divulge the amours of his mother Venus ; and from hence the ancients made it a symbol of silence, and it became a custom to place a Rose above their heads in their banqueting rooms, in order to banish restraint, as nothing there said would be repeated elsewhere ; and from this practice originated the saying, *sub rosa*, (under the rose,) when anything was to be kept secret.

Oriana, when confined a prisoner in a lofty tower, threw a wet Rose to her lover to express her grief and love ; and in the floral language of the East, the presenting a rose bud with thorns and leaves, is understood to express both fear and hope ; and when returned, reversed, it signifies that one must neither entertain fear nor hope. If the thorns be taken off before it is returned, then it expresses that one has everything to hope ; but if the leaves be stripped off, it gives the receiver to understand that he has everything to fear.

The Moss Rose is made the emblem of voluptuous love ; and the creative imagination of a German poet thus pleasingly accounts for this Rose having clad itself in a mossy garment :

The angel of the flowers one day
 Beneath a rose tree sleeping lay.

That spirit to whose charge is given
 To bathe young buds in dews from heaven,
 Awaking from his light repose,
 The angel whispered to the rose,—
 ‘ Oh, fondest object of my care,
 Still fairest found where all are fair,
 For the sweet shade thou’st given to me,
 Ask what thou wilt, ’tis granted thee.’
 ‘ Then,’ said the rose, with deepened glow,
 ‘ On me another grace bestow.’
 The spirit paused in silent thought—
 What grace was there that flower had not?
 ’Twas but a moment—o’er the rose
 A veil of moss the angel throws;
 And, robed in nature’s simplest weed,
 Can there a flower that rose exceed?’

SPECIES AND VARIETIES

BOTANISTS enumerate at least eighty distinct species of the *Rose*, and florists an almost innumerable number of varieties and sub-varieties, most of which are hardy, deciduous, or evergreen shrubs. To attempt a description or even to give a list of the names of all of these would be foreign to the design of this little treatise, and would be a needless waste of time, for the simple reason that many of them are unworthy of preservation, while in others, nothing short of the nicest and the most minute inspection can discover any difference.

The following are the names and characters of the more important and desirable members of this family, best adapted to this country and may be purchased at any of our principal florists:—

Bengal or Daily Roses.

<i>Names.</i>	<i>Color and Character.</i>
Animated,	Rosy blush.
Arsenie,	Light rose.
Augustine Hersent,	Superb rose.
Assuerus,	Crimson.
Admiral Duperre,	Dark rose.
Belle Isidore,	Crimson.

<i>Names.</i>	<i>Color and Character.</i>
Belle de Monza,	Dark rose.
Belle violet,	Violet purple.
Bisson,	Rosy blush.
Burette,	Dark red.
Cameleon,	Rose.
Cramoisi supérieur,	Crimson.
Cels,	Blush.
Comble de gloire,	Crimson.
Don Carlos,	Dark rose.
Duchess of Kent,	Pink.
Eugene Beauharnais,	Crimson.
Fabvier,	Scarlet.
Grandral,	Crimson.
Grandida,	Rose.
Hortensia,	Light rose.
Indica alba,	Pure white.
Jacksonia,	Bright red.
Louis-Philippe,	Crimson.
Lady Warrender,	White.
Laurencia,	Pink.
Marjolin,	Crimson.
Mrs. Bosanquet,	Large, blush.
Napoleon,	Rose, fine.
Reine de Lombardie,	Cherry red.
Samson,	Light rose.
Triumphant,	Crimson.
Vanilla,	Dark rose.

Tea-scented Roses.

<i>Names.</i>	<i>Color and Character.</i>
Archduchess Thereza,	White.
Aurora,	Blush.
Alba,	Pure white.
Arkinto,	Flesh color.
Adelaide,	Blush.
Antherose,	Blush white.
Adam,	Rosy blush.
Belle Marguerite,	Rosy purple.

<i>Names.</i>	<i>Color and Character</i>
Bougère,	Light rose.
Boutrand,	Rosy blush.
Bon Silène,	Superb red.
Bourbon,	White.
Barbot,	Blush.
Camellia,	White.
Caroline,	Bright rose.
Countess Albemarle,	Straw color
Duc d'Orléans,	Bright rose.
Devoniensis,	Creamy yellow.
Devaux,	Blush.
Delphine Gaudot,	White.
D'Arrance de Navarre,	Light pink.
Eliza Sauvage,	Pale sulphur.
Flon,	Buff.
Flavescens,	Yellow.
Golcondi,	Blush white.
Goubault,	Rosy blush.
Gigantesque de Lima,	Light yellow.
Gloria de Hardi,	Light rose.
Hyménée,	White.
Jaune Panaché,	Straw color.
La Sylphide,	Rosy buff.
Lilicina,	Lilac.
Lyonnais,	Rose.
La Pactole,	Yellow.
La Renomme,	White.
Madame Desprez,	White.
Mansais,	Rosy buff.
Niphetos,	White.
Odoratissima,	Rich blush.
Princesse Maria,	Blush.
Princesse d'Esterhazy,	Light rose.
Strombio,	White.
Triomphe de Luxembourg,	Rosy blush.
Victoria modeste,	Blush.
William Wallace,	Pale blush.

Bourbon Roses.

<i>Names.</i>	<i>Color and Character.</i>
Augustine Lelieur,	Bright rose.
Acidalie,	White, large, and fine.
Comte de Rambuteau,	Violet purple.
Ceres;	Dark rose.
Cytherea,	Rosy pink, very fragrant.
Comte d'Eu,	Bright carmine.
Doctor Rocques,	Purple crimson.
Dumont de Courset,	Deep purple.
Du Petit Thouars,	
Emilie Courtier,	Rosy red.
Gloire de Rosamene,	Brilliant crimson.
Gloire de Paris,	Bright red.
Grand Capitaine,	Brilliant scarlet.
Gloire de France,	Rose, very fragrant.
Hermosa,	Light pink.
Henri Plantier,	Pale rose.
Impératrice Josephine,	Creamy white.
Lady Canning,	Deep rose.
Madame Desprez,	Rosy lilac.
Madame Souchet,	Blush, fine.
Madame Lacharme,	Blush white.
Madame Nerard,	Light rose.
Maréchal de Villars,	Rosy purple, fine.
Ninon de l'Enclos,	Dark rose.
Paul Joseph,	Velvet crimson.
Princesse Clementine,	Deep rosy purple.
Phoenix,	Rose red.
Pierre de St. Cyr,	Light rose.
Queen,	Delicate blush.
Reine de Fontenay,	Brilliant rose.
Souchet,	Deep crimson.
Souvenir de la Malmaison,	Creamy white, fine.
Thérésita,	Bright carmine.

Remontant or Hybrid Perpetual Roses.

In Europe, these Roses are highly esteemed; here, their reputation as "perpetuals," has been seriously injured, in consequence of their having been, in many instances, worked on stocks unsuited either to them, or to our climate.—*Landreth.*

<i>Names.</i>	<i>Color and Character.</i>
Antinous,	Dark crimson.
Aubernon,	Clear red, very fine.
Augustine Mouchelet,	Clear bright rose.
Baronne Provost,	Fine rose color.
Comte de Paris,	Dark crimson.
Claire du Chatelet,	Purple red.
Clementine syringe,	Pale rose.
Comtesse Duchatel,	
Crimson or rose du roi,	Light crimson.
D'Angers,	Delicate rose.
Doctor Marjolin,	
Duc d'Aumale,	
Duchesse de Nemours,	Pale rose.
Duchesse de Sutherland,	Bright rose.
Edouard Jesse,	Dark purple crimson.
Isaure,	Bright pink.
Israel,	Sable.
Insigne D'Estotells,	
Josephine Antoinette,	Rosy blush.
Louis Bonaparte,	
Lady Fordwich,	Deep Rose.
Lady Alice Peel,	Rosy carmine.
La Reine, or Queen,	Rose color, superb.
Madame Laffay,	Brilliant rose.
Marquise Bocella,	
Mrs. Elliott,	Rosy red.
Melanie cornu,	Deep crimson.
Newton,	
Palmyre,	Blush.
Princesse Hélène,	Large deep rose.
Prince Albert,	Very dark crimson, fine.
Prudence Roeser,	Rosy pink.

<i>Names.</i>	<i>Color and Character.</i>
Prince de Salm,	Dark crimson.
Prince of Wales,	Rose carmine.
Reine de la Guillotière,	Brilliant crimson.
Desquermus or Royal,	Large rose.
Stanwell,	Blush, very fine.
Sisley,	Large bright red.

Noisette or Cluster-Flowering Roses.

<i>Names.</i>	<i>Color and Character.</i>
*Alba,	Creamy white.
*Aimée Vibert,	Pure white.
Bengal Lee,	Blush, fragrant.
Cadot,	Blush lilac.
Charles Tenth,	Purple.
Conque de Venus,	White rose centre.
Cœur Jaune,	White yellow centre.
Champneyana,	Rosy white.
*Comtesse de Grillion,	Blush.
Chromotelle,	Large yellow, fine.
*Euphrosine,	Pale yellow.
Fellenberg,	Crimson, superb.
*Gabriel,	Blush, fine.
Jaune Desprez,	Rosy yellow.
*Julienne le Sourd,	Rose.
Julie de Loynes,	White.
Lamarque,	Creamy white, fine.
La Biche,	Flesh color.
Lady Byron,	Pink, fine.
Lutea, or Smithii,	Fine yellow.
Landreth's carmine,	Carmine.
*La Nympe,	Pale rose.
Miss Simpson,	Blush.
Orloff,	Pink, fine.
*Ophire,	Yellow, fragrant.
Sir Walter Scott,	Deep rose.
Solfatare,	Superb dark yellow.
Vitellina,	White.

Climbing Roses.

These flower annually in immense clusters, grow rapidly, and are quite hardy.—*Landreth.*

<i>Names.</i>	<i>Color and Character.</i>
Banksia lutea,	Double yellow.
Banksia alba,	White.
Boursault,	Rose color.
Boursault purpurea,	Purple.
Boursault blush,	Large blush.
Boursault gracilis,	Bright rose.
Bengalensis scandens,	Large rosy white.
Félicité perpetuelle,	Blush white.
Grevillia,	Greville produces immense clusters, of various colors and shades, from white to crimson.
Multiflora,	Pink.
Multiflora alba,	Blush white.
Rubifolia, Single Michigan or Prairie,	
Rubifolia elegans,	Double pink.
Rubifolia purpurea,	Double purple.
Rubifolia, Queen of the Prairies,	Double pink.
Rubifolia alba,	Double blush white.
Russelliana,	Crimson cottage rose.
Sempervirens plena,	Superb white.
Triomphe de Bollwyler,	Blush white.
Laura Davoust,	White.

Microphylla Roses.

<i>Names.</i>	<i>Color and Character.</i>
Maria Leonida,	White, extra fine.
Microphylla rosea,	Rose color.
Microphylla odorata alba,	Creamy white.

Musk-scented Roses.

<i>Names.</i>	<i>Color and Character.</i>
Moschata,	White semi-double.
Moschata superba,	Pure white, very double.
Princesse de Nassau,	White double.

Hardy Garden Roses.

<i>Names.</i>	<i>Color and Character.</i>
Miaulis,	Rosy purple.
Coronation,	Purple crimson.
Reine des roses,	Bright crimson.
Duc d'Orléans,	Dark rose.
Painted Damask,	White.
Brennes,	Dark pink.
Rivers' George IV.,	Superb crimson.
Hybride blanche,	White.
Heureuse surprise,	Carmine.
Ranunculus,	Purple, compact.
La capricieuse,	Purple crimson.
Royal Provins,	Superb pink.
Du Roi,	Perpetual, bright red.
Harrisonii,	Yellow Austrian brier.
Moss, Single,	Crimson, very mossy.
Moss, Common,	Rose.
Moss, Luxembourg,	Crimson.
Moss, White,	Perpetual.
Moss, Crested,	
Moss, Adelaide,	
York and Lancaster,	Red and white.
Provins Belgic,	Large pink.
Four Seasons,	Pink.
Moretti,	Light rose.
Burgundy,	Rose, compact.
Persian,	Double yellow.
Village Maid, or La Belle Villa- geoise,	Rose, striped with lilac.
Austrian Brier	Deep yellow

In contemplating some of the best Roses from the various families, we cannot help admitting, that, compared with the old and still valued varieties, more than two-thirds even of our selections are not so good in character. The love of novelty is all-powerful; a shade of color, the slightest difference in habit, a different season of bloom, an alteration in the size or color of the foliage, the distinction between a slow and a fast growth, have always been considered sufficient by sellers to warrant a new name and a place in the catalogues; and the Rose, unlike all other flowers, began with better varieties than hundreds of their successors, or rather their younger rivals, proved to be.

Notwithstanding many of the early Roses were really beautiful, and hardly admitted of much improvement, we had, at a very early period of the fancy, such Roses as the Tuscan, the Cabbage, the Cabbage Moss, the Maiden's Blush, White Provence, and Double Yellow. These have, it is true, been succeeded by a few worthy of ranking with them, but they have to be selected from thousands infinitely worse, and hundreds which ought not, for the raiser's honesty, or the buyer's good sense, to have even passed the seed bed. If, therefore, we were to select, to lessen our readers' difficulty in choosing, we could not recommend them as Roses equal to old favorites; for not one in fifty would beat the few we have mentioned, and which ought to be the first they furnish.

The Provence Rose.

The Provence Rose, or, as it has been called, the Hundred-leaved Rose, is a distinguishing title for every Rose that has a remarkably double flower, unless there is something in the habit or character that claims for it another title. If this were understood, we should know what we are about. The Moss Rose would clearly come under this, were it not for the moss; for the old Cabbage Rose, and the Moss Rose strongly grown, would not be known from each other, except for the Moss; and the Moss Rose would be a Moss Rose, if ever so single, though its original were double and fine. Now, the Provences, of which the old Cabbage Rose is a sort of type, and generally called the Hundred-leaved Rose, ceases to deserve this name, if semi-double. So that although the origin of the family is rightly named, many pushed into the same list do not deserve the name.

Moss Rose.

This family is distinguished by the mossy appearance of their stems and the calyx, and therefore there is no difficulty in recognising any member of the family.

The French Rose.

This, to some of our readers, would appear to mean roses raised in France. It happens, however, that the original was, as many of the leading ones were, raised by Van Eden, in Holland, and it was years before the French raised a single seedling from them; nevertheless some of the so-called varieties were raised in France, but as there are hundreds raised in that country which are not belonging to this family, the distinguishing name fails; and were it not so, they are so unlike each other that one could not recognise, in any particular feature, enough to decide, nor do the rose growers themselves appear more certain.

Hybrid Provence Roses.

These are said to be intermediate between French and Provence roses, because they have the long shoots of one and the dense foliage of the other; the said long shoots and dense foliage being the characteristics of roses of other families in quite as large a degree, and even in this very family, we have varieties which seem to be between the Boursault and Provence. So that all is indecision, change, uncertainty, and frivolity. In this family, the distinguishing character is that they "are robust and hardy;" so are hundreds that do not belong to it.

Hybrid China Roses.

We are told of this family, that the numerous varieties give a combination of all that is beautiful in a Rose. They are said to owe their origin to all sorts of crosses; but there is a distinguishing feature in these, if it be adhered to: "leaves smooth, glossy, and sub-evergreen; branches long, luxuriant, and flexible." Then, again, we are informed "that hybrids produced from the Rose, impregnated with the **China**

Rose, are not of such robust and vigorous habits as when the China Rose is the female parent." This looks like plain, straightforward information; but it is followed by the same incertitude as some of the other distinguishing features of families. Mr. Rivers adds: "But, perhaps, this is an opinion not borne out by facts; for the exceptions are numerous, and like many other variations in roses, and plants in general, *seems to bid defiance to systematic rules.*" Of course, they do; and, with the exception of those names which bespeak a distinct character, the splitting of this beautiful flower into so many different families at all, was a very injudicious measure. Athelin, a Rose classed in this group, is called also a Hybrid Bourbon, and as it blooms in clusters, would have been much better understood if called a Noisette. It comprises other roses as unlike each other as can be well imagined, and many of them will shoot ten feet in a season, and would be much more at home if classed as Climbing Roses. Belle de Rosny, among this family, is nevertheless called also a Hybrid Bourbon, and many others of this family are destined to be removed, if the senseless distinctions by name are to be kept up.

White Roses.

Here we have an illustration of the extreme folly of the present distinctions. We are told the roses of this division may be easily distinguished by their green shoots, and leaves of a glaucous green, looking as if they were covered with a grayish impalpable powder; and flowers generally of the most delicate colors, graduating from a pure white to a bright but delicate pink.

The Damask Rose.

This is as incongruous a group as any. Blanche borde de rouge has flowers sometimes a pure white, at others margined with red. Claudine has flowers of a pale rose color. York and Lancaster, also classed among them, has flowers striped with red and white. Coralie is flesh color. Then we have Madame Hardy, which, we are fairly told, "is not a pure Damask Rose;" perhaps not, as it is white, and unlike all the rest. Then, there is the Duke of Cambridge, which Mr.

Rivers "at first thought a Hybrid China," and says, "will, perhaps, be better grouped with the Damask Roses."

Scotch Roses.

So long as this family was allowed to be kept select, these roses were very distinct; they make long briery shoots, and flower with small blooms almost like briars, the whole length of stems. They are exceedingly pretty, formed as a bank, or in clumps. They are not adapted for standards. They bloom early, and the Scotch nurserymen now boast of two or three hundred varieties; but like all the other families, there are many among them that have been raised from seed, and others imported, which are neither by name nor nature Scotch. *Amiable étrangère* is a French hybrid. *Adelaide* is a large Red Double Rose. *La Cenomane* is a French hybrid with large flowers, "not so robust as the pure Scotch varieties."

The Sweet Brier.

This lovely ornament, or rather tenant of the garden, is universally admired for the delicious fragrance of its foliage, and for nothing else. It is only necessary to say here, that others whose leaves are not fragrant have been placed with it to make a family; some of the new members having but little fragrance, and one, the Scarlet Sweet Brier, none at all.

The Austrian Brier.

Here we have the same evidence of indecision as to where things ought to be placed. In this scentless family we have Williams' Double Yellow Sweet Brier. In fact, the Sweet Brier and the Austrian Brier are muddled together so completely that catalogues do not agree, and the further we go, the more confusion we get into, and more instances occur of removal from one division to another.

The Double Yellow Rose

Here we have only two individuals, the old Double Golden Yellow, so beautiful and double as to be universally admired, and the *Jaune*, a dwarf kind, both shy bloomers under ordinary management, or,

when we come to the right of it, never blooming well till they are matured, which takes some years. Of course, there are many Double Yellow Roses, but only two are admitted into this select family.

Climbing Roses.

Here we might expect to find all those roses which, from their habits, were adapted to the fronts of houses, pillars, trellises, and other lofty stations. One would, at least, expect that, if Climbing Roses mean anything, it means all roses that will climb. No such thing. Having pushed, we know not how many roses that climb into other families, of course they cannot be here. We have various divisions in this family notwithstanding: First, we have the Ayrshire Rose, which is said to be a hybrid, accompanied by several others called Ayrshire Roses also; next, we have the second division, called *Rosa multiflora*, said to be a native of Japan, and a number of companions as unlike it as may be; not that there are any among this family that do not climb, but there are very many as good Climbing Roses shut out from it.

The *Queen of the Prairies*, or Michigan Rose, is remarkable for its perfectly hardy growth, flourishing equally well in Canada at the north, and in Texas at the south. It grows with unparalleled rapidity, exceeding all other roses of this family, covering an entire arbor or an old building in a short space of time. It blooms, also, after other summer roses are mostly gone, its flowers occurring in large clusters of different shades.

Evergreen Roses.

Here there can be no mistake: an Evergreen Rose must be an Evergreen Rose; but, although we have some enumerated, there are plenty of Evergreen Roses not admitted into this family, but pushed about in all directions, some crammed into the China, and some into the Hybrid China.

Boursault Roses.

This is said to be "a most distinct group of roses, with long reddish flexible shoots;" yet *Gracilis* is affirmed to be "unlike the other varieties of this division." They are said to be good Climbing Roses, making ten feet of growth in the season.

Banksian Roses.

The White and Yellow Banksian Roses are very beautiful plants, with small foliage and flowers, very graceful, and distinct as any in cultivation; yet we have a rose-colored hybrid introduced with them; a plant acknowledged to partake "as much of the character of the Boursault Rose, as of the Banksian."

Hybrid Climbing Roses.

These, one would think, are neither Climbing nor Dwarf, but between both. Not so, however; because *Rosa craculum* makes shoots from ten to fifteen feet in a season. *Madame d'Arblay*, or *Well's White*, has been formerly placed among the Evergreen Roses; but whether she misbehaved herself there, or was a great favorite here, is of no consequence. She was removed from that family to this. We are, however, informed, with regard to her sojourn among the family of Evergreens, and subsequent removal, that her "habit is so different and her origin so well ascertained, that Mr. Rivers removed her to the present family."

Perpetual Roses.

These, if the rose gentlemen would stick to the character, would be very easily defined—roses which have a complete season of bloom; which go off but a short time; make a fresh season of bloom, and so on. Not like the China Roses, always "growing and blooming," but fairly making different seasons of bloom, as complete as if a winter intervened.

The Bourbon Rose.

The original Bourbon Rose was a hybrid between the Common China and the Red Four Seasons. Of course, this was quite enough reason for rose growers to add to the family all that were something like it, and others that were nothing like it. Here let Mr. Rivers speak: "Diaphane is a small high-colored Rose, almost scarlet. This is not a true Bourbon." The fact is, there is nothing like the Bourbon Rose about it. Here we have also *Gloire de Rosamène*, unlike the Bourbon Rose in everything. It is a robust Climbing Rose, of which

even Mr. Rivers himself says, "As a Pillar Rose, it will form a splendid object." The White Bourbon, which the French cultivators are at war about, "some swearing," as Mr. Rivers tells us, "by all their saints that it is a veritable Bourbon, while others as strongly maintain that it is a Noisette;" and from its clustered flowers the latter are nearest right. But all this arises from the multiplication of families.

China Roses.

Everybody knows the Pale China and the Dark China Roses, which may be seen decorating the cottages of our industrious classes as well as the gardens of the rich. They were, however, Bengal Roses, and not natives of China. Now the distinguishing characteristic of the Bengal, or, as now called, China Rose, is smooth bark, with the thorns distant from each other; shining leaves, and constant growing and blooming. These features could be well understood by everybody; but everything that can be at all traced to have any one of these features, and cannot be easily placed in other families, must come to this; and so we have plenty, and a most beautiful family it is.

Tea-scented China Roses.

This is an acknowledged variation of the Bengal, or, as the rose dealers will have it, China Rose; but it is a true China, imported into England from that empire in 1810. It is said to have been the parent of this large family; but here we have the same difficulty that presents itself in other families—there is no place to draw the line; they are China Roses, and only China Roses, but they are stronger scented than the Bengal, called Common China, and it is difficult to detect the difference between the highest perfumed of the former class and the lowest perfumed of the China Tea Roses, as now classed.

Miniature Roses.

This family is also said to be China, possessing all the marked features; but it is smaller than the others, and is acknowledged by Mr. Rivers to be only a dwarf variety of the Common China, or, as we insist, Bengal. It is worthy of remark, that all those so-called China Roses have the characteristics we have mentioned, the constant grow-

ing and blooming, if kept in order under proper protection; and are not deciduous.

The Noisette Rose.

The distinguishing character of this Rose is that it flowers in bunches, and this ought to be the character of every one added to the family. But here we have Lamarque, which is anything but a Noisette; it does not flower in bunches, unless every Rose which has two or three flowers on a stem is to be called Noisette; and Smith's Yellow Noisette is about as much entitled to the name of Lamarque. But they are not alone; too many which have no claim on the family have nevertheless been forced on them.

The Musk Rose

This is an old favorite, and many which have been supposed to come from its seed are fastened on it as a family, and many not very like the parent. The family, like some of the others, is greatly confused, and there is nothing so distinct as to connect it as a separate class.

The Macartney Rose.

The characteristic of this Rose is its very bright thick evergreen foliage, and therefore any other Hybrid Roses which have that characteristic might, according to other classifications, be put among these. Maria Leonida is perhaps the best of them; *Rosa berberifolia hardii*, of whose origin Mr. Rivers makes a sad muddle, is classed with this family. Mr. Rivers' story is, that "*Rosa hardii* was raised from seed by Mons. Hardy, of the Luxembourg Gardens, from *Rosa involucre*, a variety of *Rosa bracteata*, fertilised with that unique rose, *Rosa berberifolia* which was very frequently exported from Persia, and comes always true to the parent; some of the Persian seed was sent to Mons. Hardy, and from that he, like others, raised the true *Rosa berberifolia*, which Mr. Lee, of the Hammersmith Nursery, raised from Persian seed likewise, more than twenty years before Mr. Hardy was a rose raiser at all." Well may Mr. Rivers say, in continuation, "This curious hybrid, like its Persian parent, has single yellow flowers, with a dark eye, and evergreen foliage." The fertilising part of the busi-

ness is the mere work of a fertile imagination. When any one has got *Rosa berberifolia*, he need not trouble himself about whether he has it from the seed raised by Mons. Hardy, or the seed raised by his predecessors. There is no more variation, and no more hybrid about either, than there is in two plants of small salad.

Rosa Microphylla.

This, we are told, is nearly allied to the Macartney Rose; so are the varieties of it, and ought not to have been separated.



QUEEN (*Rosa bourboniana*).



JAUNE DESPREZ (Yellow Rose)



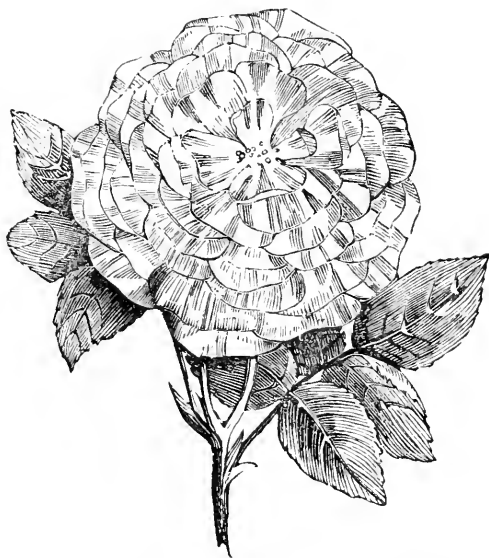
YELLOW BANKSIAN ROSE (*Rosa banksia lutea*)



SMALL LEAFLETTED ROSE (*Rosa microphylla*).



BURGUNDY ROSE (*Rosa gallica*).



THE VILLAGE MAID (La Belle Villageoise).



WILLIAMS DOUBLE YELLOW SWEET SPIR.

CHARACTERISTICS OF A FINE ROSE.

THERE IS NO flower more difficult to define than the Rose, and the difficulty arises out of several curious facts. First, it is the only flower that is beautiful in all its stages—from the instant the calyx bursts and shows a streak of the corolla, till it is in full bloom. Secondly, it is the only one that is really rich in its confusion, or that is not the less elegant for the total absence of all uniformity and order. The very fact of its being beautiful from the moment the calyx bursts, makes the single and semi-double roses, up to a certain stage, as good as the perfectly double ones; and there is yet another point in the formation of some varieties, which makes them lose their beauty when they are full blown. For instance, the Moss Rose is a magnificent object so long as the calyx is all seen, but so soon as the flower fully expands, all the distinction between a Moss Rose and a common one has departed, or is concealed. This brings us at once to an acknowledgment that the grand characteristic of a Moss Rose is its calyx. These properties must never be estimated by full-blown flowers, and therefore, all varieties of Moss Roses must be exhibited before they expand enough to hide the calyx.

There are some properties, however, which apply to all roses, whatever be their characteristics in other respects, and, therefore, must be taken as an estimable point in the construction of a flower.

1. The petals should be thick, broad, and smooth at the edges.

Whether this be for a Moss, which is never to be shown fully opened, or the florist's favorite, which is to be shown as a dahlia, this property is equally valuable, be use the thicker the petal, the longer it is opening, and the longer does it continue in perfection, when it is opened. There is another essential point gained in thick-petalled flowers: The thicker the petal, the more dense and decided the shade or color, or the more pure a white, while the most brilliant scarlet would look tame and watery if the petal were thin, transparent, and flimsy. Hence, many semi-double varieties, with these petals, look bright enough while the petals are crowded in the bud, but are watery and tame when opened, and dependent on their single thickness.

2. The flower should be highly perfumed, or, as the dealers call it, fragrant.

Whether this is to climb the front of a house, bloom on the ground, or mount poles or other devices, fragrance is one of the great charms which place the Rose on the throne of the garden as the Queen of Flowers.

3. The flower should be double to the centre, high on the crown, round in the outline, and regular in the disposition of the petals.

This would seem to be a little contradictory, after saying, that in a Moss Rose, the full-blown flower cannot be allowed, because it conceals the grand characteristic of the plant. But it is not contradictory, because we defend it on grounds which render doubleness equally valuable to the Moss family, which should not be shown in full bloom, as to those which are so exhibited. The more double the flower, even when amounting to confusion, the more full and beautiful the bud in all its stages. Those who have noticed the single and semi-double Moss Roses will remember that the buds are thin and pointed, and starved-looking affairs, while the old common Moss Rose, which is large and double as the Cabbage Rose, is bold, full, rich, and effective, from the instant the calyx bursts. At this point, we shall have to branch off and take families; perhaps the Moss Rose family is the best to commence with. Those who now follow through the different species or varieties, will find the first three rules are essential to all, and are therefore repeated with each division.

Properties of Moss Roses.

1. The petals should be thick, broad, and smooth at the edges.

2. The flower should be highly perfumed, or, as the dealers call it, fragrant.

3. The flower should be double to the centre, high on the crown, round in the outline, and regular in the disposition of the petals.

4. The quantity of moss, the length of the spines, or prickles, which form it, and its thickness, or closeness, on the stems, leaves, and calyx, cannot be too great.

This being the distinguishing characteristic of Moss Roses, the more strongly it is developed the better.

5. The length of the divisions of the calyx, and the ramifications at the end, cannot be too great. As the entire beauty is in the unde-

veloped bud, the more the calyx projects beyond the opening flower, or rather the more space it covers, the better.

6. The plant should be bushy, the foliage strong, the flowers abundant and not crowded, and the bloom well out of the foliage.



DIAGRAM OF A FINE DOUBLE ROSE.

7. The color should be bright or dense, as the case may be, and if the color or shade be new, it will be more valuable; and the color must be the same at the back as the front of the petals.

These seven properties would constitute a Moss Rose a valuable acquisition, and probably, at present, the greatest acquisition would be a yellow one.

8. The stem should be strong and elastic, the footstalks stiff, so as to hold the flower well up to view.

Properties of Roses for Stands, showing the Single Bloom
like Dahlias.

1. The petals should be thick, broad, and smooth at the edges.
2. The flower should be highly perfumed, or, as the dealers call it, fragrant.
3. The flower should be double to the centre, high on the crown, round in the outline, and regular in the disposition of the petals.
4. The petals should be imbricated, and in distinct rows, whether they be reflexed, like some of the velvety Tuscan kind, or cupped like a ranunculus; and the petals to the centre should continue the same form, and only be reduced in size.
5. The color should be distinct and new, and stand fast against the sun and air, till the bloom fail.
6. The stem should be strong, the footstalk stiff and elastic; the blooms well out beyond the foliage, and not in each other's way.

The very worst habit a Rose can have, is that of throwing up several blooms close together, on short stiff footstalks, some of which must be cut away before the others can be fully developed; as show flowers, they are bad, and as plants, they are very untidy. The side buds prevent the centre flowers from opening circularly, and when the first beauty is off, they exhibit dead roses held fast between two living ones.

Properties of Noisette Roses.

However singularly some catalogues class these varieties, we intend, by this name, to distinguish those roses which bloom in clusters.

1. The petals should be thick, broad, and smooth at the edges.
2. The flower should be highly perfumed, or, as the dealers call it, fragrant.
3. The flower should be double to the centre, high on the crown, round in the outline, and regular in the disposition of the petals.
4. The cluster should be sufficiently open to enable all the flowers to bloom freely, and the stems and footstalks should be firm and elastic, to hold the flower face upward, or face outward, and not hang down, and show the outside, instead of the inside of the blooms.
5. The bloom should be abundant at the end of every shoot.

6. The blooming shoots should not exceed twelve inches before they flower.

7. The bloom should stand out beyond the foliage, and the plant should be compact and bushy.

We now proceed to a family which we shall designate Climbing Roses, and which comprise blooms of the Noisette kind, that is, in bunches; blooms which come singly, large and small; flowers early and late; and, in fact, which comprise all sorts of roses that grow tall enough for training.

Properties of Climbing Roses.

1. The petals should be thick, broad, and smooth at the edges, with the outer ones curving slightly inwards.

2. The flower should be highly perfumed, or, as the dealers call it, fragrant.

3. The flower should be double to the centre, high on the crown, round in the outline, and regular in the disposition of the petals.

4. The joints should be short from leaf to leaf. The blooms should come on very short branches, and all up the main shoots. The plant should be always growing and developing its flowers, from spring to autumn, and the foliage should completely hide all the stems, whether the plan be on front of a house or on any given device.

Concluding Remarks.

Having now travelled through the chief of the families, which require separate notices of their properties, the first three properties numbered being required in all of them, we add, by way of a finish for all, except Moss Roses, that

The foliage should be bright green and shining, and, though not likely to be found in many varieties, it should be permanent, and constitute an evergreen.

By this, we mainly establish a point in favor of an evergreen. We mention nothing about size, because size forms the distinction between many roses which have no other difference, and has little or nothing to do with the properties of the Rose, except uniformity in the same variety.

PROPER SOIL FOR THE ROSE.

THE proper soil for the Rose is strong rich loam, and well decomposed vegetable mould, cow dung, or horse dung; but as we are too often already provided with the kind of soil we are obliged to use, and the gardens and situations for our roses are generally ready made, all we can do is to modify and supply the deficiency, if any, as well as we can. If the soil be light, holes must be dug, and loam and dung forked in at the bottom of the hole, as well as the hole be filled up with the same mixture; for troublesome as this may be, it is the only way to secure a good growth and bloom, and it is next to useless to plant roses in poor light soil without this precaution. Kitchen gardens well kept up, will always grow the Rose well, and unless the soil be very poor and very light, a good spadeful of rotten dung, mixed with the soil where the Rose is planted, will answer all the purpose. Among the evils of poor soil for the Rose, it is not the least, that it frequently makes the flower that would otherwise be double come single or semi-double, so as to destroy all identity of the variety by its bloom; and although many thousands of roses of no value have been sent out, many others which did not deserve it have been condemned, because the party who was growing them knew nothing about their cultivation, and starved them into a false character. As it is difficult, however, to give the Rose too rich a soil, it may be as well, even if you think it good enough, to work in a spadeful of dung with it; for it will do no harm, even if the state of the ground be ever so good. We have no doubt that the Rose would flourish in rotten turf, and when they are to be grown in pots, it is practicable to give them this invaluable stuff to grow in; but unless it be a recently turned-up pasture, there is nothing approximating to it out of doors, and even this is far less supplied with the rotted grass, than when turfs are cut thin to rot for use. As a general principle, then, may be laid down that the Rose requires rich soil; and that if you have it not, you must change the nature of what you have, by means of dung, or loam, or both.

MANURES FOR THE ROSE.

ONE of the best manures for the rose is a mixture of one part of Peruvian guano, three parts charred turf and earth, and six parts of cow dung. A thin dressing of this should be pointed in with a trowel every spring.

Roses may also be watered at any period of their growth with a mixture of one fourth of a pound of Peruvian guano and eight gallons of water, to be applied with a watering pot in the evening or on a cloudy day.

PLANTING OF THE ROSE.

To plant the rose properly, the root must first be examined, and every particle of it that has been bruised should be cut off with a sharp knife just above the bruise; all the torn and ragged ends should be made smooth, and cut away as far as they are split or damaged. If any root has been growing downward, it should be shortened up; for it is better to discourage any from growing downright. This preparation being made, and the holes dug large enough to take the root in without cramping it, fork or dig up the bottom of the hole to loosen it, and, if necessary to make any addition to the present soil, to mix it properly with the soil taken out, and work it some way into the soil at the bottom. Let one hold the tree or plant, if it be too large to manage properly alone, and the other throw in the soil between the roots. By moving the stem backward and forward, and pulling upward a little, it is easy to work the soil well between the roots, and on this much depends. When it is adjusted, the top of the root must be pretty close to the top of the ground; there must be none of the stump or stem buried; and when trodden down, the root must be fixed steady and solid. If you have to manage the planting by yourself, you must, as soon as the hole is prepared, lay hold of the stem just above the root, and return the soil with your other hand, continuing to move the head first one way and then the other, until

the soil has worked well between the roots, when it may be trodden in as mentioned before.

Dwarf plants there is no difficulty in planting, but you must be careful to keep the crown of the root near the surface of the ground, the treading in of all fair and solid being a necessary operation with all the kinds of plants. With the standard sorts you should drive stakes into the ground pretty firmly, and fasten the stems of the roses to them, to prevent the wind from removing them; as when your roots have been once firmly trodden in, you cannot move a tree one way nor the other without breaking the fine fibres, and thus lessening the capacity of the root to carry strength to the head. If you are planting a group of standard roses, you should place the highest in the centre, and the lower ones nearer the outside; in fact, a handsome clump of roses might have six-foot standards in the middle, four feet six inches in the next row, three-foot ones nearer the front, and eighteen-inch ones outside; these, if at proper distances, and with picked sorts, of something near the same habit of growth, will form a superb mountain of roses in the proper season.

Rows of Standard Roses may be planted with advantage on each side of a coach road, in a park, or on both sides of a path on a lawn, but at proper distances, so that each shall form a specific object in itself, as well as a portion of a row of rose trees. Roses also form very beautiful objects planted in isolated situations on lawns, and especially when the sort of rose is distinct from others, or blooms at different periods; for whatever forms a portion should be of a similar habit to the rest of the whole. Thus, if a particular walk in a garden or shrubbery were bounded by two rows of roses, they should all flower at once. If a clump of roses is planted, they should flower at one season. A mixture of spring, summer, and autumn roses would be very bad; the place never looks right; therefore some pains must be taken to keep all those which flower at the same period of the year together. One portion of the garden may then be always garnished with roses, and it is far better than having them straggling about, with here and there a flowerless one among those in bloom, or a blooming one among those not in flower.

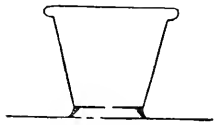
Planting of roses which are on their own bottoms, or worked low down for dwarfs, or for climbers where flowering wood is always wanted from the ground, differs in no wise from any other planting

except as to the situation, which should be chosen not too much exposed to the wind, as in the most sheltered spot they always have enough to encounter. They must be planted firmly, and in good soil; and whatever they have to climb up should be firmly placed by rights before they are planted, but certainly before they shall have grown much, as the roots spread a good deal, and if damaged by violence after they have begun to grow vigorously, they will receive a check which they may not get over the same season.

POTTING OF ROSES.

To the cultivators of the Rose, any improvement in pots is of importance. Those designed to grace a hall or a window of a dwelling, may be made in fine stone and earthenware of various patterns, and should be so constructed as to possess advantages over the common old red porous ones made of clay. One reason why plants potted the usual way do not flourish well in the house during the winter season is, the proper want of leakage, or drainage, and a due circulation of

air about their roots, in consequence of the close connection between the bottom of the pot and the shelf or bench on which it rests.



Mr. M'Intosh, gardener of the Duke of Buccleuch, has obviated the above-named objection by making pots with feet, as denoted in the adjoining cut. By this means, the plants get rid of their moisture, and freely receive air about their roots through the hole in the bottom of the pot.

Potting Deciduous Roses for Forcing.

The nearer you can imitate planting in the open ground the better. The soil should be the same or richer, with dung chiefly, because you cannot water soil without washing away, in some measure, whatever it is impregnated with, that is soluble. By a parity of reasoning, you cannot moisten with water impregnated with anything, without imparting the virtue or mischief of the solution to the soil.

It is the best way to use half of rotted turf and half of rotted dung; if it be not too light to let water pass freely, add a little turfy peat, broken through a sieve that would pass a hazel nut. Trim the roots, to get rid of all bruises; and, in the first instance, choose plants, the roots of which are within a moderate compass, for pot culture, and are well taken up. Select pots that will receive the roots without much cramping; carefully put the soil between and among the fibres and larger roots; strike the pots on the potting table, and poke the soil down so as to be firm.

If the roses be dwarf, follow the directions about pruning at once, and let them be placed in a cold frame, watered, to settle the earth about them, and covered up. This should be done in the Southern and Middle States from November to February, when those for forcing should be put into the greenhouse, gently increased in temperature, well watered, and kept growing hard; any buds that show should be removed, and they should be allowed to complete their growth, and then be plunged in the open ground, and there the wood be permitted to ripen. When the leaves have fallen, and the wood is fairly ripe, they may be pruned, by removing all the weak shoots, and shortening the strong ones; the balls turned out to examine, and if matted with roots, pots a size larger be given. They may then be placed in a cold frame, plunged to their rims, until the period you want to force them. They will flower better the second year than they could have flowered the first, and if the blooms are all picked off again as fast as they show, instead of being allowed to perfect themselves, the growth will be more free; and by growing hard to complete it early, and leaving them out again to ripen, they will allow of being pruned into a handsome form, being carried into the house sooner, and will flower most abundantly, instead of having one or two sickly shoots with their miserable half-starved blooms. At the end, they will have as many as you please to leave eyes for, pruning them the same as you would standards or bushes out of doors, and the blooms will come as rich, as handsome, and as well colored as any in the open air. Roses may then be forced at almost any season, only they ought to undergo the same forcing a season or two without being allowed to flower, that they undergo the season they are to be forced into bloom. And this will answer season after season when they are once well established, for they require only the usual shifts

of plants, which have their balls matted with root; but of the forcing, more hereafter.

Potting for Show.

As it is at length the fashion to show roses in pots, the only proper plan of showing any but single blooms, face upward, the plan of potting cannot differ from those potted for forcing. Presuming that if they are late roses and require forcing, they will be treated after the plan above mentioned, so far as the potting is concerned, the difference between what the perfectly hardy and summer or autumn blooming roses will require after potting, as we have directed, is to be put out in an open situation; and if standards, they should be fastened to a railing, or trellis, as well as being plunged in their pots, that the wind may not disturb them. Here they may be protected various ways: a mat thrown over the head of a rose protected it, though not a very hardy one, against the last winter's frost. A wisp of straw tied at one end, and opened cap-like over each and among the branches of roses, protected them a good deal, and probably, had they not been autumn pruned, might have protected them entirely from mischief, but as it was, some of the pruned branches died back, though the unpruned ones did not.

Potting the Small, the Smooth Wooden, and Chinese Varieties.

Here, from the first, the soil should be one third rotted dung, one third peat, and one third the loam of rotten turf. In this stuff, the most delicate will succeed. From the period of their having struck root, they can hardly do wrong if potted in this soil, in a proper-sized pot, with ordinary drainage. Small plants should be placed in pots no larger than the roots require to hold them, with a moderate share of earth to live in. This kind of rose should be kept growing in a cool frame or greenhouse, or pit, with not much moisture; plenty of air in dry mild days, and a refreshing shower when it is warm. It is safer to plunge them in ashes, if you can, up to the rims of their pots: it keeps them moist longer than if the pot is exposed, it mostly does, in bad weather; and though it perhaps does not kill them, it makes them weakly for some time. In this way, they may grow from time to time, and be shifted from one sized pot to another, requiring only

that the buds should be plucked off directly they show, so long as the plant is wanted to grow fast.

FORCING OF EARLY ROSES.

THIS art consists in bringing the Rose, by degrees, out of its season, as we have half explained under the head of "Potting for Forcing." We know that a Rose can be potted in January, and made to produce flowers in May; but those who wish to force should know the best way.

A Rose, then, for early forcing, requires three seasons to be perfect. The first season, it should be put into a greenhouse, and from thence into the stove, as early as November. It is sure to grow, no matter what sort it is; and let it grow its best, but pluck off the buds if it have any, yet it should not be drawn; this can be managed two or three ways, but it requires, to prevent drawing, light and air. These will have grown pretty well as large as they can grow, by the time they may be turned out and plunged in the open air. The wood will ripen well in the summer time; and in October, re-pot them into a size larger pots; prune them by taking off all the weak shoots, and all the least valuable of those in each other's way; shorten the best wood to two or three eyes, thinning the inner branches all that may be necessary to give air, light and freedom to the new wood. Take them into the greenhouse, thence, soon, into the stove. Let the bloom buds, as they appear, be plucked off, and the growth to be perfected again, which will be earlier than the previous season, as they were set growing earlier. Be early in your attendance on them, when they commence growing, so as to remove useless buds, instead of allowing them to form useless branches. When the growth is completed, remove them into a cold frame, to be kept from the spring frosts, but where they can have all the fine weather. In this state, they may remain till they can safely be put out in the open air, plunged into the ground, and properly fastened to protect them from the wind. In September, you may examine the balls of earth, to see if the roots have room; if attended at all, give them another change. Prune the plants

well, as before removing altogether such of the present year's shoots as are at all weakly, and shortening all the best to two or three eyes. Let them now be taken to the greenhouse, or conservatory, or a grapery, or all in turn; but gradually increase the temperature, till, by the end of October, they may go into the forcing house, beginning at the temperature the house was that they came from, say fifty to fifty-five, and continuing it till they are fairly growing; then increasing it to sixty, and eventually to sixty-five; rubbing off, as before, all useless shoots, and giving plenty of air, when it can be done without lowering the temperature. At the least appearance of the green fly, syringe with plain water; fumigate at night, for too strong a smoke would all but destroy the plants and incipient blooms. In this way, you will be clear of the pest without damage, and your reward will be a fine show of blooms on every rose tree; strong growth, healthy foliage, handsome plants, and all that can be desired.

Forcing Later Roses.

The principle on which the early forcing is conducted must be carried out in full, not only in potting the plants then pruning, but also in the period of removing them. If you wish those a month later to succeed the first, put them into the house a month later, each of the years. If you want others to succeed these second, put them into the house a month later still each year. For nothing has been shown yet in the way of pot roses, better than were shown several years ago, and all of them have had a weakly drawn appearance, and have been anything but creditable to the taste of the gardeners; for they have been staked all over, and thin, flimsy roses on limp-lankey stems, bound up to a thicket of unnatural wood. Now, by the plan we have been recommending, the plant is longer growing, stronger in its wood, shorter in its joints, and more abundant in branches, foliage, and flowers. The ordinary mode of forcing contemplates no more than removing a plant from out of doors to in-doors in one year; so that, without having the advantage of premature ripeness for two seasons, or even one, it has to perfect its flowers before their time, by great excitement, with a root hardly established. We hold that a Rose, like a grape vine, cannot, after bearing in the usual season, be changed all at once to early forcing, without great sacrifice of crop, strength, or beauty. Tho

fact of sudden excitement being fatal to a Rose is demonstrated easily enough by the result; take a strong plant, well established, from the cold atmosphere and temperature of the ground, into a full-heated house, and every bloom will be blighted in its incipient state. If a decided change like this is universally fatal, which is the fact, every sudden change, and all approaches to it, are proportionally mischievous. We do not, however, mean to say that roses cannot be forced in a single season, because thousands are so forced and sent to market; and the usual result of such management is, three or four long-drawn branches, with a bud or two at the end of one, and sometimes of two, with scarcely strength to open into a flower. There are exceptions to the choice kinds of roses; in these remarks, we allude only to garden roses. The China kinds are of a different nature, always growing and blooming; winter and summer, if they are kept in a moderate temperature, are almost alike to them, and those which partake of their habit.

The Forcing of Roses—the Dwarf China Kinds.

This family has scarcely any rest in pots, and under protection, it may be merely kept over the winter. There is no place so well adapted for them as a cold pit, with a good dry bottom, and shelves near the glass; but a stout shallow box, with a regular garden light on it, placed high and dry on a paved, slated, or warm, gravelled bottom, makes a good shift.

The China Rose, and all the short-jointed, smooth-barked kinds that are like them in habit, will strike, bud, graft, grow, and bloom any month in the year. The only thing necessary, is to have plants in all stages, and there will never be any want of flowers. In the greenhouse, they continue growing on, and blooming at all times; but they cannot be kept too cool generally, and if abundance of flowers are required on a plant, it must have a previous rest, and be shifted to a warm temperature, and if matted in the roots, a large pot, and the heat gradually increased until it will bear that of a moderate stove. All the new growth will flower about the same time, or at least sufficient of it to well decorate the plant. Cuttings may be stuck in the spring, planted out in beds six inches apart, to grow a little; the tops may be pinched off, and the buds taken away all the summer, to make them bushy; and they may be potted up with a compost of half loam,

a fourth peat, and a fourth cow dung; trimmed a little into shape, and placed in the shade a while. In September, they may be put into their frames, covered up at night against frost, and opened in mild weather, until the ground freezes; they may then be removed, a few at a time, into an increased temperature, and about a month apart. They will be found to bloom well, and succeed each other admirably, all through the winter and spring, before those out of doors can even fairly start into leaf; the only care required being to syringe them against attack of insects, and if that does not keep them under, fumigate them; and see that they never suffer from want of water. These, however, like the Summer Roses, will force better the second year than the first, by shifting them into pots a size larger, trimming the plants into a proper shape, taking away the weak shoots, letting them rest, and giving but little water towards the end of the summer, except to keep them from actually flagging; putting them in their frames and removing them into heat, as before, a few at a time, and a month apart.

PROPAGATION OF THE ROSE.

THE Rose is propagated by seeds, by cuttings, by layers, by suckers, and by budding or grafting.

Propagation from Seed.

This mode is adopted for the purpose of raising new varieties by crossing different kinds, and is almost exclusively practised by professional florists; it is also employed for obtaining Sweet Briars and stocks. When the seed is gathered in the autumn, it is either rubbed or washed out of the "hips" and kept in dry sand; or the hips are laid in a cool room, and turned over from time to time, till the shell is rotted; the seed is sown in the succeeding spring, after which it will come up the same year.

Sowing of the Seed.—Among the numerous modes of sowing the seed of the Rose, strange as it may seem, the very plan which has been adopted for fifty perennials, or perhaps more, answered as com-

pletely as any. For instance, Polyanthus seed and Rose seed were sown in the same kind of soil, loam and dung, in the same sort of pan, placed in the same garden light, watered at the same time; and, though coming up at a different period, submitted to the same treatment in other respects; shaded from the same noon-day sun, and, though at a different time, pricked out into pots, four or five in a pot, round the edge; kept cool, and growing right on; and when the Polyanthuses were placed in their single pots, the Roses were also potted in theirs. They were kept dry rather than otherwise all the ensuing winter, in a cold frame, with their neighbors, well protected against frost; and that was all.

In the spring, when they began to grow, they were bedded out in rows, in a shady border, six inches apart, and the rows a foot apart, and here they remained another season, making considerable growth; some were of the China kind, and those were potted up and kept growing; the others were hooped over with low hoops, which kept the covering close down on them in bad weather, and there were several that died during the winter. In the spring they were pruned carefully, so far as to remove all but the two or three strongest shoots, and those were cut about half way back. Several bloomed weakly, but most of them made good growth. No part of the success, however, went beyond the growth; not half a dozen came at all double, and though there were some bright colors, there were none in our estimation worth saving. The China ones were rather better, but not good enough; so that, after giving a few of the best another year's chance, every vestige was given or thrown away. The experiments followed up season after season led to the following confirmed practice:—The berries were dried all the winter; they were then bruised in a bag, and the seeds carefully picked out; a slight hot bed was made up as if for annuals; the soil put six inches deep all over, half-rotted turf and half cow dung, raked smooth, and the seed sown evenly and thinly all over—occasionally moistened; the seeds came up well, and were shaded; had plenty of air given, and the usual attendance to see that they were not dry, but not much watered. Here, as soon as they were large enough, they were thinned a little, by carefully removing a few wherever they were too thick, which removed ones were as carefully potted off and kept in the greenhouse. They had no other care during the season than protecting them from too much

sun; but they were allowed to be quite open on mild cloudy days, and had warm showers of rain at all opportunities. Here it was found necessary to fumigate them several times to get rid of the aphides, which partially appeared five or six times during the season, but were speedily cleared away. The lights were taken off towards autumn, and the young plants looked as well as could be wished. At the period when frosts were expected, they were removed carefully with all their roots, into a bed made of the same compost, and a foot deep; planted a foot apart every way, and the bed being four feet wide, took four across it, the outer ones being six inches from the edge of the bed. The same precaution was taken with mats and hoops to keep off heavy falls of snow or hard frosts, and they were allowed to push as much as they would, without pruning, all the next season, no other pains being taken than to throw the mat over when the sun was distressingly hot, and to water them freely on dry parching weather, every night. At the autumn, they were replanted, all the weak shoots being cut out, but the strong ones not shortened till spring. Though there was a manifest improvement in the flowers each season, it was four or five before anything like the quality of some present roses was approached.

This practice differs, in some respects, from that of some other nurserymen; we have seen healthy seedlings, since all these pains were taken, where the seeds were sown out of doors in a common bed, raked in like so many onions; came up like so many weeds; grew well and stood the weather without even a shelter from hard frosts. Some may have been killed and not missed, but they did as well, to all appearance, as those more tenderly nursed.

Hastening the Flowering of Seedlings.

When the seedlings come up in May or June, keep them well moistened, but not too wet, until you can get hold of them well to pot off. Put one each into small pots, and let them, as soon as they are established, be placed in the shade out of doors; but the greatest care must be taken to prevent the attack of the fly, or vermin of any kind. They must be looked at almost daily, and upon the least appearance of any insects, you must remove the plants under cover, where you can fumigate and syringe them regularly. It is still better, if you have

frame room, to put them in when potted, because it gives an opportunity of shading, of keeping off too much wet, protecting them against wind, and of fumigating without the least difficulty, when necessary. They should, however, seldom have the glasses on.

After the seedlings have been five or six weeks in these pots, they may be bedded out, in rich beds of loam and dung, without disturbing the balls; they should be about a foot apart, in beds of four feet wide; by planting within six inches of the side of the bed, four rows will go in, and they will here grow rapidly. Before the close of the budding season, many will have grown quite large enough to bud from; and the most promising may be cut back, and three or four buds put on remarkably strong stocks. Select a strong branch for budding on, and at first, you must let some portion of the branch beyond the bud be left on to grow; a very small shoot beyond the bud will do to insure the growth. These buds will strike off vigorously the next season, and make considerable growth; but before the bud has shot far, cut the stock away everywhere but the portions budded on. The growth they will make this summer on strong stocks will insure their bloom the next season; and, as the real object is to see if the Rose be good for anything, they should not be pruned, except so far as to cut away weak branches altogether; by leaving the full length of the strong shoots, the blooms will be hastened.

In the mean time, those in the bed may be treated as directed; and though not generally the case under the present management, they have bloomed these years on their own bottoms, though there were a great number much later than the third year, and some even went to the fifth. This mode of budding the promising seedlings hastens the certainty of bloom very much, as it is very rare indeed that they misc. coming the third year. If they are worth propagating, the budding greatly increases the quantity of wood to work from. If, on the contrary, they turn out good for nothing, the instant you discover it, cut away all the wood, and the stocks will, in all probability, grow in time for budding other sorts upon the same season you discover the deficiency of those already worked. In this way, without incurring much trouble, you may satisfy yourself as to the quality of seedlings for a certainty the third year; therefore, you should provide yourself with stocks for that purpose, whenever you sow seedlings. **For China** sorts, you should have some stocks of the common *China*,

or Boursault, or the Dog Rose, in good-sized pots, and well established; for they may be budded later, protected better, and indeed some of the seedlings which partake much of the China are tender, and really require protection from the frost.

Retarding the Flowering of the Rose.

The most simple method of retarding the flowering of the Provence and Moss Roses, so as to have the plants in bloom late in autumn, is to cut off the tops of the shoots produced in the spring, just before they begin to show their flower buds; the effect of this treatment will be to cause the plants to throw out fresh shoots, which will bloom later, according to the period in which the operation is performed.

It may also be done by transplanting the bushes early in the spring, as soon as they have formed their buds, which should be cut off. The roots must not be allowed to dry before they are put into the earth again; and they will require artificial watering if the season should be dry, to make them flower late in the fall.

Propagation by Cuttings.

When the earliest shoots of the China Rose are about four inches long, cut them off close to the old wood, plant them in pots half filled with soil, and plunge them in a warm situation, placing over the pot a flat piece of glass, to exclude the cold air; the glass should be wiped occasionally. Thus treated, they will make blooming plants by autumn.

Indian Roses, and climbing kinds, are also easily propagated by cuttings and slips, protecting them as above, or by a hand glass, when the climate is cold.

Propagation by Suckers

Many roses, indeed most of them, growing on their own roots, instead of by grafting on a stock, constantly spread at the roots, and branches force their way up, much to the annoyance, sometimes, of the men in charge of the rosary. In the spring months, their suckers should be looked for, and when found, they should be taken off at once, far enough under ground to get a piece of root with them. These should be replanted instantly on the removal; but if a piece be

planted out, and devoted to propagation, the proper method is to dig up the plants in autumn, tracing the roots as far as they go, and taking the portions which have been growing above ground out at the same time. Some kinds will have half a dozen, or more, perfect plants, which have been formed by the spreading at the root, and the end growing up through the surface. These suckers should be trimmed and planted carefully, at such distance as the sizes warrant; generally in rows a yard apart, and the plants eighteen inches from each other. Here they have to be cut down in spring to within three or four eyes of the ground.

Propagation by Layers.

The Rose will propagate from layers. To do this, some merely select a lower branch, and, bending the wood sharp between two joints, peg that down under ground in autumn; it will root well by the following fall. Others cut a notch in the wood, on the upper side, which makes the bend sharper; but there is more danger of breaking it. Another method is, to run a knife through the wood, so as to split it, and then give the wood a little twist; but most of the sorts will root if only pegged under the surface. That, however, is rarely resorted to; and when it is considered what facilities for propagation are offered otherwise, it is no wonder. The laying should be done as soon as the wood has ripened, and the pegs to be used should be like a miniature hooked walking stick, which it is easy to form out of any branch of wood. This hook is thrust into the ground firmly, to hold fast the whole winter and summer season.

In dry weather, the layers should be watered, as the trees themselves, or bushes, frequently prevent the rain from coming near the surface, where the branch is pegged down, and they would in such cases have no encouragement to root. In the autumn of the next year, examine them all before they are cut off from the parent root, and if rooted, of which there will be little doubt, cut the new plant away, with all the new root; and in planting it out in another place, shorten the portion above ground to half its length; and at pruning time, in the spring, cut it down within three or four eyes of the ground, in order that it may form a bush.

Layers of some roses strike almost immediately ; and from this facility, it is a common practice to lay them all over a bed by pegging down the branches on the surface, at small distances, and thus cover a whole space, which have rooted at almost every joint. The flowers, in such cases, are very strong ; but a bush thus treated, and every branch layered, would cut up into an immense number of plants.

Propagation by Budding on Briers.

We marry

A gentle scion on the wildest stock,
 And make conceive a bark of baser kind
 By bud of nobler race ; this is art
 Which does mend nature—change it rotting ; but
 The art itself is nature.

SHAKSPEARE

There is no process in the art of Practical Gardening more interesting, nor the fruits of which are more gratifying to an amateur, than budding. The theory is this : At the base of the leaf is a small bud, which, after the leaf falls away from it, becomes prominent, and eventually, if left on the tree, makes a branch. By taking a leaf off with part of the bark, this incipient bud comes with it, and by inserting this bark under the bark of another rose tree, say one of these common briers, it unites as if it were originally a part of the brier itself ; but the bud retains all the character of the one it came from, and is not changed in the smallest degree by the transfer from its own to another stock. This is the fact upon which all propagation by budding is founded ; and, therefore, we have two leading points to consider in setting about this operation.

First, we must have the green bark of the stock, into which the buds are to be inserted, rise easily, which it does all the while the branch is green and growing ; and, secondly, we must wait until the bud, small and almost imperceptible as it is at the base of the leaf, is old enough to be removed with safety. In a general way, the buds of Summer Roses are not ready till nearly mid-summer, and the bark will not easily rise from the wood of the stock much after that. The budding season may, however, be called from the middle of June to the middle of August, and not very much longer. What is meant by the bark easily rising is, easily leaving the wood, so that it would be easy to peel a branch by stripping the bark off.

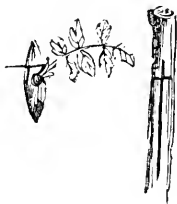
The first thing, then, to look to, is to obtain branches of the rose tree from which we want to produce other plants. If you obtain these branches before you are ready to use them, plant the thick end in the ground, and do not let the sun come near them, as it would soon destroy them; but they ought not to be an hour longer than you can help unused. Get some bass matting for ties, or very coarse worsted, which some prefer, because it gives way better if the bud swells, and will stand the weather longer. With a very sharp knife, called a "budding knife," if you have one, and, if not, any other, and a thin piece of hard wood or ivory, like a diminutive paper knife, you may go to work. The knife is to slit the bark down to the wood wherever you mean to put in the bud, and the piece of hard wood or ivory, with a sort of blunt edge like a paper knife, is to divide the bark from the wood by running it along under the bark, on each side of the slit.

Stocks for Budding and Grafting.—The great call for these articles has made it somewhat difficult to procure them anywhere but at the nurseries; and when you consider you can pick and choose at some price or other, the nurseries are the best place for an amateur to purchase. In some parts of the country, the briars are plentiful, but they are mostly in hedge rows, and it is somewhat perilous work to grub them up without permission; nevertheless, many men get their living by collecting these for the nursery grounds. The stocks should be procured at the fall of the leaf, and be straight, strong, well rooted and compact. These should be placed in rows, eighteen inches apart from each other, and three-foot or three-foot-six-inch vacancies between the rows; they should be staked, or, which is better, stakes should be put at equal distances, and a rail along them, to which rail all the stocks should be fastened by strong ties, the whole being well trodden in after the manner that new roses are planted.

The preparation of the roots should be in all respects the same, and the stocks are generally shortened before you get them to the height their growth best adapts them for. Here they remain till they begin to push in spring, when all the lower buds must be rubbed off, leaving the three or four that are highest up the stock to see which will grow best. It will be found that some of these stocks have died down to a considerable distance; but as they are not of the slightest importance above the top growing bud, you may, with a strong knife, cut right down to the bud, or leave it till after the summer growth of

the buds has considerably advanced. If you have one good branch, it will do, but two on opposite sides are better, because you can work both, and be safe if one fails. Several times, you must go over these stocks, to rub off the fresh buds that will be springing out on different parts of them, where they are not wanted; and two good buds near the top are all you need save. You have to remember that all the strength of the plant will go into these two branches, if the others are taken away; but that every leaf that is allowed to grow, besides those wanted, takes greatly from their strength, on which strength the value of the plant entirely depends.

If the top shoots or buds happen to be weak in the first instance, compared with some lower down the stock, it is better to rub off the top, and lose a little height of the stock, than trust to dwindling branches, so that, in this case, your two branches to save might be half way down the stem; and it is better, in such case, to go down at once to it, that the top may be no more trouble, and may not mislead you, in going over them a second time, to cut or pull out your best branches; for the top, so long as you leave it on, would be throwing out its green shoots; and being the same height as the general run of them, nothing is more likely. All that is to be done, besides keeping the stocks from throwing out other branches, is to cut away from the roots any suckers that may come up, and which distress the stock nearly as much as the dwarf branches. The ground, of course, is to be kept clear of weeds until mid-summer, which is the season for budding, and which is the next subject for consideration.



Being thus provided, go to your stocks with your branches of the trees you want to propagate, in your apron; for you ought to have front pockets, and the bass matting should be tucked in the apron

string; take hold of the stock firmly, and shorten both the branches to a foot, or even less; then with your knife, cut a slit in the bark, within half an inch of the base of the branch upward, and on the upper side, an inch and a half long; about the middle of this slit, make a small cut across; then with your ivory, or thin wood—or more properly, if you have it, with the handle of your budding knife—raise up the bark on both sides; then take the branch of your rose tree



from which you take your buds, and with your sharp knife, shave out of the branch a thin piece of the wood, beginning half an inch below a leaf, and taking the knife along to come out half an inch above the leaf. This small bit has to be inserted under the bark on both sides, bringing the leaf, which is where the bud is, to the exact place where the cross cut is; when it is neatly inserted, take your piece of matting



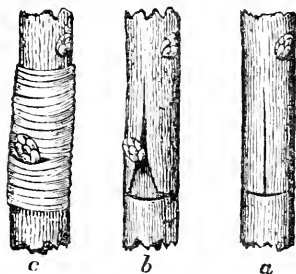
and place the middle of it across the slit just under the leaf; pass it under, and cross it backward and forward along the branch till the bark is completely tied down close, and only the leaf and bud exposed.

As the weather at this time is often very hot, it is a good plan to tie a bunch of loose moss over all, and water the moss occasionally the first few days, because it keeps off the burning sun, even if dry, and greatly preserves the newly-disturbed bark. It will be easily seen that the quicker this operation is performed the better; because, if the sap of the bud, or that of the raised bark, has time to dry, the union of the one with the other cannot be completed with any degree of certainty.

The bark being damped immediately by the application of wet moss will hardly undo any mischief already done; so that a sharp knife, a clean cut, and rapid action are necessary, and can hardly fail. If the bud is cut out of the branch too thick, and too much wood is taken out with the bark and bud, the wood ought to be cut thinner, or pulled out from the bark of the bud altogether; but there is danger in taking out the wood; for it will occasionally bring out the germ of the bud with it. The effect of this would be, that nothing would indicate outside what was wrong, but the bud would not grow. It would look as green, as fresh, and as completely united, as if the germ were there. On this account, you may omit the practice of taking the little bit of wood from the inside of the bud, and with the greatest success. This operation should be carried through all the stocks, if you have plenty of buds on each of the branches; because two buds will make a head sooner than one, and if you choose to do so, you may put two different sorts on the same stock. In this case, you must be particular about having two of about the same habit; for a fast-growing one would soon deprive a slow-growing one of all the necessary nourishment; and, besides this, it would grow incongruously, and would not be controllable. On the other hand, if you have two of similar habit, and opposite colors, it may be made a very pretty object. But the great value of this delicate, though simple operation, is to make an old China, or other strong-growing Rose, long established, change its face altogether. Many kinds of roses may be budded on such a tree, by selecting all the strong-growing branches of the present year's growth, putting a different bud in each, and cutting all the other parts of the tree away, leaving the novelties alone to grow; or the buds may be all of the same sort, so it be some choice kind; but different colored roses have the best effect.

Spring Budding.—But one of the most sure and expeditious methods

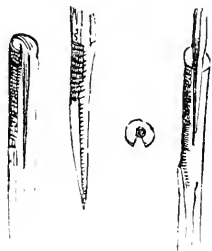
is that called "spring budding," by which the bark of the stock, as early in the season as it will separate from the wood, is cut like the letter T inverted, (thus, \perp ,) as shown by *a*, in the adjoining figure;



whereas, in "summer budding," it forms a T in its erect position. The horizontal edges of this cut in the stock, and of the "shield bark" containing the bud, should be brought into the most perfect contact, as denoted by *b*; because the union of the bark in spring takes place by means of the ascent of the sap; whereas, in summer budding, it is supposed to be caused by its descent. The parts should then immediately be bound with water-proof bass, (*c*,) without applying either grafting clay or grafting wax. The buds may be inserted either in a healthful branch, or in a stock near the ground. In general, two buds are sufficient for one stock, and these should be of the same variety; as two sorts seldom grow with equal vigor. The bass ligature, which confines the bud, may be removed, if the season be moist, in a month after budding; but if it be hot and dry, not for six weeks at least. As soon as the inserted buds show signs of vegetation, the stock or branch containing them should be pruned down, so as to leave one or two buds or shoots above. If the stock is allowed to have a leading shoot above the inserted buds, and this shoot is not shortened, the buds inserted probably will not show many signs of vegetation for several weeks.

PROPAGATION BY GRAFTING.

THIS is by means so simple an operation, though not a very difficult matter; nevertheless, the pith in the centre of the wood is against it, as well as the discrepancy in general between the stock and the scion. The act of grafting is adopted for the same purpose as that of budding—to propagate particular varieties. It is not so safe nor so certain a mode as budding, but in the spring, there is no other means; and as in the purchase of new roses, there is generally a good deal of ripe wood that must be cut off, those who have stocks that are fit for grafting frequently adopt it. There are various modes of performing this operation; one or two ways are applicable to the old wood of the stock; other modes are adapted to the last year's branches. In the one case, a cleft is made in the stump of the stock, and the wood belonging to the new Rose to be inserted is cut in an angular form to fit it. It is then bound in its place by bass matting, or some other tie,



and the joins covered with grafting clay, or, which is more generally used for roses, grafting wax; a composition formed of beeswax and resin, in equal parts, and a little tallow, to render it easily fusible at a low heat, because the real object of this wax is to melt at a heat which will not hurt the trees, but that will, on cooling, be sufficiently hard to keep in its place, and bear even the heat of the sun without running away.

There are various modes of grafting the smaller branches of the stock; that is to say, the branches of the last year's growth. One mode is, to cut the branch down to two inches in length, and then cut

this short piece down the middle, cutting out the inside of the wood sloping outward, so as to receive a wedge-shaped graft, which should be about the same size, if possible; cut this into the shape of a wedge, and insert it in the stock, making as complete a fit as possible, and be careful that the bark of both scion and stock exactly join on one side, whether it reach the other side or not; for, unless the barks meet on one side, it will be impossible to unite. It will frequently happen that the scion is smaller than the stock; the one must be used as you have got it, the other you must get as good as you can; and when you have it, make the best of it. Others, in grafting, cut the branch of the stock into a wedge, and the scion is cut to receive it. The effect is the same in the end, if well done, and in good grafting, the joint is soon lost in the growth.

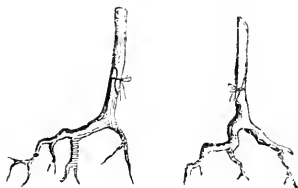
There is one advantage in grafting in spring: If it takes, you may have roses the same year, and thus a season is saved; but, if any of them fail, the stock will grow, if the graft does not; and, of course, if the graft does not grow, you must allow the top branches of the stock to grow, and rub off all other buds, just as if it had not been grafted. The China kinds will graft at any time of the year, but they must be on China stocks, or stocks partaking of the nature of China stocks. It is only the deciduous kind of stock which is confined to the spring grafting, and it is not uncommon to see the solid stock of a large size cleft to make room for a small bit of choice wood; they holding it to



be a waste to throw away the prunings of the Rose, and giving much attention to the profitable use of them.

Root Grafting.—It will be always found in a plantation of roses that

suckers spring up in abundance from the roots; these would soon rob the head or worked part of a great portion of its nourishment; but these suckers are useful when taken off with a good portion of root to them, because there is not a more certain mode of propagating the Rose than neatly grafting a piece of the wood of a Rose on the root just under the surface; the union is almost certain, if at all dexterously



done. The proper mode of doing this, is to pull up the sucker, which will expose the root some distance, and take off a good piece of root with it from the parent stock; cut the sucker completely off to the part that was on the surface of the ground; get a piece of the wood of a Rose as nearly the size of the root as possible, cut a slit in the root, making both cuts smooth and flat inside; then cut the scion wedge fashion, and make the bark fit it even with the outer cuticle of the root; tie them well together, and plant them so that the entire graft goes under the surface of the ground. These root grafts are excellent for dwarf plants, for they are worked actually under ground, and when well done they make excellent plants. Grafting the Rose is not chosen before budding; but, as there is always a good deal of waste wood in a rose tree that has to come off in spring, many give grafting a chance; and of grafting, root grafting is one of the most effective. There is never any scarcity of roots among a collection of roses; forking the ground a little brings up these straggling shoots; and so that there be a good piece of healthy stuff, there is no difficulty in making a good job. There is no occasion to clay over the join in root grafting.

There is another advantage in root grafting: it is applicable with the China kinds all the season through, if you make sure of a healthy root; nor is there any difficulty in obtaining proper roots for the pur-

pose. Wherever a sucker comes up through the ground, use a fork and take up as much root as you think such a plant ought to have; the operation must be performed quickly, and with a very sharp knife, for the root must not dry under the operation, and they must be planted directly. The graft need not be put in wedge fashion; any other way is as good, if the join be smooth, well fitted, and tied firmly. But we do not recommend grafting of any kind as the best means of propagation. Nothing is so simple as budding, and scarcely anything so efficacious. The propagators of roses by root grafting are very apt to grow the suckers in pots for a considerable time, so that they get completely established after being broken away from the parent root, before they are submitted to the operation of grafting, and this becomes then almost a matter of certainty; whereas we have known the roots of suckers bleed so much, that they have lost the root, and have been indebted to the graft striking root for not losing it altogether.

PRUNING.

THE principal objects to be attained by pruning roses are—first, to compensate, by reducing the part to be nourished, for the loss of the root that has to nourish it, which loss, greater or lesser, is always suffered by removal. The proper way to do this pruning depends much on the state of the plant when you have planted it. If it be very bushy, cut away all the weather branches, leave not more than three or four of the best of the shoots, and shorten even those down to a few eyes. If you wish the plant to continue dwarf and bushy, you may cut down to the last eye or two of the new wood, but leave no thin half-grown shoots on at any rate. If the plant is a matured bush, with numerous branches, and pretty strong generally, shorten the new wood down to two eyes, which will show what more you need do. It may be found that you have then a great many more branches left on than you require; cut one half of them close off, and that half must be the thinnest; but it may be that the plant will be improved by cutting some of the main branches clear away,

and all that are on it; for rose trees and bushes, like everything else, are easily spoiled by bearing too much wood, and being over-crowded.

The regular Climbing Rose is often required to make as much show as possible the first year of planting; but unless they are removed with the greatest possible care, they ought to be cut almost to the ground, and thinned out also. None but the strongest wood ought to be allowed to remain on the plant, and if this be not of quite first rate excellence, it is far better to cut out all the weak branches, and cut down the strong ones to two eyes each.

Pruning Standards.

With regard to Standard Roses, we cannot help thinking, from all we have seen practised, that a large portion of them are grown altogether upon a wrong principle. Standard trees, to be handsome, should be as wide in the head as their entire height; and upon the present system of pruning them, they enlarge a little every year.

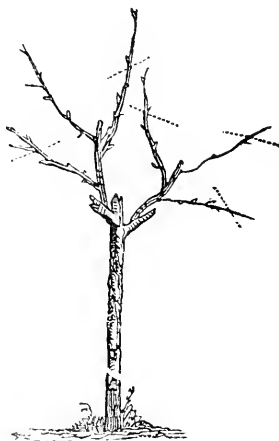
When your standards are planted, you need do nothing to them until



FIRST YEAR'S GROWTH OF BUD

April; then cut all small shoots off close; that is to say, clear them right away; cut down the strong ones to two, three, or at most, four

eyes, care being taken that the top eye is pointing onward; the object of this is to obtain strong branches growing outward, to make a wide head. As the shoots grow, notice the best and strongest that are growing in a position to widen the head, and leave them to make all the growth they can; allow any shoot that is growing up strong in the centre to grow also; and further, a most important point, rub off, or cut off with a very sharp knife, all weakly growing shoots, all that grow inward and cross the head, and wherever two cross each other, remove the weakest. The branches that grow outward will be good

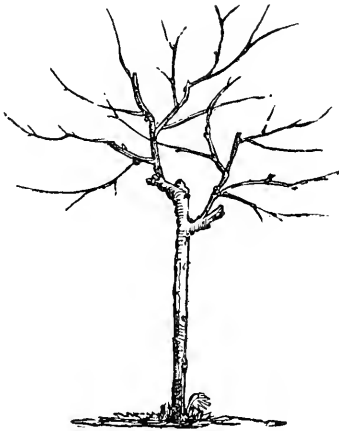


SECOND YEAR'S GROWTH OF BUD.

enough and well enough in one season's growth to leave any length you please towards making a proper sized head; but as five or six of these branches will not make a full head, the next season they may be shortened to half their growth, taking care that the end bud must be an under one, for all the tendency of the Rose is to grow upward, and it is only when the natural growth is outward, or downward, that the weight prevails to keep it in a horizontal or drooping position. This second year, and indeed every subsequent year, every branch that does not assist to form a handsome head without crowding, must be taken

away, and the younger it is when taken, the more good its removal does, because the other branches get the better.

With regard to any one or two, or even three upright branches, though one strong one is worth three weakly ones, they may be shortened down so that two or three good eyes may be fairly above the other branches, and that when they grow outward the next season, they may help fill up the head of the tree above; when the eyes begin to shoot, rub out all that come where they are not required, and leave those of which you are yet doubtful, as well as those you know will be wanted, because it is at this period you have such control by



THIRD YEAR'S GROWTH OF BUD.

driving the whole strength of the tree into the branches that are wanted. In this way, you proceed until the head of the tree is the proper form and proportion, instead of, as we now see them everywhere, a small, pimping, ungraceful head to a tall stem, or trunk. When once it has arrived at this perfection, which, with very little care and attention, it will, you may cut back every year's wood to two eyes; cut out every weak shoot altogether, if you have not rubbed it off in the bud; cut out all that are in the way of free growth for the rest, and when any portion is confused by reason of the number of

spurs or shortened branches left on, clear away a bit by cutting them off. Always remember that Standard Roses for appearance should not be too closely pruned; but for showing, when the individual blooms are shown, a multiplicity of flowers is against size. We can hardly recommend too strongly the necessity of what we shall call spring pruning, which is, in fact, nipping the mischief in the bud, watching the development of the newly coming branches, and removing all but the number there is good room for; and as this has not been treated of at any length, if at all, we may fairly request attention to it.

The three cuts which are in illustration of this article, though not very accurate, show the first year's growth of two buds placed in a stock, with dotted lines at the place we should cut them; the second year's growth after such cutting, with dotted lines where we should cut them again; and the third year's growth is indicated by lines which give some idea of it. But neither of these cuts is exactly what we like; first, because our pen and ink sketches were imperfect, we being unable to draw exactly what we wanted; and secondly, because the artist, who could have drawn it, did not know what we wanted. There is enough, however, done to assist in our lesson on Pruning Standards, though not to the extent we wished.

Pruning and Training Pillar Roses.

Although we have touched on the pruning of bushes, and upon the pruning of climbers when first planted, it only related to the mere operation of pruning them for growth, in the position they were to remain; and here, for the sake of the poor roses themselves, and the pillars they are to ornament, we will suppose they are cut down to the ground, or nearly so, and have made a fresh growth, or rather are making fresh growth. Pillars for roses ought to be a foot in diameter, and are best made of trellis work or rods of iron, or, if it must be so, of wood; but they ought to be one foot through. As the leading shoots come, they ought to be wound spirally round the pillar, at such distance from each other as will enable them to fill up the space between with foliage; their leading shoots then constitute the tree, and all the side shoots bear their blooms, and form a pillar of roses. We do not mean that this is all done in a year, though some kinds go a

long way towards it; here, as in all other cases of rose pruning, the little weak shoots must be removed, the strongest left on all the way up, and should be shortened to two eyes. If the tops here die down at all, shorten them to the strong top eye, not to the top eye, for several near the top may be found weak, and they would never be otherwise, whereas the stronger one will grow fast, and soon supply the place of the old top.

When the buds first show in spring, it will be right to go over the roses carefully, to remove any that are in the way; and the growth of some roses will be found so different to that of others, that one sort will want enormous room to develop its shoots and blooms, while another will make but short branches and bloom abundantly. These characteristics will be discovered in a year's growth, if not well explained beforehand, and the provision can be made accordingly. Many Pillar or Climbing Roses are made to run over arches from pillar to pillar, or along festoons from pillar to pillar; the best way to manage those parts which form the arch, or festoon, is merely to thin out their weak branches without shortening their strong ones, because they will bloom more abundantly, which is the great charm; and the loose and free manner in which they hang about will be to their advantage, so they be kept within bounds a little.

Pruning and Training Roses on Flat Trellises, Walls, and
Fronts of Houses.

The management of this family is very similar to that of Pillar Roses, except that the leading shoots must be encouraged to grow the best way to fill up the space allotted to the plant, for which purpose it will be advisable, in some cases, to train the strongest two shoots horizontally right and left along the bottom; or if the space to cover be only one way, to train one strong shoot along the bottom, and turn it up at the end; if it reach further, the rest of the strong shoots may be fanned out at equidistances, and all the weak joints removed. The next year, rub off the buds that are coming where they are not wanted. Allow any strong shoots that come up from the bottom horizontal shoot, to grow as much as they will, but no weak ones. A fast-growing Rose will soon cover a house front, a trellis, or wall, and flower all over.

When the space gets filled, you must continue cutting out, from year to year, all thin, spindley shoots, and spare the strong ones, so that the stongest eyes only are developed, instead of all of them; and the Roses are closely set to their wall or trellis, instead of hanging lolloping about; the very thing which is good on a pillar, or an arbor, or over an archway, or on festoons, being the reverse on a flat surface. As a never-failing operation, however, in all cases, the weak, spindley shoots may always be removed, whether the strong wood be shortened or not.

Pruning of Standards on Their Own Bottoms, or Roots.

It is very common to see among Dwarf or Bush Roses, a strong shoot growing upright, a sucker from the root; and it is frequently the case that these will rise up to five or six feet high. In the Moss Roses, this is often to be found. These may always be trained into standard trees, with heads in every way proportioned to the stem. As soon as a vigorous shoot of this kind makes its appearance, cut in the bush at bottom rather hard, as it will tend to strengthen the root, which will be relieved of some of its work by the operation. When the shoot has attained the required height, pinch off the top; this will encourage side shoots, all of which, except the two or three at the top, must be rubbed off. It rarely occurs, however, that any side growth is made the first season; so that the better way, unless the shoot be getting too long early in the season, is to let it ripen its wood. The latter part of the autumn, you may look at the root, to see what state it is in, and how far it may be dependent on the main root. If it be closely joined, so that there would not be sufficient root if separated, the old bush must be sacrificed, and the root secured for the standard. As the upper part of the shoot may not be well ripened, it will be as well to bind a hay band round it, or tie some moss or other litter, to save it from sharp frost, though moderate ones will not injure.

In the spring, cut the end off as low down as will do for your purpose, and when the buds shoot out, it will be seen that the three or four upper ones come first; all others on the stem must be rubbed off. Nor is it any great use having two buds on the same side of the tree; if you can manage to have three, or even four, within a few inches of the top, pointing different ways, they will form the better hold of it, to

strengthen the other portion of the tree. Continue to be watchful as to other buds that will be continually pushing from the main stem, and let not one grow but those you have selected for the head.

At the end of the year, these will have made considerable growth, and, instead of being cut back the next spring to two eyes, as is the case with many, cut them back only so far as to insure the strength of the remainder, say, so as to leave five or six eyes. The next season of growth, there will, out of three or four branches, come four or five branches each. Those which come in their places, to help form a handsome head, may be allowed to grow; but if any come so as to cross others, or where there is plenty of growth already, let them be rubbed off; but it is quite possible for an eye to shoot where it is not wanted, and yet the first or second eye of that shoot may be in a direction to fill up a vacancy where it is necessary; this must, of course, be looked to before buds are rubbed off. These branches, when grown another season, will stretch out the head on all sides to a respectable size, and enable you to thin out the weak wood, and cut back the strong; so that instead of having the head pimping and small, it may bear a proportion to the stem; for, as we have said before, the head ought to be as wide across as the stem is long from the ground, to the under part of the head. There is one thing to be observed with regard to standards on their own bottom: they never break off, nor decay, nor canker, half so much as budded and grafted ones.

GENERAL HINTS.

WE may mention, as a general characteristic, that there is no plant which yields more willingly to culture than the Rose, nor in the growth of which there is so much certainty. If you desire a large quantity of bloom, and are not anxious about the size of the flowers, there is nothing required but to spare the knife; take out weak shoots, but leave plenty of wood on the tree; for every eye will bloom, and

the more you leave on, the better for that purpose. In this case, the new wood made is but short, because there is so much of it. If, on the contrary, you desire large blooms, cut away all the strong wood, of the year previous, down to two eyes at the most, and cut all the weak wood out altogether. Indeed, you may go further; for you may cut away half the strong shoots, and lessen the number of eyes still more.

Again, roses in poor soil will grow and bloom; their flowers will be smaller, but not less healthy; their wood will be weaker and shorter, but still sound. The principal danger when a Rose is starved is, that it may come less double; and this is so serious a fault, that it has occasioned many to be thrown away that did not deserve it, and caused many others to be considered wrong varieties, when they wanted nothing but good growth to make them right ones. On the other hand, rich soils will cause a Rose to grow enormously; and all intermediate growths between the strongest and the weakest may be secured according to the soil they are put in to grow. Generally, people fancy that dung is the only thing required; this is a mistake, loam is required to grow the Rose in perfection; and if the ground is poor and light, a spadeful of loam and a spadeful of dung will be far better than two spadefuls of dung. This ought to be always mixed with the soil a little, and the Rose planted in it.

Roses are sadly injured by the wind, and the blooms require fastening to something or other, to prevent their being frayed. The stakes of roses should always be made fast to the Rose, or the roses made fast to the stakes with leaden or copper wire; because bass matting, or other perishable stuff, will give way when high wind takes them, and they receive a good deal of mischief before they are observed and fastened again.

Of the roses at present in cultivation, very few which are not semi-double will open out boldly; and those which are semi-double, are not fit to show as single flowers. There are, however, some which will bear the test of stand-showing, and they not of the dearest or newest. Those, therefore, who desire to grow none but perfect flowers, should state to the dealer, of whom they mean to buy, that their object is to have none but such as will expand and show a good face when fully bloomed, as they purpose growing none others. The

establishment of the showing in stands, like dahlias, will cause many old and fine roses to be appreciated, and a great many new ones to be discarded; for although it is not the gayest mode of exhibiting roses, it is by far the best mode of testing, and it is curious to see the number of varieties with very glaring faults. For instance, some are close balls of petals, with the outer ones rolling back a little, as if they were shrivelling; but never opening fairly. Others no sooner open than they show their yellow seeds and their paucity of petals; some are on stems too weak to hold them in their position; others, again, burst into a broken mass of ill-formed petals, that do not compensate for their sweetness. Some fall to pieces the instant they are open, and others almost before they open; many are shapeless masses of colored flimsy texture, that neither hold themselves in form nor impart fragrance. It is worth while to direct the attention of the amateur to the large collections of roses sometimes to be seen at exhibitions, and to the very few which are to be found among them of a fine form. They will observe bunches of half-bloomed flowers, that dare not be shown; they will find plenty of hard lumps, on stems not strong enough to bear them without lolling about; they will find some without a round smooth petal among them, but very few so good as the Tuscan, the Cabbage, the Moss, the Provence, and the oldest of the known good varieties. This shows the necessity of attention to the hints we have thrown out; for we must again confess, that although we have selected the best among eleven or twelve hundred roses, there are many that we shall see rejected like the remainder of the entire collection, to make way for better flowers and better taste.

As a concluding observation respecting the management of the Rose, we are bound to say, that a good deal that is done now is erroneous, although taught by rose cultivators; and especially with regard to roses in pots, which, however pretty they may look, are very much drawn, and very unnaturally supported. That the system, if pursued, will lead to the introduction and toleration of varieties which cannot support themselves, in the same manner as it did to the introduction of worthless geraniums, there is no room to doubt; for in the specimens exhibited in pots at various shows, the total inability of the flowers and stems to support themselves is manifested, as well as the dispositions to encourage this strange mode of distorting things. **Some** allowance should be made for any forced subject; but that

gardener who can produce his plants without supports, is the one who deserves a prize for his skill; not the man who draws a plant till it cannot support itself, and then keeps it up with framework.

There is much to be done in the choice of roses, for particular objects. Those inclined to droop should be on very tall stalks, for their pendulous habit is very handsome, and renders the tree a beautiful drooping object; those for bushes ought to be short jointed and close habited, as best suited to dwarfs, and so also will they be found for dwarf standards.

The general routine for rose culture is given both as respects the general collection, and also for seedlings; and with attention to what has been here written, we think a mere novice may, with a little enterprise, beat one who grows upon any other system.

Few people are aware of the injustice sometimes done to roses, which are condemned as worthless, when the culture alone is the cause of their misbehavior. The Rose is a fidgety customer. The French people are famous for raising new varieties, and describing them as very superb; the English and American nurserymen buy them as soon as they can be obtained, and describe them to their customers as something *recherché*; they are purchased by amateur cultivators upon the strength of such characters, grown for a year, and too often thrown away as worthless. Once for all, let us inform our readers, that no Rose can be depended on for growing to its character under the third season. The effect of poor culture is to make a Double Rose semi-double and single; and that which would be rich culture to anything else, may be poor to the Rose, because if it be not suitable, it may as well be poor.

There are many things which affect the Rose, but the principal one is tantamount to saying that it does not feel itself at home. European nurserymen often propagate roses rather too mechanically; the greater part of them are "made to sell." So long as the stock will keep the bud alive, and let it grow, that is all the nurseryman asks or wishes. Now, it is quite certain that a stock without much root will live, and hundreds of plants sent from abroad are of this description. There may be strength enough in the stock to grow and bloom the kind upon it, but as the stock is not fairly at home, the first year is often wasted in making root enough to lay hold of the ground, and during this period, the head is grown but poorly.

As to blooming, it should not be allowed until the growth is vigorous, for it comes miserably poor, if at all. The second year, it is more reconciled to its place, and the third may be considered a fair trial. Take the very best Rose we have, and grow it badly, the result will be bad flowers; but, if this be the case with well-known varieties, how cautious ought we to be of condemning a candidate for our favors when we have no evidence of its real character. Rose growers say it is impossible to tell, after a removal, what a Rose ought to be by what it is; that it ought to be tried three seasons before condemnation, and not be discarded under an idea that it is useless, merely because it flowers badly, which is not always the case. A Rose will sometimes be for several years only middling, when, if it liked the ground, it would be excellent.

When you have a Rose, first you should cut away all bruised parts of the root, and see that all the broken ends of the shoots in the ground, or root shoots, are smooth; then plant it the first year in good strong fresh loam, from a pasture. If rotten dung be at the bottom, so much the better, but do not let the dung touch the roots. Cut nothing back of the head or bud shoot, or if it be an established head, cut nothing back until you see the buds swelling, so as to enable you to calculate what portion is alive, and what has died back. As soon as this is indicated by the growing of the buds, cut away clean to the tree all the branches which may have perished. When these are removed, you see what head you have to depend on, and how much you may cut back without losing an opportunity of forming or improving a head for the next season. For instance, all the branches but one will often die back, and be forced to be removed by the knife. Had the pruning at first been close, and each branch cut back to two eyes, there would be but two, of course, left on the only living one, and but two shoots could be had from them; having, however, discovered that but one branch is left, this has to be preserved somewhat longer, and therefore should be pruned to four or five, instead of two eyes. These may be managed to form branches all round the tree, or rather at such distance as prudence dictates, due regard being had to the strength of the plant. If the tree takes off vigorously, and the wood grows very strong, the bloom is pretty sure to be inferior, as indeed is the case when almost any plant runs to wood; so that it is

quite as unlikely that the bloom of the Rose is in character **when the** plant is too vigorous, as when it is meagre or too much starved

Hybridising has done much good for roses, but it has also done its mischief; for, if it has introduced some splendid varieties, it has teased us with hundreds not worth growing; some, which are close hard lumps of rolled-up petals, turn over their thin edges like a dog-eared book; the backs of the petals a dull color, scarcely any scent to them, and altogether bad openers, and bad if they can be made to open. There is no reason why the Rose should not be as perfect as the *Camellia japonica*. There are some of the Bourbons with petals as smooth and as thick, and almost as regular; and these are the kinds to buy and grow. They hold their form longer and better than those with thin petals; they open more freely, and are better when they do open. The habits of these full-flowered plants are better; the flowers, instead of lolling their heads down, show themselves well. All the full free opening roses of old age are of this description; witness the Cabbage Rose, the Maiden's Blush, the Provence, and some others, which are as familiar as the name of the Rose itself. It is true that the bud of a Rose is pretty, and that a bunch of roses is pretty, but while we have good roses that will open, and of almost every color, it is unnecessary to grow bad ones; and if the character of roses is established by showing single blooms, which shall be required to be open, there will be but little difficulty in doing all the rest.

Nevertheless, on receiving roses from nurseries, whether American or foreign, pay attention to these directions in the planting, and be not in a hurry to condemn. Let them fail the first season, and be even middling only the second, but give them the benefit of the doubt, and try them a third season. Convince yourself that the variety is incapable of becoming better, and that you have seen their natural habit, before you throw them away. If a petal is thin and curly, rough-edged and flimsy, it can never be good; if the petals are good, but there are too few of them, there is great hope that culture will improve it from a semi-double to a perfect double, which is all that is wanted.

CALENDAR OF OPERATIONS.

THE following Calendar for the management of the Rose, during each month of the year, is designed for the central parts of the United States, including the temperate regions of Maryland, Virginia, Ohio, Kentucky, Indiana, Missouri, and Illinois. The season of spring commences in the middle latitudes of Georgia, Alabama, Mississippi, and of Texas, and the northern part of Louisiana, and the southern part of Arkansas, about one month earlier; and a month or five weeks later in Rhode Island, Massachusetts, and in the central latitudes of New York, Wisconsin, and of Michigan. The period of sowing, however, will admit of some latitude, on account of the degree of dryness of the soil, and of its exposure to cold or moist winds, and to the solar warmth.

It has long been observed that Nature, in her operations, is so uniform, that the forwardness of trees, in unfolding their flowers and leaves, is an unerring indication of the forwardness of spring; and that the period at which the shrub red bud (*Cercis canadensis*) puts forth, is the proper time to plant Indian corn, and sow in open culture the seeds of the Rose.

J a n u a r y .

Look well to all standard roses; see that their stakes are firmly in the ground, and the stocks or trunks are well fastened to them. If the heads of standards are very large, compared with the hold they have upon the stock, it is necessary that the stock to which the tree is fastened should reach partly through the head, and be fastened to the head itself. It is also desirable, when very large growth has been made, to shorten, though not properly prune, all the longest branches, to lessen the head, that the wind may not have too much power. If you have not provided yourself with stocks before this month, lose no time, and when procured, prune the roots into moderate form, for they will frequently be found straggling and awkward. Besides planting out a number in rows, to be worked in the open ground, pot some of the most compact-rooted in pots, and plunge them, making a post-and-rail sort of frame along them to fasten the stocks to, and prevent them

from being disturbed by the wind; also, if you have not got all the roses you want, order them and plant.

Protect the smooth-wooded kinds, budded on the stocks, in pots, from the cold, and see that those in beds are well covered with litter where there is danger of their suffering from frost; and, as the smooth-wooded varieties budded in pots will be growing, support their shoots and remove all other eyes from the stocks the instant they break.

At the *North*, where roses in parlors and greenhouses are coming into flower, syringe the plants freely with water, and occasionally with a solution of Peruvian guano, mixed in the proportion of half a pint of guano to eight gallons of water. Fumigate often with tobacco, in order to keep down the green fly; and with sulphur, to kill the red spider.

February.

Look over the established stocks, and see which are most favorable for grafting; and if you have any wood of roses you intend to graft, leave it on the trees; but if you have to obtain wood, seek for it in time; and if you get it, plant the thickest end downward in the ground, in some shady place, because they ought not to be grafted till next month, and the cuttings will keep some time. The China Roses in the house, and roses in the forcing house, must be kept well syringed, and watched carefully, that, in the event of the green fly attacking them, they may be fumigated, as well as syringed. Roses in pots should be kept a little moist, and if not pruned in autumn, should be pruned directly. Look to a supply of wild stocks, if you have not yet completed your arrangements.

Bruise the berries which have been saved for seed, and rub out the seed ready for sowing next month.

At the *North*, continue the same treatment as recommended last month.

March.

Prune all roses which were left half done in the autumn, or not done at all, especially grafted and budded ones of last year, as they have this year to make some growth. Stocks may still do if the season is backward, but not a day must be lost. Look over all the standard

trees, examine the pushing buds, trim out all weak shoots from the buds, and cut away all shoots from the stock. This must be always considered of first consequence, for the growth of a branch from a stock will completely check the growth of the head. All grafted and budded trees, when once fairly growing, should be deprived of all means of growth from the stock itself. It is not wise to destroy altogether the growth of the stock above the graft or bud, until the union and subsequent growth of the graft or bud itself are well established; but this once accomplished, leave no vestige of growth belonging to the stock, and constantly rub off every bud. You may commence grafting this month.

Sow the seeds in large pots or deep pans, and keep them from once getting dry, or being frosted.

At the *North*, hardy roses may be safely pruned the last of this month.

April.

If any suckers appear among established roses or stocks, worked or unworked, remove the earth down to where they join the root, and cut them off close. If the rose quarter is at all infested with snails or slugs, use all means to destroy them. Inverted flower pots, tilted on one side, will catch many snails; cabbage leaves laid on the ground, and examined daily, will entrap slugs. All stocks on which grafts or buds failed last season must be looked upon as new stocks, and cut down to where they appear alive. The shoots upon which buds were placed should be cut off close, as well as side growths, if they are intended for budding, but if for grafting, the inside shoots may be strong enough to graft on; if the grafts, and the shoot grafted on, be nearly alike, the graft may be all the safer, and the place of union more completely healed than when small grafts are placed in large stocks. This month is a good one for grafting or spring budding, though the operation may be performed successfully in March. Cut back to two eyes all that have been left unpruned, by which late pruning back, the blooming will be protracted considerably.

Keep the seeds sown last month, moist; and if the season be dry, moisten them by laying on the surface some wet moss. Shade them, also, from the hot sun.

At the *North*, hardy roses of all kinds should now be pruned, Moss

Roses cut back short. Rose seeds may be sown the last of this month or early in May. Spring budding may also be performed.

May.

This is an important month with the Rose. First and foremost, the vigilance in looking for the breaking buds of stocks, which would rob the head of its growth, must be doubled, and every three or four days they must be examined and rubbed off. Suckers must also be grubbed up the instant they appear. The shoots of the buds of last year will make rapid growth, and require to be screened, that the wind may not break them out or damage them; and it is a very good plan to tie a stick to the stem, to reach a foot above it, and this does well to support any of the shoots. But when a bud throws up a very strong shoot, it is well to take the top off as soon as there are two pair of leaves, for it will make the shoot form a head the first season; but, in any case, the shoots must be supported by a loose tie to the stick above mentioned.

The young seedlings will be up this month, and will require great care to keep them from damaging by too much wet, or burning up for want of moisture.

At the *North*, Tea, Bengal, Noisette and other roses may now be planted out in borders. Rose seed may be sown early in this month, and spring budding performed.

June.

This month, great diligence must be used to prevent the stocks from growing from their own wood, instead of throwing all their strength into the grafts and buds. It is time also to be looking out for sorts you intend to bud with, either by buying the plants outright, or bespeaking buds for the season; and if any come in your way about the end of the month, do not be afraid of budding on the strongest wood you can find of the present season's growth among the stocks, though you may properly choose a later season, if you have nothing to hurry you.

The young seedlings will have advanced enough to pot off, one in a pot, with loam, peat, and decomposed dung; they must be placed in the shade out of doors, or in a frame and light, in order to grow five or six weeks. See that they are watered as often as may be neces-

sary; and on any appearance of the green fly, fumigate them with tobacco.

At the *North*, roses should be planted out in borders for summer blooming.

July.

If this month be at all forward, you may bud; and if you have wood given to you when you are not ready for it, put the ends in wet sand, and a hand glass over them; but the sooner you can use the buds after you have got them the better. The stocks must be put in completely all over, except one or two eyes beyond the bud on the branches in which the bud is inserted. All China Roses in pots or out of doors may be budded, and so also may all the smooth-barked kinds.

Plant out the young seedlings potted last month, in beds four feet wide, in the same soil, without disturbing the balls of earth; let them be six inches from the side of the bed, and a foot apart each way. Protect them from vermin by all ordinary means; shade them from the heat of the sun at mid-day; water if required.

At the *North*, roses of all kinds planted in open ground, may be layered the last of this month. Perpetual Roses will bloom best in autumn, if they are pruned in after having opened their first flowers.

August.

Continue the budding, and use every precaution to prevent the stock from growing, and remove suckers the instant they appear above ground. Nothing should be allowed to grow, except, just beyond the bud; a shoot may be beneficial, as it draws the sap past the bud; but as soon as it is united and doing well, anything growing beyond it may be broken off, or bent down to check it a little. Cuttings of the smooth-barked kinds will strike almost every month in the year; but at the end of this month, whatever you may be anxious to propagate may be struck in the shade, under a hand glass, or even quicker where there is a little bottom heat.

The same directions will also apply to the *North*.

September.

You may now examine the budded plants, and undo the ties of any that appear to swell, tying them more loosely, although tight enough to hold in the bud. If any of the buds have failed, you may open a fresh place, and insert others; but if well done, this will seldom be the case. Continue to remove any shoots or eyes that are showing growth in the stock, for on this much depends. Cuttings from the smooth-wooded kinds may be taken and struck, and any that are struck may be potted off in small pots. Weed the young plants in the beds. Water them if the season be dry.

At the *North*, roses intended for early forcing, should now be repotted and pruned.

October.

Towards the end of the month, look out for healthy stocks, or get some one in that way of business to collect for you. Always choose, and make any one who undertakes to supply you understand that you require strong stems, perfectly straight, with compact roots, that have not been much damaged by removal. Any that you get should be at once trimmed and planted in rows, about eighteen inches apart, and the rows wide enough to enable you to go up and down them well, to operate in the way of grafting and budding when required. Many of the budded stocks may now be untied altogether, but it is not well to cut the branches in which they are budded close down to the bud until the spring months. As they would be more susceptible of damage by frost, let them all be properly sheltered, and fastened, if they have become loosened. Shorten the longest branches of standard roses, that they may not hold the wind so much; and although it would be improper to prune, their close back branches may be cut clean away, because they are of no use on the tree. Cuttings of the China and smooth-wooded kinds may be taken now for general propagation. The plants will be the better for losing the wood, especially all the dwarfs in pots.

Examine the August-budded plants, and loosen the ties, if necessary. Break or cut off the wild part of the stock above the bud, all except one growing eye, to keep up the circulation; remove all other

branches and shoots. Gather the "hips," or berries, of any desirable varieties for seed, as soon as ripe. Look to those roses budded on stocks in pots.

At the *North*, all tender kinds, growing in open ground, should be taken up and potted, and hardy roses may be successfully transplanted the last of this month.

N o b e m b e r .

This is the best month in the year, if the weather is dry and open, for planting out the garden sorts of rose trees and bushes; therefore, all removals should be performed as soon as convenient, according to the plan pointed out in the foregoing treatise. The leaves of all the garden sorts are falling, or have fallen. Some of the perpetuals, and the China and hybrid kinds, are, in mild autumns, still growing, and perhaps blooming. Such must not be touched till the leaves have turned yellow, or have dropped; but in all other cases, where the leaves have faded, the removal is kindly and beneficially done. Stocks may be procured and planted, and if the permanent planting cannot, for any particular reasons, be done now, they must be temporarily planted or laid in the earth, in a sloping direction, and the roots well covered with mould, which must also be well shook in among the roots and fibres. Cuttings may still be made of the smooth-wooded kinds, and placed close together in pots of mould, with half an inch thickness of sand at the top. These pots must not be allowed to dry, but may be put in a pit or greenhouse, or plunged under a hand glass in the border, which will answer for covering them well from frost.

In all situations subject to frosts, throw light litter, as pea vines, pine boughs, or straw, over the beds containing tender varieties, at night; and if there happen to be frost, do not remove the litter during the day. Continue to gather ripe berries, or hips, as directed last month. Cut out the weak shoots from the seedlings, leaving only the robust and strong ones on the plant, except such as are intended for buds in the spring.

At the *North*, tender roses should all be taken up this month. Perpetuals and Bourbons, in the open ground, if in a well-drained situation, with a little covering, will stand the winter without injury.

D e c e m b e r .

Planting goes on well this month, if the weather be dry and open; but if wet, and the ground does not work well, it is better deferred; for if planting is done when the soil will not crumble well, and go between the roots, they cannot succeed. Look well to last month's directions, and attend to them in all respects, if not done before.

Seed berries, designed for sowing next spring, may be preserved by putting a tile at the bottom of a flower pot, into which may be put those hips that are perfectly ripe, covering them three or four inches with sand, and let them remain until wanted; or lay them on a shelf to dry out the moisture. See, also, that the stocks, which have been budded, are secured to stakes against the effects of the wind. Protect the smooth-wooded kinds, budded on the stocks in pots, from the frost, and look well to the litter on those in beds.

At the *North*, those roses, taken up and potted last month, should now be headed in, cutting away all small shoots to one good eye. They may be wintered in a cold frame, or taken into the house, where they will bloom from February to May.

INSECTS.

THE insects which infest the Rose are quite numerous; but as their habits are comparatively but little known, it has thus far been very difficult to arrest their ravages, or sensibly diminish their number, by artificial means. At least forty distinct species are described by European naturalists, but many of them do not exist among us. The only reliable authority on this subject, in this country, is Dr. T. W. Harris, of Harvard University. From his "Report on the Insects Injurious to Vegetation in Massachusetts," we copy the following, which, doubtless, will be acceptable to all who are not in possession of his work:—

The saw fly of the Rose, which, as it does not seem to have been described before, may be called *Selandria rosce*, from its favorite plant, so nearly resembles the slug-worm saw fly as not to be distinguished

therefrom except by a practised observer. It is also very much like *Selandria barda*, *vitis* and *pygmaea*, but has not the red thorax of these three closely-allied species. It is of a deep and shining black color. The first two pairs of legs are brownish grey or dirty white, except the thighs, which are almost entirely black. The hind legs are black, with whitish knees. The wings are smoky and transparent, with dark-brown veins, and a brown spot near the middle of the edge of the first pair. The body of the male is a little more than three twentieths of an inch long, that of the female one fifth of an inch or more, and the wings expand nearly or quite two fifths of an inch. These saw flies come out of the ground, at various times, between the twentieth of May and the middle of June, during which period they pair and lay their eggs. The females do not fly much, and may be seen, during most of the day, resting on the leaves; and, when touched, they draw up their legs, and fall to the ground. The males are more active, fly from one rose bush to another, and hover around their sluggish partners. The latter, when about to lay their eggs, turn a little on one side, unsheath their saws, and thrust them obliquely into the skin of the leaf, depositing in each incision thus made a single egg. The young begin to hatch in ten days or a fortnight after the eggs are laid. They may sometimes be found on the leaves as early as the first of June, but do not usually appear in considerable numbers till the twentieth of the same month.

How long they are in coming to maturity, I have not particularly observed; but the period of their existence in the caterpillar state probably does not exceed three weeks. They somewhat resemble the young of the saw fly in form, but are not quite so convex. They have a small, round, yellowish head, with a black dot on each side of it, and are provided with twenty-two short legs. The body is green above, paler at the sides, and yellowish beneath; and it is soft, and almost transparent like jelly. The skin of the back is transversely wrinkled, and covered with minute elevated points; and there are two small, triple-pointed warts on the edge of the first ring, immediately behind the head. These gelatinous and sluggish creatures eat the upper surface of the leaf in large irregular patches, leaving the veins and the skin beneath untouched: and they are sometimes so thick that not a leaf on the bushes is spared by them, and the whole foliage looks as if it had been scorched by fire, and drops off soon

afterward. They cast their skins several times, leaving them extended and fastened on the leaves; after the last moulting, they lose their semi-transparent and greenish color, and acquire an opaque yellowish hue. They then leave the rose bushes, some of them slowly creeping down the stem, and others rolling up and dropping off, especially when the bushes are shaken by the wind. Having reached the ground, they burrow to the depth of an inch or more in the earth, where each one makes for itself a small oval cell, of grains of earth, cemented with a little gummy silk. Having finished their transformations, and turned to flies, within their cells, they come out of the ground early in August, and lay their eggs for a second brood of young. These, in turn, perform their appointed work of destruction in the autumn; they then go into the ground, make their earthen cells, remain therein throughout the winter, and appear in the winged form, in the following spring and summer.

During several years past, these pernicious vermin have infested the rose bushes in the vicinity of Boston, and have proved so injurious to them, as to have excited the attention of the Massachusetts Horticultural Society, by whom a premium of one hundred dollars, for the most successful mode of destroying these insects, was offered in the summer of 1840. About ten years ago, I observed them in gardens, in Cambridge, and then made myself acquainted with their transformations. At that time, they had not reached Milton, my former place of residence, and have appeared in that place only within two or three years. They now seem to be gradually extending in all directions, and an effectual method for preserving our roses from their attacks has become very desirable to all persons who set any value on this beautiful ornament of our gardens and shrubberies. Showering or syringing the bushes with a liquor, made by mixing with water the juice expressed from tobacco by tobaccoists, has been recommended; but some caution is necessary in making this mixture of a proper strength, for if too strong, it is injurious to plants; and the experiment does not seem, as yet, to have been conducted with sufficient care to insure safety and success.

Dusting lime over the plants, when wet with dew, has been tried and found of some use; but this and all other remedies will probably yield in efficacy to Mr. Haggerston's mixture of whale-oil soap and water, in the proportion of two pounds of the soap to fifteen gallons

of water. Particular directions, drawn up by Mr. Haggerston himself, for the preparation and use of this simple and cheap application, may be found in the "Boston Courier," for the twenty-fifth of June, 1841, and also in most of our agricultural and horticultural journals of the same time. The utility of this mixture has already been repeatedly mentioned in my treatise, and it may be applied in other cases with advantage. Mr. Haggerston finds that it effectually destroys many kinds of insects; and he particularly mentions plant lice of various kinds, red spiders, canker worms, and a little jumping insect which has lately been found quite as hurtful to rose bushes as the slugs or young of the saw fly. The little insect alluded to has been mistaken for a species of thrips, or vine fretter; it is, however, a leaf hopper, or species of *Tettigonia*, much smaller than the leaf hopper of the grape vine, (*Tettigonia vitis*,) and, like the leaf hopper of the bean, entirely of a pale-green color.

In treating of the common Rose Bug, or Rose Chafer, (*Melolontha subspinoso*,) Dr. Harris says:—

The natural history of the rose chafer, one of the greatest scourges with which our gardens and nurseries have been afflicted, was for a long time involved in mystery, but is at last fully cleared up. The prevalence of this insect on the Rose, and its annual appearance coinciding with the blossoming of that flower, have gained for it the popular name by which it is here known. For some time after they were first noticed, rose bugs appeared to be confined to their favorite, the blossoms of the rose; but within thirty years, they have prodigiously increased in number, have attacked at random various kinds of plants in swarms, and have become notorious for their extensive and deplorable ravages. The grape vine in particular, the cherry, plum and apple trees, have annually suffered by their depredations; many other fruit trees and shrubs, garden vegetables and corn, and even the trees of the forest and the grass of the fields, have been laid under contribution by these indiscriminate feeders, by which leaves, flowers, and fruits are alike consumed.

The unexpected arrival of these insects in swarms, at their first coming, and their sudden disappearance, at the close of their career, are remarkable facts in their history. They come forth from the

ground during the second week in June, or about the time of the blossoming of the Damask Rose, and remain from thirty to forty days. At the end of this period, the males become exhausted, fall to the ground, and perish, while the females enter the earth, lay their eggs, return to the surface, and, after lingering a few days, die also. The eggs laid by each female are about thirty in number, and are deposited from one to four inches beneath the surface of the soil; they are nearly globular, whitish, and about one thirtieth of an inch in diameter, and are hatched twenty days after they are laid. The young larvæ begin to feed on such tender roots as are within their reach. Like other grubs of the Scarabæians, when not eating, they lie upon the side, with the body curved so that the head and tail are nearly in contact; they move with difficulty on a level surface, and are continually falling over on one side or the other. They attain their full size in autumn, being then nearly three quarters of an inch long, and about an eighth of an inch in diameter. They are of a yellowish-white color, with a tinge of blue towards the hinder extremity, which is thick and obtuse or rounded; a few short hairs are scattered on the surface of the body; there are six short legs, namely, a pair to each of the first three rings behind the head; and the latter is covered with a horny shell of a pale rust color. In October, they descend below the reach of frost, and pass the winter in a torpid state. In the spring, they approach toward the surface, and each one forms for itself a little cell of an oval shape, by turning round a great many times, so as to compress the earth and render the inside of the cavity hard and smooth. Within this cell, the grub is transformed to a pupa, during the month of May, by casting off its skin, which is pushed downward in folds from the head to the tail. The pupa has somewhat the form of the perfected beetle; but it is of a yellowish-white color, and its short stump-like wings, its antennæ, and legs are folded upon the breast, and its whole body is inclosed in a thin film, that wraps each part separately. During the month of June, this filmy skin is rent, the included beetle withdraws from its body and its limbs, bursts open its earthen cell, and digs its way to the surface of the ground. Thus the various changes, from the egg to the full development of the perfected beetle, are completed within the space of one year.

Such being the metamorphoses and habits of these insects, it is evi-

dent that we cannot attack them: in the egg, the grub, nor the pupa state: the enemy, in these stages, is beyond our reach, and is subject to the control only of the natural but unknown means appointed by the Author of Nature to keep the insect tribes in check. When they have issued from their subterranean retreats, and have congregated upon our vines, trees, and other vegetable productions, in the complete enjoyment of their propensities, we must unite our efforts to seize and crush the invaders. They must indeed be crushed, scalded, or burned, to deprive them of life: for they are not affected by any of the applications usually found destructive to other insects. Experience has proved the utility of gathering them by hand, or of shaking them or brushing them from the plants into tin vessels containing a little water. They should be collected daily during the period of their visitation, and should be committed to the flames, or killed by scalding water. The late John Lowell, Esq., states, that in 1823, he discovered on a solitary apple tree, the rose bugs "in vast numbers, such as could not be described, and would not be believed if they were described, or at least none but an ocular witness could conceive of their numbers. Destruction by hand was out of the question" in this case. He put sheets under the tree, and shook them down, and burned them. Dr. Green, of Mansfield, whose investigations have thrown much light on the history of this insect, proposes protecting plants with millinet, and says that in this way only did he succeed in securing his grape vines from depredation. His remarks also show the utility of gathering them. "Eighty-six of these spoilers," says he, "were known to infest a single rose bud, and were crushed with one grasp of the hand." Suppose, as was probably the case, that one half of them were females; by this destruction, eight hundred eggs, at least, were prevented from becoming matured.

During the time of their prevalence, rose bugs are sometimes found in immense numbers on the flowers of the common white weed, or ox-eye daisy, (*Chrysanthemum leucanthemum*), a worthless plant, which has come to us from Europe, and has been suffered to overrun our pastures, and encroach on our mowing lands. In certain cases, it may become expedient rapidly to mow down the infested white weed in dry pastures, and consume it with the sluggish rose bugs on the spot.

Our insect-eating birds undoubtedly devour many of these insects,

and deserve to be cherished and protected for their services. Rose bugs are also eaten greedily by domesticated fowls; and when they become exhausted and fall to the ground, or when they are about to lay their eggs, they are destroyed by moles, insects, and other animals, which lie in wait to seize them. Dr. Green informs us that a species of dragon fly, or devil's needle, devours them. He also says that an insect which he calls the enemy of the cut worm, probably the larva of a *Carabus*, or predaceous ground beetle, preys on the grubs of the common dor bug. In France, the golden ground beetle, (*Carabus auratus*,) devours the female dor or chafer at the moment when she is about to deposit her eggs. I have taken one specimen of this fine ground beetle in Massachusetts, and we have several other kinds, equally predaceous, which probably contribute to check the increase of our native Melolonthians.





THE DAHLIA.

INTRODUCTION.

Though severed from its native clime,

Where skies are ever bright and clear,
And nature's face is all sublime,

And beauty clothes the fragrant air,
The Dahlia will each glory wear,
With tints as bright, and leaves as green,
As on its open plains are seen.

And when the harvest fields are bare,
She in the sun's autumnal ray,
With blossoms decks the brow of day.

MARTIN.

ABOUT ten years before the close of the last century, this favorite flower was sent from Mexico to Spain, and a few specimens were procured, in the year of its importation to that country, from Madrid, by the then Lady Bute, but through some mismanagement the species was lost, until Lady Holland obtained seed from the same city in 1804; while in 1802, another species, (*Dahlia coccinea*,) had been brought from Mexico through France; neither the latter nor the former, (*Dahlia frustranea*,) seems, however, to have attracted much attention amongst the floricultural world; and it was not until

after the peace of 1815, that it became an object of professional care, when a supply was obtained in England, from France, where its cultivation had already been carried to some extent; since which period, an indefinite number of varieties has been procured by the persevering ingenuity of the florist, and a monomania for this flower existed for many years unsurpassed in inveteracy, save by the extraordinary "Tulipomania" of the seventeenth century. This has in some degree subsided, and the Dahlia is taking its proper rank as a deservedly esteemed flower, blooming at a season of the year when the number of flowering plants in the open garden is very limited.

The name of Dahlia was given to it in honor of Dahl, a Swedish botanist and a pupil of Linnæus; there was an attempt to change it to Georgina, and on the continent this has prevailed to a considerable extent; but in England and this country, it has been entirely rejected.

REQUISITES OF A PERFECT FLOWER.

The following characteristics are agreed upon by the London Floricultural Society as necessary to the perfection of the Dahlia:—

1st. The general form should be that of about two thirds of a sphere, or globe. The rows of petals forming this globe should describe unbroken circles, lying over each other with evenness and regularity, and gradually diminishing until they approach the top. The petals comprising each succeeding row should be spirally arranged and alternate, like the scales of the fir cone, thereby concealing the joints and making the circle more complete.

2d. The petals should be broad at the ends, perfectly free from notch or indention of any kind, firm in substance, and smooth in texture. They should be bold and free, and gently cup, but never curl or quill, nor show the under sides; they should be of uniform size, and evenly expanded in each row, being largest in the outer rows, and gradually and proportionately diminishing until they approach the summit, when they should gently turn the reverse way, pointing towards and forming a neat and close centre.

3d. The color in itself should be dense and clear; if in an edged flower, concentrated and well defined; and in both cases penetrating through the petal with an appearance of substance and solidity.

4th. Size must be comparative.

PROPAGATION.

THE Dahlia may be propagated from tubers, by slips or cuttings, or from seed.

Propagation from Seed.

This method is now seldom practised, except by those who desire to obtain new varieties by hybridising between two distinct species or choice varieties. The proper time for sowing the seed is in March or April, in light soil in shallow boxes or pans, which are placed in a moderate hot bed to promote their germination; though some florists think that plants as vigorous, if not more so, may be obtained from seed sown in a warm and well-sheltered border toward the end of April, or in the early part of May, provided the young plants are protected during the night and guarded from casual frosts; or the seed may be sown in pans in March in the house, and put out in the open air on mild days, to accustom them to the external atmosphere. In any treatment, when the seed leaves are fully developed, they must be allowed plenty of fresh air, or placed in a cold frame, taking care that they are put as near as possible to the glass, to prevent their being drawn and growing lanky; they may also be potted singly, or three or four together, as soon as they will bear handling. When they have four leaves, they may be treated in every respect as old plants, and from the twentieth of May to the middle of June, they may be planted where it is intended they should flower.

Seed Gathering.—The seed should be collected in September from dwarf plants, where no preference exists on other accounts; and, when double varieties are principally sought for, from semi-double flowers. Seeds procured from those florets, which have changed their form, are

supposed to have a greater tendency than the other to produce plants with double flowers.

Propagation by Tubers, or Slips, and by Grafting.

This is the mode most commonly adopted for the propagation of this favorite plant, and the operation is begun in March or April, by removing the tubers from the place where they have been deposited during the winter, and putting them in pots, or in loose earth on a mild hot bed. The crown of each tuber is left uncovered to permit each shoot to develop itself, under the full influence of the atmospheric air. When the shoots have attained the length of about three inches, they are cautiously separated from the tuber by laying hold of the slip with the thumb and finger near its base, and gently moving it backward and forward until it comes out of its socket. Mr. Paxton recommends that where the shoots are numerous, a part of the crown of the tuber should be invariably taken off with the shoot, a course more likely to be attended with success than by extracting the slip.

The following mode of increasing choice varieties of this favorite flower was discovered by Mr. Blake, of Kensington Gore, and is now commonly practised :—

Select a good tuber of a single sort, taking special care that it has no eyes; then, with a sharp knife, (for a dull edge would mangle the fleshy root, make it jagged, and so prevent a complete adhesion of the scion and stock,) cut off a slice from the upper part of the root, making at the bottom of the part so cut a ledge wherein to rest the graft. This is done because you cannot tongue the graft as you would do a wood shoot; and the ledge is useful in keeping the cutting fixed in its place while you tie it. Next cut the scion, (which should be strong, short jointed, having on it two or more joints or buds,) sloping to fit, and cut it so that a joint may be at the bottom of it to rest on the aforesaid ledge; a union may be effected without the ledge, provided the graft can be well fixed to the tuber, but the work will not then be so neat. It is of advantage, though not absolutely necessary, that a joint should be at the end of the scion; for the scion will occasionally put forth new roots from the lower joint; the stem is formed from the upper joint; therefore procure the cuttings with the lower joint as near together as possible.

After the graft has been tied, a piece of fine clay, such as is used for common grafting, must be placed round it; then pot the root in fine mould in a pot of such a size as will bury the graft half way in the mould; place the pot in a little heat in the front of a cucumber or melon frame, if you chance to have one in work at the time; the front is to be preferred, for the greater convenience of shading and watering which are required. A striking glass may be put over the graft, or not, at pleasure. In about three weeks, the root should be shifted into a large pot, if it be too soon to plant it in the border, which will probably be the case, as the plant cannot go out before April or May, so that the shifting will be very essential to promote its growth till the proper season of planting out shall arrive.

Treatment of Slips.—The shoots having been carefully separated from their parent tuber, they are immediately placed in thumb pots, filled with light soil, not inserting each more than an inch deep; when this is done, the pots are plunged in the hot bed. When they have filled these small pots with roots, they are shifted into others, which may serve them until the time for planting, unless that be protracted by unfavorable weather; in which contingency it will be desirable to remove them again into a size larger, to allow the roots to grow more freely, and to prevent their becoming a close and compact mass, which would be highly detrimental to their vigorous development, and the future health of the plant, when consigned to the open ground. Numerous shoots are emitted from the same tuber in succession, and these are treated in precisely the same manner when arrived at the proper length. They must be shaded from the sun while making roots, and protected from vapor and frost. The best compost for the *Dahlia* in pots is a mixture of sifted decayed hotbed dung, light virgin loam, and pure white sand, in equal quantities.

Situation and Preparation of the Soil.

The natural habitat of the *Dahlia* is, we are informed, in a rather light soil and on open plains. English cultivators recommend a sheltered situation; that is, sheltered from high winds, which break and shatter their lateral branches, however much they may be strengthened and supported by stakes; yet fully exposed to the sun, and where they can have the advantage of a free circulation of air, the soil

naturally damp, rich, of good depth, and on a dry bottom. The soil, however, is rarely so good that it cannot be improved for the purpose for which it is desired, and it is recommended that those who would grow the Dahlia to perfection should trench the ground in November, previous to its being required, by first removing the soil to the depth of twelve inches, and replacing it with equal portions of good yellow loam and peat earth; and then trenching it again to the depth of two feet, mixing the original sub-soil and the loam and peat thoroughly together, with a large quantity of stable manure, thoroughly decayed, or it will be injurious. This may seem an expensive process, but once done it will need no further preparation for many years, except the occasional addition of manure.

N. B.—In a strong clay soil, enriched with well-decayed manure, the Dahlia produces the largest *flowers*; in a light soil, the *plant* grows to a great size, but the flowers are comparatively small.

TREATMENT.

THOSE who have no hot bed wherein to start their Dahlias into a growing state, may do so with equal success, and may obtain even more vigorous and better-blooming plants than those which are excited by artificial heat, by planting them in March or April in a box of light soil or decayed leaves, keeping it in a moist state, and exposing them to the full heat of the sun throughout the day, and taking them in-doors at night. When the shoots are three or four inches long, they may all, except one, be taken off close to the tuber, and treated as slips; but if you can divide the tuber into as many pieces as there are shoots, it is to be preferred.

Planting Out.

There are few situations, in the Middle and Northern States, where Dahlia plants can be planted out with safety before April, May, or the early part of June. When the operation is performed, the plants, if on beds by themselves, which is desirable, should be set in rows not less

than six feet apart each way. Due regard must be had to the respective heights of the plants and the colors of their flowers; if on a bed where they are to be viewed from all sides, the tallest-growing kinds should be placed in the centre; if to be seen only from the front, the 'oftiest must be set at the back; and, in reference to colors, so arranged that they will produce a harmonious effect as a mass. Your plants, if well grown, will be from eighteen inches to twenty-four in height, when planted, and should be supported by stakes immediately; when they are full two feet high, the top of the leading shoots, or upright stem, should be cut off to induce the plant to throw out laterals.

It is a very common error to keep the Dahlia in pots too small for the quantity of roots the plant has formed, and the evil consequences of this are increased in seasons when it is most desirable they should be avoided; for if the weather be so unfavorable as to put off the period of planting out, the roots have been meanwhile increasing, and filling up the pot, so that when the plant is taken out to be set in the open ground, the ball of earth cannot be removed without breaking some of the fibres; and, fearful of doing this, many persons plant them without disturbing it, and the result generally is, that the plant does not begin to grow vigorously until near the time when it ought to be in flower. It is better, indeed, to break some of the fibres, and get away the dried and baked earth from around the roots; for though it seems to give a violent check to the growth of the plant, it will, when it has recovered, thrive far better than those planted with the ball entire; it is, however, preferable to avoid the necessity for the latter plan, or the alternative of breaking the roots, by planting them in pots of a larger size than those commonly used. The crown of the tuber should be placed at least three inches below the surface of the soil in planting out.

Mulching and Watering.

When the plants are two feet high, remove the earth from around the base of the stems to the depth of three or four inches; supplying its place with well-decomposed manure, which must be slightly covered with earth; in dry weather, the plants must be watered through this mulching twice a week at least, or every other day, according to the state of the weather; and this should be done in the evening. The

Dahlia is greatly benefited by this system of mulching and watering, ; for, unlike many other kinds of plants, it seeks its nourishment chiefly from the surface of the soil; and its roots will be found, in favorable circumstances, to be clustered together near it. Throughout the summer it is also advantageous to the plants to have the earth around the roots carefully loosened by the use of a fork, from time to time.

AFTER CULTURE.

DAHLIAS should never be pruned until the bloom buds show, and then but few branches should be cut out, and only such as are growing across others. The buds should be thinned, for it is by these that the strength of the plant gets exhausted. By removing all that are too near one to be bloomed, and all those that show imperfections enough to prevent them being useful, much strength will be gained by the future flowers. So, also, by pulling off the blooms themselves, the moment they are past perfection, instead of letting them seed.

Winds and sun are both detrimental; and the practice of fixing the blooms in the centre of a flat board, and covering them with glass or flower pots, as they may want light or shade, is becoming general. The more easy way is to use a paper shade for any particular fine bloom; for however the flowers may be coaxed and nursed under cover, a stand of blooms, grown finely, and merely shaded from the hottest sun, will beat all others in brilliancy, and in standing carriage, and keeping. It is right to go round the plants, and, wherever there is a promising bud or bloom, to take away all the leaves and shoots that threaten to touch it as they grow; take off also the adjoining buds; and if the weather be windy, make it fast to a stick or one of the stakes, that it may not be bruised or frayed; shade it from the broiling sun, and it will so profit by the air and night dews, as compared with the bloom under pots and glasses, that if the growth be equal, the blooming will be superior. Nevertheless people will cover; and where there is a disposition to a hard eye, it will hardly come out perfect unless it is covered. As the end of September approaches, or

as soon as you have done with the bloom, earth up the plants, in order that when the frost comes it may not reach the crown.

Preserving the Roots.

The plants may be raised without injury, immediately after the blooms are cut off by the frost, provided that they are hung up in a dry and ordinarily protected situation, with the roots uppermost, if care is taken to leave six or seven inches of the stem attached to each tuber; this may be done without the slightest fear of their withering from having been lifted in a green state. As the winter advances, and the tubers become matured and firm, the ordinary modes of protection against frost may be resorted to.

Treatment when Flowering.

When the buds of your Dahlias begin to appear, you must take them off until you think the plants have attained their full vigor, and then permit only every third bud to grow to maturity; by doing this, it is true, you will not have so numerous a show of flowers, but those which you have, will attain the highest state of perfection your plants are capable of; taking into account their situation and previous treatment, and, what is of paramount importance, the character of the season. In the treatment of flowers grown for exhibition at flower shows, it is a common practice to bind down the disk of the flower towards the earth, by which, it is said, the flowers are rendered more perfect in form, and richer in color. When in flower, the bloom should be shaded from the sun, during the hottest parts of the day.

Striped Varieties.—The striped kinds have a tendency to “run,” as it is termed, into self-colored flowers, if not carefully treated, and almost invariably do so when planted in rich soil; the best mode of keeping them “clean,” that is, in their prime estate as striped flowers, is to plant them in poor soil.

Autumnal and Winter Treatment.

It is the practice with many persons to take up their Dahlia roots as soon as the shrubs are cut down by the frost; this is not desirable, because if the tubers are taken up before their vital powers are in a

quiescent state, they are more easily injured by the dryness of the atmosphere into which they are to be removed, and which it is necessary they should be able to bear without shrivelling; as in a moist atmosphere they are apt to become mildewed and mouldy; therefore, it is best about the end of September to cover the stems and some distance round with earth and littersy dung, about six inches thick, so as to protect the crown of the tuber from injury by the early frosts; and allow them to remain in the ground till November, when they must be taken up and spread singly in a dry open shed for a few days, not allowing the sun to shine upon them, and turned occasionally during this period, so that they may be dried gradually; as, if dried too quickly, they shrivel, or too slowly, they become rotten.

When sufficiently dry, clear away the earth from them, and place them in a dry under-ground cellar, where the frost is not likely to reach them; and these should be examined throughout the winter from time to time, and if there be the least symptom of damp upon the tubers, they should be carefully wiped with a dry cloth, and receive almost daily attention. Should you not have the convenience of such a cellar, you must store them in a pit in the garden, which must be prepared in a dry spot, and be of sufficient capacity to hold all your tubers. Having dug the pit, cover the bottom with dry ashes, then pile the roots thereon, tier upon tier, so as to form a ridge; then cover them with plenty of straw, and form a ridge of earth over them of the thickness of twelve or fourteen inches.





