BRIDGEMAN'S FLORIST'S GUIDE.

Thomas Bridgeman

THE FLORIST'S GUIDE,

CONTAINING

PRACTICAL DIRECTIONS FOR THE CULTIVATION OF ANNUAL, BIENNIAL, AND PERENNIAL

FLOWERING PLANTS,

OF DIFFERENT CLASSES,

HERBACEOUS AND SHRUBBY,
BULBOUS, FIBROUS AND TUBEROUS ROOTED,

INCLUDING THE DOUBLE DAHLIA.

WITH A MONTHLY CALENDAR,

CONTAINING INSTRUCTIONS FOR THE MANAGEMENT OF GREENHOUSE PLANTS THROUGHOUT THE YEAR.

THE WHOLE ADAPTED TO THE CLIMATE OF THE UNITED STATES.

A NEW AND IMPROVED EDITION.

BY THOMAS BRIDGEMAN,
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PREFACE.

THERE is no subject, perhaps, that occupies the mind of man that is better calculated to afford substantial intellectual pleasure and gratification than the study of Nature, especially if we view it from the consideration, that as man is subservient to God, so are all instinctive beings, as well as the productions of the earth, subservient to, and designed for, the use of man.

Man being thus dignified, and endowed with understanding, reason, and moral freedom, is exalted far above all other creatures of the earth. How important, then, that he should maintain his station in society as becomes a rational and intelligent being, instead of sinking himself, as too many do, below the meanest of the mean, by spending his time in dissipation and vice.

It is a fact, which cannot be controverted, that the want of mental and physical employment often proves an incentive to vice, which will almost invariably produce misery; and as surely as the earth will bring forth noxious weeds, when left uncultivated, so surely will one vice beget another; which, if not eradicated, will multiply to an alarming extent, until its victims become a pest to society, and a disgrace to mankind.

Now as happiness is preferable to misery, virtue to vice, knowledge to ignorance, and order to confusion, how important it is that those who pretend to be rational beings should employ their leisure hours in a manner calculated to insure the greatest amount of that which is intrinsically valuable.

What subject can be better calculated to promote such an object than the subject of cultivation, when viewed in all its bearings? But as we are about treating of Flowers, I shall confine my ideas as closely as possible to the subject under consideration, trusting that while the hand is employed in cultivating the transient beauties of a garden, the attentive mind will feast daintily on the study of Nature, and in the

end enrich itself with solid and lasting good. As an incitement to such study, the following reflections are submitted to the attentive perusal of the reader.

The creation of Nature is beautiful, enchantingly beautiful, universally diffused, and of endless variety; but it is the province of man to adorn a single spot, to collect about him the scattered and single beauties, and to see, and feel, and enjoy them. Nature is fruitful, inexhaustibly fruitful; but man must improve her fertility, guide it, and give it its most generally useful direction. Nature is full of life, but man is capable of diversifying, elevating, and ennobling this life; and he is amply rewarded for his labour.

> "Thine is a glorious volume, Nature! Each
> Line, leaf, and page, is filled with living lore;
> Wisdom more pure than sage could ever teach,
> And all philosophy's divinest store;
> Rich lessons rise where'er thy tracks are trod:
> The book of Nature is the book of God."

It may be truly said, that the whole field of Nature is laid open to the investigation and mental enjoyment of man, and that its study is the more accessible, because it is the easiest as well as the most delightful of all studies.

The student in literature must have his library, the natural philosopher and chemist, his apparatus, and the student of man, his annals and records; which are frequently so perplexing, that much of his time is spent in testing their correctness, and the results of his study are often far from satisfactory to himself. Whereas the tillage of the soil invigorates man's mental as well as bodily powers, and elicits more deep science, and more observation, and more general acquaintance with the laws of Nature, than any other pursuit of life.

Of all recreations, perhaps the cultivation of flowers may be considered as the most enchanting. It is not only congenial to health, but is calculated to attach man to his home; and he who delights in his home, and feels disposed to embellish it, will be likely to hasten to it when he has done his

business abroad, instead of wasting his time in the pursuit of transient and dissolute pleasure.

But I had almost forgotten that this guide to the cultivation of the beauties of Nature is chiefly designed for the use of the softer sex. I shall not content myself with merely offering an apology for the digression, but will promise to bear them in mind throughout my studies, not doubting that my humble endeavours to amuse and instruct them will be duly appreciated; which, to an author, is a source of inexpressible satisfaction.

> Mean is the man who never will bestow
> A leaf of laurel on a female brow;
> From the chaste fountain of whose fertile mind,
> Spring forth the graces which adorn mankind.

Having thus introduced myself to my fair readers, I shall proceed to treat of the cultivation of the various and most admired kinds of flowering plants; and I flatter myself that if, by implanting a taste for rural subjects, I should succeed in making them good cultivators in the fullest sense of the word, they will be immeasurably happy in "The Matrimonial Garden,"* should they ever enter therein; and in proportion as they advance in the work of cultivation, will they excel in virtue, which a wise man once declared was to a woman of immense value, "far above rubies," yea, even equal to a glittering "crown."

> "A virtuous conduct leaves behind
> A lasting pleasure in the mind,
> Which by remembrance will assuage
> Grief, sickness, poverty, and age;
> And oft impart a cheering ray,
> To 'lumine life's declining day."

I would fain confess here to my fair readers, that I have, in the course of my studies, occasionally wandered from my accustomed track, with a view to afford them mental recreation while engaged in cultivating the transient inmates of a garden, and from a conviction that the flowers of poesy are

* This refers to an article entitled "The Matrimonial Garden," which will be found toward the end of the book.

not only conducive to intellectual pleasure, but calculated to improve the mind, and to relieve it of that intense thought which necessarily attends practical pursuits, I have ventured to intrude on the patience of those whose sole object may be practical knowledge. I can, however, inform such, that no efforts have been spared to render the work generally instructive as well as amusing, and would invite the attention of my readers to a perusal of its contents before they commence the process of cultivation; and if they select a proper soil, and provide suitable seed and implements, I doubt not that they will experience the highest satisfaction in their instructive, pleasant, and healthful employment.

In conclusion, I would observe, that in order to keep pace with the increasing taste for flowers, and to render this work a desideratum to those amateur florists who cultivate plants merely for amusement, I have in this edition introduced several important improvements; I am, however, aware that it may be viewed by some as still an imperfect work; and having no wish either to overrate its merits or conceal its defects, I am free to acknowledge, that in aiming to divest the subject of those technicalities which too often discourage new beginners in this pursuit, the style may perhaps in some instances have degenerated into a censurable quaintness. The apology I offer is, that, having spent a greater portion of my time in the wide field of nature, than in the study of the dead, or even living languages, I have been more familiar with that which appertains to practical gardening, than with the contents of literary tomes; and that, having no wish, even were I competent, to amuse classical readers with a tedious vocabulary of Greek, Latin, and Botanical terms, I have confined my attention to the teaching of plain people the rudiments of Floriculture, in a concise and explicit manner; and I flatter myself that my labour has not been altogether in vain.

T. BRIDGEMAN.

New-York, January, 1844.

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BULBOUS AND TUBEROUS ROOTED PLANTS,

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OBSERVATIONS

ON

THE FLOWER GARDEN.

Previous to forming a flower garden, the ground should be made mellow and rich, by being well pulverized, manured, and prepared in every respect as if intended for a kitchen garden. A flower garden should be protected from cold, cutting winds by close fences, or plantations of shrubs, forming a close and compact hedge, which should be neatly trimmed every year. Generally speaking, a flower garden should not be on a large scale, and the beds or borders should not in any part be broader than the cultivator can reach, without treading on them: the shape and number of the beds must be determined by the quantity of the ground, and the taste of the person laying out the garden.

Much of the beauty of a pleasure garden depends on the manner in which it is laid out; a great variety of figures may be indulged in for the flower beds. Some choose oval or circular forms, others squares, triangles, hearts, diamonds, &c., intersected with winding grass paths and gravel walks. In the design of an ornamental garden, nature, however, should be imitated as closely as practicable, not only in the formation and regulation of the flower beds, but in the adaptation of each species to its peculiar element, soil, and situation, taking into consideration, that the inmates of a garden, constituting as they do a mingled group, collected from all the different climates and soils of the vegetable creation, require each its most essential aliment, to promote a luxuriant growth.

Neatness should be the prevailing characteristic of a flower garden, which should be so situated as to form an ornamental appendage to the house; and, where circumstances will admit, placed before the windows exposed to a southern or south-eastern aspect. The principle on which it is laid out, ought to be that of exhibiting a variety of colour and form, so blended as to produce one beautiful whole. In a small flower garden, viewed from the windows of a house, this effect is best produced by beds, or borders, formed side by side, and parallel to the windows whence they are seen, as in that position the colours show to the best advantage. In a retired part of the garden, a rustic seat may be formed, over and around which grape vines, or honeysuckles, and other sweet and ornamental creepers and climbers, may be trained on trellises, which will afford a pleasant rural retreat.

In extensive pleasure grounds a rockery, formed of rough stone, and rich light soil, may be erected in imitation of a mountain, on which may be cultivated various plants natives of mountainous districts, and such indigenous plants as are calculated for the situation; also herbaceous plants, procumbent and trailing, such as Mesembryanthemums, Climbing Cordydalis, the various species of Silene or Catch Fly, Gypsophila, Lotus, Ricota or Syrian Honesty, Godetia, &c. These being interspersed with dwarf plants of different species, as Mountain Lychnis, Violets, Daisies, &c., and so arranged as to cover a great proportion of the rocky surface, must necessarily produce a very pleasing effect.

Although the greatest display is produced by a general flower garden, that is, by cultivating such a variety in one bed or border as will insure an almost constant blooming; yet bulbous rooted plants, though essential to the perfection of the flower garden, lose something of their peculiar beauty when not cultivated by themselves. The extensive variety of bulbous roots furnishes means for the formation of a garden, the beauty of which, arising from an intermixture of every variety of form and colour, would well repay the trouble of

cultivation, particularly, as by a judicious selection and management, a succession of bloom may be kept up for some length of time. As, however, bulbous flowers lose their richest tints about the time that Annuals begin to display their beauty, there can be no well-founded objection to the latter being transplanted into the bulbous beds, so that the opening blossoms of the Annuals may fill the place of those just withered, and continue to supply the flower-beds with all the gayety and splendour of the floral kingdom.

The cultivation of Annual Flowers is a delightful employment, and well adapted to the amusement of a lady, who, with the assistance of a labourer to prepare the ground, may turn a barren waste into a beauteous flower garden with her own hands. Sowing the seed, transplanting, watering, and training the plants, tying them to sticks as props, leading them over trellis-work, and gathering their seed, are all suitable feminine occupations, and from their affording motives for exercise in the open air, they contribute greatly to health and tranquillity of mind.

But the taste of the florist will be exercised to little purpose, in the selection of Flowers, if strict attention is not paid to the general state of the garden. If there are lawns or grass walks, they should be frequently trimmed, and more frequently mowed and rolled, to prevent the grass from interfering with the flower-beds, and to give the whole a neat, regular, carpet-like appearance. If there are gravel walks, they should be frequently cleaned, replenished with fresh gravel, and rolled. Box, and other edgings, should be kept clear of weeds, and neatly trimmed every spring. Decayed plants should be removed, and replaced by vigorous ones from the nursery bed. Tall flowering plants must be supported by neat poles or rods; and all dead stalks and leaves from decayed flowers must be frequently removed.

In the summer season, all kinds of insects must be timely destroyed, and in the evenings of warm days, the flowers will require frequent watering.

INTRODUCTION

TO THE

CATALOGUE OF ANNUAL FLOWER SEED.

To raise your flowers, various arts combine;
Study these well, and fancy's flight decline.
If you would have a vivid, vigorous breed
Of every kind, examine well the seed:
Learn to what ELEMENTS your plants belong,
What is their constitution, weak or strong;
Be their physician, careful of their lives,
And see that every species daily thrives;
These love much AIR, these on much HEAT rely,
These, without genial MOISTURE, droop and die.
Supply the wants of each, and they will pay
For all your care through each succeeding day.

WITH a view to render this work more generally useful and interesting, a classification and definition of the various species and varieties embraced in the annexed Catalogue, are attempted to be given. Precision, however, in the performance of this task is impracticable, as it must be evident that the vegetable family, having been collected from every variety of climate and soil, will differ as to height, colour, time of blossoming, and in many other essential points, when cultivated out of their natural ELEMENT.

Some seed germinate in two or three days after having been deposited in the earth; others will not exhibit signs of vegetation in as many weeks. These and other distinguishing features arise, in a great measure, from their having originated in various soils and climates. Natives of cool or temperate climates and moist soils, are generally tardy in germinating when cultivated in a warm climate and dry soil, for want of a due share of their most essential aliment, MOISTURE; and natives of warm climates and light soils require artificial culture in cool seasons and unpropitious climates, in order to their being accommodated with their

natural and most important aliment, HEAT. AIR also is a more necessary aliment to some species than to others, but these three elements collectively, constitute the food of plants in general. It may also be observed that the adaptation of plants to a soil congenial to them is of the utmost importance; as plants will not thrive well when improper food is absorbed by their roots.

Under favourable circumstances, annuals, in general, will produce their flower buds within two months from the period of sowing the seed. Some species, soon after exhibiting their brilliant blossoms and ripening their seed, disappear, while others embellish the borders with a succession of flowers for two or three months. An assortment of seed judiciously selected, and sown in due season, will afford amusement to the cultivator the greater part of a summer, and yield seed for the propagation of the species in succeeding years, if gathered when ripe, and carefully preserved.

Annual plants will grow from one to four feet in height, in one uniform soil and situation; but as these are diversified in almost every garden, no correct conclusion can be drawn in this particular; an attempt, however, has been made in the annexed Catalogue, to describe the various species as nearly as possible, which may serve as a guide to the gardener in planting; the most dwarfish being adapted to the front or outer edge of the borders, and others in regular gradation.

Those species marked thus § are tender. Those marked thus * should be sown in the spot where they are intended to blossom, as they are apt to droop and die by being transplanted. A few are marked thus †. These, though cultivated as annuals, from their facilities in blossoming and ripening their seed the first season, are in reality perennial, as are also some other varieties from warm climates, usually denominated annuals; but as such could not be cultivated at all by those who have no means of protecting their plants during our severe winters, they may with great propriety be treated as tender annuals, by sowing the seed every spring.

A CATALOGUE OF ANNUAL FLOWER SEED.

Graines de fleueres annuelles.

§ Denotes tender. † Perennial. * Difficult to transplant.

		Feet High.
† Ageratum, Mexican, blue,	*Ageratum Mexicana,*	1 to 2
Alkekengi, or Kite Flower, lilac,	*Atropa physaloides,*	3 to 4
† Alyssum, Sweet, white,	*Alyssum maritima,*	1
§ Amaranthus, three-coloured,	*Amaranthus tricolor,*	2 to 3
* Argemone, or Prickly Poppy, yellow, cream-coloured, and white,	*Argemone, Mexicana, grandiflora, ochrolenca, etc.,*	2 to 4
Aster, Chinese and German, white, red, striped, purple, &c.,	*Aster, Chinensis, var. alba, rubra, striata, purpurea, etc.,*	1 to 2
§ Balsams; three species and numerous varieties, scarlet, striped, purple, crimson, white, &c.	*Balsamina hortensis, Mastersiana, cornuta, coccinea, striata, purpurea, alba, etc.,*	1 to 2
§ Bartonia, the Golden,	*Bartonia aurea,*	2 to 3
Bladder Ketmia, buff, dark centre,	*Hibiscus trionum,*	1 to 2
Blue Bottle, Great,	*Centaurea cyanus, major,*	3 to 4
Blue Bottle, Small,	*Centaurea cyanus, minor,*	1 to 2
Blumenbachia, white,	*Blumenbachia insignis, under*	1
§ Browallia, or Amethyst, blue, white,	*Browallia elata, alba, etc.,*	1 to 2
§ Cacalia, scarlet,	*Cacalia coccinea,*	1 to 2
Calliopsis; Drummond's Coreopsis,	*Calliopsis Drummondii,*	2 to 3
Calandrina, Annual, crimson,	*Calandrina, speciosa, etc.,*	1 to 2
† Calandrina, rose and purple tinged,	*Calandrina discolor, etc.,*	2 to 3
* Candytuft, white and purple,	*Iberis alba, purpurea, etc.,*	1
* Catch Fly, purple and red,	*Silene purpurea, muscipula, etc.*	2 to 3
* Catch Fly, dwarf pink, spotted, &c,	*Silene Armeria, picta, etc.,*	1 to 2
* Caterpillars, Hedge-hogs, & Snails, curious,	*Medicago circinnata, intertexta, scutellata, etc.,*	1 to 2
Centaurea, or pink Sultan,	*Centaurea Americana,*	2 to 3
China Pink, of every shade,	*Dianthus, Chinensis, annuus,*	1 to 2
§ Cleome, rose-coloured, white, &c.,	*Cleome rosea, spinosa, etc.,*	2 to 3
Chrysanthemum, white, yellow, and three-coloured,	*Chrysanthemum coronarium, alba, lutea, tricolor, etc.,*	2 to 3
Clarkia, rose, purple, white, &c.,	*Clarkia elegans, pulchella, etc.,*	1 to 2
§ Clintonia, elegant blue,	*Clintonia elegans,*	1 to 2
§ Cockscomb, crimson and yellow,	*Celosia cristata, lutea,*	2 to 3
§ Collinsia, lilac, white, two-coloured,	*Collinsia hetrophilla, bicolor,*	2 to 3
† Commelina, blue-flowering,	*Commelina cœlestis,*	1
* Convolvulus, dwarf variegated, &c.,	*Convolvulus minor, bicolor, etc.*	1 to 2
Coreopsis, Golden, dark centre,	*Calliopsis tinctoria,*	2 to 3
§ Cotton Plant, cream,	*Gossypium herbaceum,*	3 to 4
Crotalaria, purple, yellow, and white,	*Crotalaria verrucosa, etc.,*	1 to 2
Cuphea, Mexican, scarlet, variegated,	*Cuphea lanceolata, silenoides,*	1 to 2
† Dahlia, Mexican, various,	*Dahlia superflua,*	3 to 6

§ Denotes tender. † Perennial. * Difficult to transplant.

		Feet high.
Devil in the Bush, or Love in a Mist, blue, yellow, purple, white, &c.,	*Nigella damascena, Hispanica, orientalis, sativa, etc.,*	1 to 2
Dwarf Love in a Mist, various,	*Nigella nana,*	1
† Dew Plant, crimson,	*Mesembryanthemum glabrum,*	1 to 2
† Didiscus, azure blue,	*Didiscus cæruleus,*	2 to 3
§ Egg-plant, white, for ornament,	*Solanum melongena,*	1 to 2
Erissimum, orange,	*Erissimum perofskianum,*	1 to 2
† Escholtzia, or Chryseis, yellow, red, and orange,	*Escholtzia, crocea, cristata, Cal-Californica, etc.,*	1
Eternal Flower, yellow, purple, and white,	*Xeranthemum lucidum, var, lutea, bracteatum, alba,*	2 to 3
Euphorbia, variegated,	*Euphorbia variegata,*	2 to 3
* Evening Primrose, dwarf annual, white, yellow, red, &c.,	*Œnothera linearis, Drummondii, tetraptera, micrantha, etc.,*	1 to 2
* Evening Primrose, large yellow,	*Œnothera grandiflora,*	2 to 3
* Evening Primrose, willow-leaved,	*Œnothera salcifolia,*	3 to 4
Feather Grass,	*Stipa pinnata, avenacea,*	1 to 2
* Flos Adonis, or Pleasant Eye, red,	*Adonis minata,*	1 to 2
† Francoa, pink and purple,	*Francoa appendiculata,*	1 to 2
§ Galardia, orange and crimson,	*Galardia picta,*	1 to 2
Garidella, Nigella like,	*Garidella nigellastrum,*	1 to 2
Gilia, blue, pink, variegated, &c.,	*Gilia capitata, tricolor, etc.,*	1 to 2
§ Globe Amaranthus, crimson, white,	*Gomphrena globosa,*	1 to 2
Grove Love, blue,	*Nemophila insignis,*	1
† Godetia the Twiggy, purple,	*Godetia viminea,*	3 to 4
Godetia the Ruddy, annual,	*Godetia rubricunda,*	2 to 3
Godetia, dwarf, purple, and spotted,	*Godetia lepida, Lyndleyana, etc.,*	1 to 2
* Gypsophila, pink and white,	*Gypsophila elegans, viscosa,*	1 to 2
Hawkweed, yellow and red,	*Crepis barbata rubra,*	1 to 2
§ Hibiscus, yellow, reddish centre,	*Hibiscus Africanus,*	2 to 3
* Horned Poppy, yellow and scarlet,	*Glauceum luteum, phœniceum,*	2 to 3
† Hunnemania, brilliant yellow,	*Hunnemania famerix, folia,*	3 to 4
Hypecoum, three species, yellow,	*Hypecoum procumbens, etc.,*	1 to 2
§ Ice Plant, white,	*Mesembryanthemum, var.*	1
† Jacobea, purple, spotted, &c.,	*Senecio purpurea, elegans, etc.,*	1 to 2
Job's Tears, gray,	*Coix lachryma Jobi,*	2 to 3
Larkspur, dwarf Rocket, white, blue, purple, pink, and other colours,	*Delphinium ajacis, alba, cærulea, purpurea, etc.,*	1 to 2
Larkspur, branching, various colours,	*Delphinium consolida, etc.,*	2 to 3
Lavatera, red, purple, and white,	*Lavatera, trimestris, alba, etc.,*	4 to 6
Love lies bleeding, crimson,	*Amaranthus melancholicus,*	1 to 2
Lunaria, purple,	*Lunaria purpurea,*	1 to 2
* Lupins, dwarf annual, yellow, purple, rose, two-coloured, &c.,	*Lupinus nanus, densiflorus, bicolor, etc.,*	1 to 2
Malesherbia, blue,	*Malesherbia coronata,*	2 to 3
* Malope, tall scarlet, &c.,	*Malope grandiflora, etc.,*	3 to 4
* Malope, dwarf crimson, rose,	*Malope trifida, malacoides,*	1 to 2
Marigold, African, yellow, orange,	*Tagetes erecta,*	3 to 4

§ Denotes tender. † Perennial. * Difficult to transplant

		Feet high.
Marigold, French, variegated,	*Tagetes patula*,	2 to 3
Marigold, sweet, yellow striped,	*Calendula officinalis*,	1 to 2
§ Marigold, Fig, yellow,	*Mesembryanthemum annuus*,	1
Martynia, or Cuckold's Horn,	*Martynia proboscidea*,	2 to 3
† Marvel of Peru, or Four O'Clocks, white, yellow, red, striped scented,	*Mirabilis jalapa, lutea, rubra, striata, longiflora, etc.*,	2 to 3
† Mignonette, sweet scented,	*Reseda odorata*,	under 1
† Monkey Flower, yellow, scarlet, rose, &c, variegated,	*Mimulus moschatus, cardinalis, rivularius, roseus, etc.*,	1 to 2
§ Nierembergia, several varieties of various colours.	*Nicrembergia intermedia, violacea, phœnicia, etc.*,	2 to 3
Nolana, in varieties, blue,	*Nolana paradoxia, prostrata, etc*	1 to 2
* Oats, animated, green,	*Avena sensitiva*,	2 to 3
† Pansy, or Heart's Ease, purple, blue, yellow, and numerous shades, variegated,	*Viola tricolor, grandiflora, atro, purpurea, cœrulea, lutea, etc.*,	under 1
Pentaptes, scarlet,	*Pentaptes phœnicia*,	1 to 2
Phlox, annual, rosy red, &c.	*Phlox Drummondii, etc.*,	1 to 2
Pimpernel, blue and scarlet,	*Anagallis indica, arvensis*,	1
* Poppy, large white and scarlet,	*Papaver somniferum, coccinea*,	3 to 4
* Poppy, dwarf, scarlet, white, yellow, striped, Persian red, &c.,	*Papaver rhœas, nudicale, Persicum, rubra, striata, etc.*,	1 to 2
Portulaca, two var., purple, scarlet,	*Portulaca splendens, coccinea*,	1
Prince's Feather, crimson,	*Amaranthus hypocondriacus*,	2 to 3
Rocket Candytuft, white, &c.,	*Iberis coronaria, etc.*,	1 to 2
Rose Campion, annual, dwarf red, purple, white, striped, &c.	*Agrostemma cœli, rosea, githago, lacta, etc.*,	1
Salpiglossis, variegated, purple, &c.,	*Salpiglossis, atro purpurea*,	2 to 3
Saphonaria, or Silene, rose,	*Saphonaria vaccaria*,	2 to 3
† Schizanthus, in variety, orange, wing-leaved, &c.,	*Schizanthus retusus, pinnatus, obtusifolia, etc.*,	1 to 2
§ Sensitive Plant, red,	*Mimoso sensitiva*,	under 1
Shortia, yellow,	*Shortia Californica*,	1 to 2
§ Stevia, Vanilla scented, white	*Stevia serrata*,	1 to 2
Stock Gilly, Virginian, lilac,	*Malcomia maritima*,	1
Strawberry Spinach, red fruit,	*Blitum capitatum*,	1 to 2
Strephtanthus, rose-coloured,	*Streptanthus obtusifolius*,	2 to 3
Sunflower, yellow,	*Helianthus annuus*,	6 to 8
Sunflower, dwarf, yellow,	*Helianthus minor, nanus*,	2 to 3
Sun Rose, spotted,	*Helianthemum guttatum*,	1 to 2
* Sweet Balm, blue,	*Melissa odoratum*,	1 to 2
* Sweet Basil, blush, lilac,	*Ocymum basiliacum*,	1 to 2
Sweet Sultan, white, yellow, purple,	*Centaurea moschata, etc.*,	1 to 2
* Ten Week Stock, scarlet, purple, white, &c.,	*Mathiola annua varieties græca, tenella, etc.*,	1 to 2
§ Tobacco in varieties, scarlet, yellow,	*Nicotiana, tabacum, rustica*,	3 to 4
Touch me not, yellow, [&c.,	*Noli mi tangere*,	1
Trefoil, crimson and scented,	*Trifolium incarnatum, etc.*,	3 to 4

§ Denotes tender. † Perennial. * Difficult to transplant.

		Feet high.
* Venus's Looking-Glass, lilac,	*Campanula speculum,*	1 to 2
Vesicaria, in varieties, yellow,	*Vesicaria grandiflora, etc.,*	2 to 3
† Verbena, in varieties, scarlet, rose, blue, lilac, pink, &c.,	*Verbena aubletia, bonariensis, Drummondii, pulchella, etc.,*	1 to 3
Zinnia, scarlet, yellow, violet-coloured, red, &c.,	*Zinnia coccinea, latea, grandiflora, rubra, etc.,*	2 to 3

The following are climbing and trailing plants, which should be planted in situations where they can be supported by poles, twine, or trellises.

The tallest growing vines and creepers are best adapted to the covering of arbours, to create shade, or conceal any unsightly object; the procumbent trailing and low climbing plants, such as the Nasturtium, Loasa, Petunia, Sweet Pea, &c., may be trained on trellis-work of an ornamental form, as that of a fan, balloon, or pyramid, which should be on a scale corresponding to the situation and extent of the garden.

		Feet high.
Balloon Vine, or Love in a Puff,	*Cardiospermum halicacabum,*	over 10
§ Balsam Apple and Pear,	*Momordica balsamina,*	over 10
Bean Hyacinth, white and purple,	*Dolichos alba, purpurea,*	over 10
§ Bean, scarlet flowering,	*Phaseolus multiflorus,*	over 10
Bean, Castor Oil, or Palma Christi,	*Ricinus communis,*	5 to 6
§ Cypress Vine, scarlet and white,	*Ipomœa coccinea, alba,*	over 10
Gourd, Mock Orange, in varieties,	*Cucurbita bicolor, aurantia,*	over 10
Gourd, the Bottle, in varieties,	*Cucurbita lagenaria, elevata,*	10
§ Loasa or Chillian Nettle, orange,	*Loasa laterilia, aurantiaca, etc.,*	3 to 6
Maurandia, blue,	*Maurandia Barclayana,*	over 10
§ Morning Glory, scarlet striped, &c.,	*Ipomœa coccinea, striata, etc.,*	over 10
Morning Glory, of the Convolvulus tribe, purple, striped, yellow, pink, white, &c.,	*Convolvulus major, purpurea, cærulea, striata, lutea, incarnata, alba, etc.,*	over 10
Nasturtium, orange and crimson, variegated,	*Tropœolum atrosanguineum, nana, etc.,*	4 to 6
§ Thunbergia, wing-leaved, purple,	*Thunbergia alata, etc.,*	4 to 6
† Petunia, purple, white, rose, &c.,	*Petunia nyctaginiflora, etc.,*	2 to 3
Sweet Peas, various complexions, white, purple, red, rose, striped, &c.	*Lathyrus odoratus, var. alba, purpurea, rosea, striata, etc.,*	3 to 4

As many city gardens are so limited as not to admit of an extensive assortment of flowers, a select list may be made from the above catalogue, to suit the taste of such as may be so situated; and amateurs, who cultivate on a larger scale,

can obtain such additional sorts as may be desired at the different seed stores, under their various names.

Previous to providing annual flower seed, the cultivator should lay out a plan of his garden, and in making allotments of ground for any particular purpose, provision should be made for a select assortment of such bulbous, tuberous, and perennial plants, as may be deemed most worthy of attention, not forgetting to leave room for some of the choicest varieties of the Dahlia, the qualities of which will be described hereafter.

Another consideration is, to have at hand suitable implements, so that the work may be performed in a skillful manner, and at the proper season. A spade, rake, hoe, trowel, drilling machine, and pruning knife, may be deemed essential; and in order to have the beds laid out, with the edges straight and even, a garden line should be in readiness. If labels should be required, they may be made of shingles, which being split into strips about an inch wide, and sharpened at one end, will serve for marking distinct kinds, either in pots, or on the borders. In order to have the names or numbers written in legible characters, the labels should be painted on the smooth side with white lead, and then marked with a black lead pencil before the paint gets dry; inscriptions made in this way will be as durable as the label itself.

The next, and perhaps the most important consideration, is, to have the ground in good condition to receive the seed. In order to attain this desirable object, let some good rich compost, or very old manure, be provided and well mixed with the soil; dig it a full spit deep, pulverizing every particle. It would be an advantage if the ground could be dug to a great depth at the clearing up of winter, and then again at the period of sowing seed in the SPRING:

> "I come, I come—ye have called me long—
> I come o'er the mountains with light and song!
> Ye may trace my steps o'er the wakening earth,
> By the winds which tell of the Violet's birth,
> By the Primrose-stars in the shadowy grass,
> By the green leaves opening as I pass."

A mellow loam, which is a medium earth between the extremes of clay and sand, enriched with pulverized manure or compost, is adapted to the generality of flowering plants; ground, however, of a boggy nature, composed of black earth, decayed leaves, &c., and in a low situation, is essential to the luxuriant growth of amphibious plants, as Water Lilies, Iris, Lobelia, and the like; but as the cultivator has not always a choice, he may select such plants only as are most congenial to his peculiar soil and situation.

Previous to digging flower beds or borders, care must be taken that they are so arranged that the ground may be a little elevated in the middle; this is essential to the draining off of a redundancy of water, as well as to the exhibition of plants to the greatest possible advantage.

All kinds of annual flower seed may be sown in the months of April and May, on borders or beds of pulverized earth; the beds should be levelled, and the seed sown either in small patches, each kind by itself, or in drills, from an eighth to half an inch deep, according to the size or nature of the seed. Lupins, Peas, &c., should be planted about half an inch deep. Those who would have their plants flower early, should sow the hardy kinds the last week in March, or early in April. Those varieties marked thus †, and thus §, may be sown in boxes, or pots of light earth, at the same time. These, if exposed to the sun every day, and sheltered in cold nights, will be forwarded in growth, and be fit to transplant early in June. Those marked * may also be sown in small pots; and as these plants will not bear transplanting, they should be turned out of the pots with the balls of earth entire, and placed in the ground where they are intended to flower; or, if the seed be sown in a bed with other kinds, they should be carefully transplanted with a trowel, without disturbing their roots.

The most eligible way to obtain early flowers is to prepare a slight hot-bed for the tender kinds, (see Calendar for January,) and either plunge the pots therein up to their brims,

or sow the seed in the earth in shallow drills, not more than a quarter of an inch deep. It may be necessary to state, that although, in favourable seasons, flower seed in general will come up in from one to three weeks after it is sown, the seed of the Cypress vine will not grow until settled warm weather, unless in a hot-bed; it should be soaked for about half an hour in moderately warm water, previous to being sown.

If some of the hardy annuals be sown in September, they will grow large enough to survive the winter, if slightly covered with straw or litter; and if plants thus raised be transplanted early in the spring, they will produce very early flowers. The following are some of the hardiest:

Alyssum, Sweet.
Coreopsis, or Calliopsis.
China Aster, in varieties.
Catch Fly.
Chrysanthemum, in varieties.
Evening Primrose.
Larkspur, in varieties.
Pansy, or Heart's Ease.
Poppy, in varieties.
Rocket Larkspur.

To prevent disappointment, I would recommend that great care be taken to keep the seed beds as clear from weeds as possible. It cannot be denied that young plants are apt to get smothered, and sometimes pulled up with weeds. To obviate this, I would suggest that the seed be sown in shallow drills, each kind by itself, and that an account be kept of the contents of each drill in a book; also of all seed that are sown at different times; and by being particular in the dates, you may always know when to expect your plants to come up. Those persons totally unacquainted with plants, will, by this means, be enabled to identify each particular kind, and thus become familiarly acquainted with them.* In order

* Lest the reader should think that the author is here shifting his own duty and responsibility on the cultivator, it may be necessary to observe that a definition of all the peculiar qualities, forms, attitudes, and habits of growth, of the numerous species and varieties of plants embraced in an extensive catalogue, with minute directions for the most appropriate culture of each, would alone occupy more space than is allotted to this treatise; and that to expatiate on all the various features of the floral kingdom is a

that this may be rendered plain to my readers, I shall adopt the following plan of entry of six kinds sown in pots, and six in the open ground:

April 20, sowed flower seed in pots.
Pot marked A, or 1, Amaranthus tricolor.
" B, or 2, Balsamines.
" C, or 3, Cockscomb.
" D, or 4, Egg Plant.
" E, or 5, Ice Plant.
" F, or 6, Mignonette.

These pots may be either marked with letters or figures on the outside, to answer with the book, or notches may be cut in wood, or other labels affixed to the pots, and entered accordingly.

April 30, sowed flower seed in drills, as under:
No. 1, Bladder Ketmia.
" 2, Coreopsis Tinctoria.
" 3, Yellow Eternal Flower.
" 4, Globe Amaranthus.
" 5, Princes' Feather.
" 6, Larkspur, branching.

If these numbers be continued to 100, or even 1,000, there can be no mistake, provided the rows are all marked according to the entry in the book; or if No. 1 be noted, plain sticks will answer afterward, if one be stuck at each end of every row. In this case it would be well to leave a space every ten or twenty rows, and note the number of rows; by this means, they can be more easily traced.

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task which no author has ever attempted; nor can any library be found containing such a desideratum.

The cultivator of a small garden may, however, by means of a memorandum book, describe the peculiarities of such plants as come under his special care, as upright, procumbent, trailing, climbing, bushy, slender-stalked, herbaceous, shrubby, &c., and thus learn how to cultivate and arrange the same, or similar plants, advantageously in succeeding years; and it must be admitted that a few flowers, selected so as to harmonize in their colours and habits of growth, cultivated with precision, as respects soil and situation congenial to them, and trained and pruned into regular and compact shapes, will yield more pleasure and amusement than three times the number taken promiscuously and cultivated under one uniform treatment, as is the general, though not most judicious, practice

Some species of Dwarf Annuals, such as Sweet Alyssum, Candytuft, Clarkia Pulchella, Mignonette, Pimpernell, and such others as grow not over a foot in height, may be cultivated in small beds, either separate or two or three kinds mixed together. Clarkia Pulchella suits very well with Mignonette, as it will thrive in moderately poor soil, which is the best adapted for that plant when fragrance is an object.*

The best way to manage the mixed species, is to level a narrow border of rather poor soil, and sow it all over with Mignonette, then with Clarkia Pulchella; when the plants are up, both kinds should be thinned out equally, so as to leave the plants from one to two inches apart all over the bed; these, when they come into blossom, will form a rich mass, and have a very pretty effect, the bushiness of the Mignonette hiding the naked stalks of the Clarkia. The White Alyssum and Purple Candytuft form a pleasing contrast when mixed in equal proportions, and also the Dwarf Gilia and Blue Pimpernell.

The new species of Dwarf Annual Phlox, (*Phlox Drummondii*,) are described in a London Magazine as a splendid sight when cultivated in a bed. "Every flower, though of the deepest carmine, has its petals of a pale blush colour on the under side, and every petal, though of the palest pink, has a dark carmine spot at its base. Thus the variety of colours displayed in a bed of these flowers, almost exceeds description; and when they are seen under a bright sun, and agitated by a gentle breeze, the effect is extraordinarily brilliant."

When seed are intended to be sown in patches, which is often done for want of an unoccupied border, the best way

* The reason that some Mignonette has scarcely any scent is, because the soil in which it is cultivated is too rich; and this leads me to remark farther, that what some call Tree Mignonette, and admire on account of its fragrance, is not a distinct variety, but the ordinary kind, cultivated as a perennial plant. It may be propagated by cuttings, and trained so as to form a tree; which being transplanted into poor ground, will yield more fragrance than when grown as an annual in a rich compost.

to perform this business is, after having pulverized the soil, to impress circular drills in the surface with the rim of a flower pot, which may be large or small, according to fancy. By sowing seed in such circular drills, the plants can be more easily traced than when scattered promiscuously over the ground, and the weeds can be destroyed with less risk and trouble. Such kinds as are marked in the Catalogue thus * may remain as sown, or, if parted, they should be removed with a scoop trowel in a careful manner, in small tufts; and this business, as well as transplanting in general, should always be done immediately preceding or after rain, and in cloudy weather.†

Herbaceous plants in general will not flower well if grown in clusters; they should, therefore, be thinned or transplanted into the regular beds, at all favourable opportunities, after they get about an inch in height; and as there is always a risk of some plants not taking root, it is safest to plant a few of each sort every time, taking care to diversify the colours, and also to leave a few plants in the seed beds, for the purpose of substituting in the room of such plants whose period of flowering may be over; as is the case generally with early Perennial plants and bulbs, at about the season that the last of the Annuals are fit to remove.

The transplanting may be done with a small trowel, or a neat dibble made for the purpose.

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† The risk and trouble of transplanting may be avoided by adopting the following method of sowing the seed. Take a dollar package of twenty varieties, and number the bags from one to twenty; then sow a circle from each bag in the order in which they are numbered, and insert a short stick in the centre of each circle as a mark. By this method the twenty varieties are distributed along the border in succession, and as each bag will be sufficient for three circles, sixty circles, or three assortments of twenty varieties, may be sown in three different aspects of the garden, which will not only give the various flowers the best possible chance with regard to exposure, but show the varieties to the greatest possible advantage. By preserving the bags, the mere novice, by referring to the name and number on each, will become acquainted with the different varieties, from the order in which they stand in his garden. This system may be practised to advantage either on a large or small scale.

PRELIMINARY OBSERVATIONS

TO THE CATALOGUE OF

BIENNIAL AND PERENNIAL FLOWER SEED.

The remarks preceding our Catalogue of Annuals will, with few exceptions, apply to that of Biennials and Perennials; and it may be observed farther, that the circulation of the sap in the roots and stalk of plants is influenced by like causes, and subject to the same vicissitudes, as the germination of seed, which principle is exemplified by some plants of various species putting forth their leaves and flowers at a later period than others in the same location, as if waiting for nature to replenish the earth with food adapted to their respective requirements; which, by the gradual changes from cool to temperate, and from that to warm weather, is effected to that degree as to enable all the various species of plants, collected from every climate and soil under the sun, to reward the industrious cultivator by a gradual exhibition of their fascinating blossoms, and a distribution of their odoriferous sweets, throughout the three propitious seasons of the year, *i. e.*, spring, summer, and autumn.

In distinguishing between Biennials and Perennials, I have only marked such as are apt to die after once blossoming, and which can only be renewed from seed. Some of those species, frequently classed with Biennials, as *Aquilegia* or Columbines, *Dianthus*, &c., are in reality Perennial, and may be easily perpetuated from year to year, by suckers, layers, or any of the ordinary methods of propagation; and here I would observe, that frequent renewal of the roots of Perennials is absolutely necessary to their prosperity or very existence; and also that many species are by nature best

adapted for propagation at the footstalks, from their yielding little or no seed at the top of the plant. This is particularly the case with choice double-flowering plants, the roots of which, in many cases, constitute the seed; these, consequently, must be perpetuated by root offsets, cuttings, &c.

The annexed Catalogue embraces a great proportion of the most desirable of what are termed fibrous-rooted herbaceous plants; the seed or roots of which may be obtained at seed stores and nurseries. The estimated height applies to plants of a year's growth; some will arrive to more than three times that height when cultivated in a greenhouse, and even in open ground culture the same plants will vary considerably, according to the soil or situation in which they are grown; the specified height however, although unavoidably imperfect, may serve as a guide to the gardener in arranging his flower beds. Those marked thus †, being tender and half hardy, will need protection in the winter; those marked thus || are Biennial; those marked thus * yield little or no seed. There are also many other species of which the seed is unattainable, from its being suffered to scatter by the wind, and in some cases, from the climate being unfavourable to its ripening; these, as will be shown hereafter, may be perpetuated by other methods.

A CATALOGUE

OF

BIENNIAL AND PERENNIAL FLOWER SEED

Graines de fleurs bisannuelles et vivaces.

† Denotes tender. ‖ Biennial. * Seed unattainable.

		Feet high
Adonis, Spring-flowering, yellow,	*Adonis vernalis,*	2 to 3
Alpine Columbine, purple,	*Aquilegia alpina,*	1 to 2
Alyssum, yellow,	*Alyssum saxatile,*	1
Asclepias, orange, purple, &c.,	*Asclepias incarnata, etc.,*	2 to 3
Asiatic Globe Flower, yellow,	*Trollius Asiaticus,*	3 to 4
†Auricula, variegated,	*Primula auricula,*	*under* 1
†Balm of Gilead, fragrant,	*Dracocephalum canariense,*	1
Bee Larkspur, blue and brown,	*Delphinium elatum,*	4 to 6
Bergamot, crimson, blue,	*Monarda Kalmiana, didyma,*	2 to 3
*†Canary Aster, purple,	*Cineraria amelloides,*	1
†Calceolaria, various colours,	*Calceolaria variabilis,*	2 to 3
Campanula Peren., blue, white, &c.,	*Campanula persicafolia, etc.*	2 to 3
‖Canterbury Bells, blue, white,	*Campanula medium,*	2 to 3
†Caper Tree, green,	*Euphorbia lathyrus,*	2 to 3
Cardinal Flower, in varieties, scarlet,	*Lobelia cardinalis, etc.,*	3 to 4
Cassia, Maryland, yellow,	*Cassia Marylandica,*	3 to 4
†Carnation Pink, various colours,	*Dianthus caryophyllus,*	1 to 2
*†Celcia, red and yellow, variegated,	*Celcia orientalis,*	1 to 2
Chinese Imperial Pink, variegated,	*Dianthus Chinensis,*	1 to 2
†Chinese Primrose, lilac, white,	*Primula Chinensis,*	*under* 1
†Cistus, yellow,	*Cistus guttatus,*	1 to 2
†Clandanthus, white,	*Clandanthus arabicus,*	2 to 3
†Clerodendron, scarlet,	*Clerodendron speciosum,*	4 to 5
Clove Imperial Pink, crimson,	*Dianthus hortensis,*	1 to 2
†Colutea, scarlet,	*Sutherlandia frutescens,*	2 to 3
*Coreopsis, Perennial, in varieties, yellow,	*Calliopsis grandiflora, lanceolatum, auriculata, etc.,*	2 to 3
*†Coronilla, yellow,	*Coronilla glauca,*	2 to 3
*Coronet, or double Lychnis, scarlet,	*Lychnis coronata,*	2 to 3
‖Clary, purple-topped,	*Salvia sclara,*	1 to 2
Columbine, various colours,	*Aquilegia vulgaris,*	1 to 2
*†Daisy, Garden, various colours,	*Bellis perennis, hortensis,*	*under* 1
Dragon's Head, bluish pink,	*Dracocephalum Virginianum,*	3 to 4
Dragon's Head, purple and striped,	*Dracocephalum argunense, etc.*	1 to 2
European Globe Flower, yellow,	*Trollius Europœus,*	2 to 3
‖Evening Primrose, yellow,	*Œnothera biennis,*	3 to 4
Eupatorium, blue, white,	*Eupatorium cerulea, etc.,*	2 to 3
‖Fox-glove, purple, white,	*Digitalis purpurea, alba,*	3 to 4

† Denotes tender. ▯ Biennial. * Seed unattainable.

		Feet high.
Fraxinella. red, white,	*Dictamnus rubra, alba,*	1 to 2
Gentian, purple, yellow, white,	*Gentiana purpurea, lutea, etc.,*	1
Gentian, porcelain-flowered,	*Gentiana adscendens,*	2 to 3
†Geranium, various colours,	*Pelargonium zonale,*	2 to 3
Globe Thistle, purple,	*Echinops sphæroccphalus,*	2 to 3
†Hepatica, blue, pink,	*Anemone hepatica, under*	1
Hibiscus, pink, white, purple,	*Hibiscus palustris, speciosus, etc.*	3 to 4
Hollyhock, Antwerp, China, and English, of various colours,	*Althea flora Chinensis, Anglica, etc.,*	4 to 5
‖Honesty, or Satin Flower, blush,	*Lunaria biennis,*	2 to 3
†Indian Shot, yellow, scarlet,	*Canna Indica, lutea, coccinea,*	1 to 2
†‖Ipomopsis, scarlet,	*Ipomopsis elegans,*	3 to 4
Ivy-leaved Toad Flax, pink,	*Lunaria, cymbalaria,*	1 to 2
Jacob's Ladder, blue,	*Polemonium ceruleum,*	1 to 2
†Jerusalem Cherry, red fruit,	*Solanum pseudo, capsicum,*	2 to 3
Larkspur, Perennial, purple, pink, white, &c.,	*Delphinium grandiflorum, perennis,*	2 to 3
*Liatris, long spiked, purple,	*Liatris spicata, elegans, etc.,*	3 to 4
*Lily of the Valley, white,	*Convalleria majalis,*	1
†Lotus, brown,	*Lotus jacobeus,*	2 to 3
†Lisianthus, scarlet,	*Lisianthus Russellianus,*	2 to 3
†Lupin, Perennial, blue, white, changeable, &c.,	*Lupinus perennis, mutabilis, variabilis, etc.,*	2 to 3
*Lychnidea, or American Phlox, lilac, purple, red, white, &c.,	*Phlox punicula'a accuminata pyramidalis, odorata, etc.,*	3 to 4
*Lychnidea, early, pink, &c.,	*Phlox subulata, stolonifera, etc.*	1 to 2
*Lychnis, Mountain, variegated,	*Lychnis Alpina,*	1 to 2
Lychnis, scarlet,	*Lychnis Chalcedonica,*	3 to 4
London Pride, variegated,	*Dianthus deltoides,*	1
†Mesembryanthemum, variegated, yellow, white, purple, &c.,	*Mesembryanthemum acinaciforme, spectabile, tricolor, etc.,*	1 to 2
*†Mexican Sage, scarlet,	*Salvia splendens,*	2 to 3
Monk's Hood, white, blue, &c.,	*Aconitum album, versicolor, etc.*	4 to 6
Monkey Flower, yellow, purple spots,	*Mimulus ringens, luteus, etc.*	1 to 2
†Oleander, pink, white,	*Nerium Oleander,*	2 to 3
*Pardanthus, Chinese, orange,	*Pardanthus Chinensis,*	1 to 2
Pentstemon, purple,	*Pentstemon campanulata,*	2 to 3
Perennial Flax, purple,	*Linum perennis.*	2 to 3
†Periwinkle, Madagascar, rose, white,	*Vinca rosea, alba,*	1 to 2
Pink, Pheasant-eyed, variegated,	*Dianthus plumarius, under*	1
†Polyanthus, variable and splendid,	*Primula polyanthus, under*	1
Poppy, Perennial, red, yellow,	*Papaver orientale, bracteata,*	2 to 3
Potentilla, rose, puce, yellow,	*Potentilla formoso, splendens,*	1 to 2
†‖Pyramidal Bell Flower, blue,	*Campanula pyramidalis,*	3 to 4
*Queen of the Meadows, white, rose,	*Spiræa ulmaria, lobata, etc.,*	3 to 4
*Ragged Robin, or Red Lychnis,	*Agrostemma flos cucula,*	1 to 2
Rocket, Garden, purple,	*Hesperis matronalis,*	2 to 3
‖Rose Campion, or Mullen Pink, rose, white, &c.,	*Agrostemma coronaria, rosea, alba, etc.,*	2 to 3

† Denotes tender. ‖ Biennial. * Seed unattainable.

		Feet high.
Rudbeckia, yellow, purple,	*Rudbeckia, lutea, purpurea,*	3 to 4
Saphonaria, rose blush,	*Saphonaria officinalis, etc.,*	1 to 2
*Saxifrage, rose white, purple,	*Saxifraga umbroso, crassifolia,*	1
‖Snapdragon, white, red, variegated, in several splendid varieties,	*Antirrhinum bicolor, versicolor, coccinea, spartium, etc.,*	1 to 2
Sophora, white, blue, &c.,	*Sophora alba, autralis,*	2 to 3
†‖Stock Gilliflower, numerous varieties, scarlet, white, purple, striped,	*Mathiola incanus, coccinea, alba, purpurea, striata, etc.,*	1 to 2
*Sunflower, yellow,	*Helianthus perennis, altissimus,*	3 to 4
‖Sweet Scabious, purple, brown,	*Scabiosa atro, purpurea, etc.,*	2 to 3
Sweet William, various colours,	*Dianthus barbatus,*	1 to 2
*Thrift, pink and red,	*Statice vulgaris, speciosa, under*	1
Valerian, Garden, red, white,	*Valeriana rubra, alba,*	2 to 3
Valerian, Sweet-scented, blue,	*Polomonium cerulea,*	3 to 4
Veronica, variegated, blue,	*Veronica variegata, cerulea,*	2 to 3
*Violet, Fragrant, white, blue, &c.,	*Viola odorata, alba, cerulea, under*	1
†‖Wallflower, bloody, yellow,	*Cherianthus cheiri,*	1 to 2
*†Wallflower, double perennial,	*Cheiranthus perennis,*	1 to 2
†‖Wall-leaved Stock Gilliflower,	*Cheiranthus glaber,*	1 to 2
*Windflower, various colours,	*Anemone coronaria.*	1 to 2
Yucca, or Adam's Needle, white,	*Yucca filamentoca, gloriosa, etc.*	3 to 4

CLIMBING PLANTS.

[For the other lists of Climbing Plants, see Catalogue of Flowering and Ornamental Shrubs; also the Catalogue of Annuals.]

Calampelis, orange,	*Eccremocarpus scabra,*	*over* 6
†Climbing Cobea, dark purple,	*Cobea scandens,*	*over* 20
Everlasting Peas, pink,	*Lathyrus latifolius, rosea,*	*over* 10
‖French Honeysuckle, white, red,	*Hedysarum coronarium, etc.,*	*over* 6
†Lophospermum, pink,	*Lophospermum scandens,*	*over* 6
†Passion Flower, various colours,	*Passiflora incarnata, etc.,*	*over* 20

The reader is here reminded that our Catalogue of Annual Flower Seed contains a few varieties of Perennials, which were there introduced because of their aptness to blossom the first season of the seed being sown; these, with those marked † in the last Catalogue, may be sown and treated in the manner recommended for tender Annuals. Those intended to be cultivated as green-house plants, should be taken up before the approach of cold weather, transplanted

into flower-pots, and sheltered either in a garden-frame, green-house, or light room. Those plants with tuberous roots, such as Dahlias, Marvel of Peru, and also some others of the Bean and Pea tribe, may be cut down late in the autumn, and the roots taken up and preserved in the same manner as those of other tuberous and bulbous-rooted plants, of which I shall treat hereafter.

Hardy Biennial and Perennial flower seed may be sown in the month of April, in shallow drills. If this business be performed in the manner recommended for Annuals, they can be easily distinguished from each other; and as these plants do not flower the first year, they may be thinned out, or removed from the seed-beds as soon as they are well rooted, and planted either in different parts of the flower beds, or in a nursery-bed. If the latter plan be adopted. they should be planted in rows a foot or more apart, and kept free from weeds by means of a small hoe, which will greatly promote their growth, and prepare them for transplanting into the regular and permanent blossoming-beds, either in the autumn or early in the ensuing spring.

It may be here observed that Biennials seldom survive the second winter to flower in perfection, unless they are renewed by cuttings of top shoots, young flower stalks, or casual offsets, layers, &c. It will be unnecessary to take this trouble, unless with some extraordinary double-flowering plants. Some of the Perennials may be increased by root offsets detached from the old plants, and planted in spring or autumn; others by bottom suckers and slips of top shoots, layers, pipings of young shoots, &c. Pinks, Sweet Williams, Pansies, and double Violets, also Periwinkle, or running Myrtle, and many other similar plants, may be increased by simply laying their branches an inch or two under the surface, in July and August. After roots have formed, which may be expected in six or eight weeks, each tuft or plant may be transplanted into the borders.

Many sorts of Biennial and Perennial flower seed may be

sown in September, or as soon as ripe; and if the plants get strong before winter sets in, some of them will flower the ensuing summer. The following are among the hardiest:

Adonis, Spring-flowering.
Alpine Columbine.
Alyssum, yellow.
Bee Larkspur.
Columbine, in varieties.
Evening Primrose.
Fox-glove, in varieties.
Fraxinella.
Hollyhock, in varieties.
Lychnis, in varieties.
Larkspur, perennial.
Rose Campion, in varieties.
Rocket, in varieties.
Scabious, in varieties.
Valerian, Garden.
Veronica.
Everlasting Peas, } climbing.
Virgin's Bower, }

It may be necessary here to remind the reader of those species of beautiful double-flowering Perennial herbaceous plants, which do not produce seed; some of these are included in our Catalogue; they may be obtained at the nurseries, and should be introduced into the regular flower-beds, either in autumn or early in the spring; the best mode of increasing these, and all double-flowering Perennials raised from seed, is by layers, cuttings, offsets, &c., detached from the old plants.*

As the earth in the flower-beds will require to be fresh dug and replenished with good compost or manure once in two or three years, it may be necessary to take up all the Perennial plants at such times. Such roots as are overgrown should be deprived of their surplus offsets, and either planted in a nursery-bed, or returned with the parent plants into the

* It may here be observed, that the most certain method of obtaining double flowers, is by propagation from Perennial plants. Many seed customers feel disappointed if they do not in every case procure double flowers from seed, which is unreasonable, because, although seed will, under ordinary circumstances, reproduce its species, it will by no means uniformly produce the particular variety by which it was borne. The experience of numerous amateurs will corroborate this fact, who frequently, after saving seed from their most perfect flowers, have the mortification of witnessing such degeneracy the following season as would lead them to doubt its identity, had the seed been obtained from any other source. Seed gathered from double Balsams, or Lady Slippers, for instance, will frequently produce semi-double and single flowers the next season,

regular flower-beds; they should be inserted a little deeper than before, and the fine fresh earth distributed well about the fibres.

In removing plants into the beds where they are intended to blossom, great pains should be taken to preserve some of the earth to their roots. The ground should be previously brought into good condition, so that they may strike freely, and produce their flowers in perfection. The plants should be so arranged that they may all be seen, the most dwarfish being placed in front, and the taller kinds in regular gradations behind; or the tallest may be planted along the middle of the beds, and the others on each side, according to their varied heights and colours.

There is no part of gardening which requires so much the exercise of taste and fancy, as in setting off a border or bed of intermixed flowers to advantage. In association with other flowers, the different kinds of hardy bulbs may be planted in small clumps of six, seven, or eight inches in diameter, three, four, five, or more roots in each, according to their size and growth, and these at suitable distances from each other. Likewise observe to diversify the kinds and colours, so as to display, when in bloom, the greatest possible variety of shades and contrasts.

If green-house plants be plunged into the flower borders in the month of May, they will not only tend to ornament the garden by their diversity of foliage and blossom, but the roots will receive a more uniform supply of moisture, than if the pots were exposed to the sun and wind: care should, however, be taken to give the different species a situation suitable for them. Hydrangeas, Primulas, Daisies, Oleanders, Camellias, China Roses, and half-hardy plants in general, thrive best in a moderately shaded situation. Geraniums, Jasmines, Heliotropes, &c., may be plunged in a sunny situation, provided they be regularly supplied with water. Many species planted for ornament in the flower borders, may at the same time be propagated by layers. The *Fuchsia*

or Ear-drop, Passion Flower, Heliotrope, Carnation, Petunia, running Verbena, &c., will, if layed in June or July, exhibit their blossoms in perfection, and yield young plants, which being preserved through winter, may be used to replenish flower-beds the ensuing spring.*

* In some countries the wealthy have *changeable flower gardens*, which are so arranged that their productions can be changed at pleasure, so that whenever any plant, or group of plants, begins to decay, it can be removed, and its place supplied by others coming into bloom. To effect this, a large reserve-nursery is requisite, in which the plants must be kept in pots, and removed and plunged in the borders as wanted. Sir W. Chambers informs us that the Chinese excel in this mode of gardening; and that he has known a mandarin (or noble) to have the whole furniture and style of his parterre changed in a single night, so as to present next morning not only a different description of flowers, shrubs, and dwarf trees, but a different arrangement of the beds and compartments. Something of the same kind is practised in the gardens of the Tuileries, in Paris; in some of the imperial gardens at Petersburgh, and in the vice-royal gardens at Monza. Gardens of this description admit of a very perfect arrangement of the flowers, whether in the mingled manner, in select groups, or according to the natural method. It is only with such resources that a flower gardener can "paint his way," as Sir W. Chambers says the Chinese artists do, "not scattering their flowers indiscriminately about their borders, but disposing of them with great circumspection along the skirts of the plantations, or other places where flowers are to be introduced. They reject all that are of a straggling growth, and of harsh colours and poor foliage, choosing only such as are of some duration, grow either large or in clusters, are of beautiful forms, well leaved, and of tints that harmonize with the greens that surround them. They avoid all sudden transitions, both with regard to dimension and colour, rising gradually from the smallest flowers to those of the boldest growth; and varying their tints, by easy gradations, from white, straw-colour, purple, and incarnate, to the deepest blues, and most brilliant crimsons and scarlets. They frequently blend several roots together, whose leaves and flowers unite, and compose one rich, harmonious mass; such as the white and purple Candytuft, Larkspurs, and Mallows of various colours, double Poppies, Lupins, Primroses, Pinks, and Carnations; with many more of which the forms and colours accord with each other; and the same method they use with flowering shrubs, blending white, red, and variegated roses together, purple and white lilacs, yellow and white jasmines, altheas of various sorts, and as many others as they can with any propriety unite. By these mixtures they increase considerably the variety and beauty of their compartments. In their large plantations, the flowers generally grow in the natural ground; but in flower gardens, and all other parts that are highly kept, they are in pots buried in the ground, which, as fast as the bloom goes off, are removed, and others are brought to supply their places; so that there is a constant succession for almost every month in the year; and the flowers are never seen but in the height of their beauty."—*Loudon's Encyclopædia of Gardening.*

It may be observed farther, that established plants will always produce their blossoms earlier and stronger in the spring, than those recently transplanted; it should, therefore, be an object with gardeners to do the business of forming permanent flower-beds and of transplanting hardy Perennial and Biennial plants, in September or October.

The hardy bulbous roots must also be planted in October or November, which on being properly preserved through the winter, will embellish the parterre in spring by their early and First Flowers.

"First flowers of the spring time,
Bright gems of the year,
All lovely and blooming,
How fresh ye appear;
Springing up in the garden,
The hedge-row and vale,
Enriched by the showers,
And fann'd by the gale."

In my preliminary observations, I directed the attention of my readers to some important points respecting walks, edgings, &c. Although box is superior to any thing else for edgings, yet, in extensive gardens, dwarf plants of various kinds may be used for such purpose. Thrift is the neatest small evergreen next to box; but Violets, Pinks, Periwinkle, Pansy, Iris, Stone Crop, or even Parsley, Thyme, Strawberry plants, &c., may be used for the sake of diversity. These will require frequent watering and trimming, and the Thrift, &c., should be sometimes taken up, divided at the roots, and replanted.

Box edgings will also require frequent pruning and trimming; and once in from seven to ten years the whole may be taken up, divided, and replanted, and the surplus slips may be planted in a nursery-bed, in rows about a foot apart; these will be suitable for making edgings the year following.

Flower-beds should be kept free from weeds, and watered occasionally in the summer. In the autumn they should be covered with leaves, straw, or light litter; this should be

taken off in the spring, and the ground hoed and dressed in such a manner as to enliven the earth around the roots of the plants, and to give the whole a neat appearance.

FLOWERING AND ORNAMENTAL SHRUBS.

Arbrisseaux d'Ornement.

Shrubs are so closely connected with flowering plants, and, indeed, so many of them are embellished with flowers, that they may be considered as essential to the completion of an ornamental garden. They are all Perennial, and are divided into two classes, deciduous and evergreen; the former lose their leaves in the winter, the latter only shed them when others are ready to supply their places.

Shrubs are not only necessary to the embellishment of a flower garden, but many kinds are eligible for hedges to it, and may be planted at a trifling expense. These hedges should be frequently trimmed and trained, the sides cut even and the tops sparingly clipped, so as to make them ornamental as well as useful, and also to increase the vigour of their growth. When hedges become open or naked at the bottom, they should be plashed down; this is done by cutting the branches half through near the ground; they will then bend easily, and may be interwoven with the adjoining branches.

When shrubs, creepers, or climbers, are planted against walls or trellises, either on account of their rarity, delicacy, or to conceal a rough fence, or other unsightly object, they require different modes of training; some attach themselves naturally, as the Ivy, and merely require to be occasionally guided, so as to cause a regular distribution of their shoots; others must be treated like fruit trees, trained thinly, if blossoms are the object, and rather thick, if the intention be to show the foliage to the greatest possible advantage.

Ornamental shrubs grow from one foot to twelve or more feet in height; and where such are planted for ornament, the height of each plant, when full grown, should be considered, and also the mode of growth, that every one may be so planted as to show to advantage, observing that the tall-growing kinds should be planted in the back part of the borders, and those of low growth in front; but if they are required to be planted in clumps, they should be so arranged as to rise gradually from the sides to the middle, and be afterward neatly trimmed.

Shrubs require an annual pruning, at which time, cut out all irregular and superfluous branches, and head down such as require it, forming them into handsome bushes. Apply stakes to such as need support, and see that the low-growing ones do not injure each other, or interfere with other dwarf-ish plants near them.

Many kinds of shrubs may be raised from seed sown early in the spring, but are more commonly propagated by suckers, layers, or cuttings. Like other plants, they require a good soil, which should be manured every two or three years, and some of the tender kinds should have some protection in winter.

The following list, taken from 'The New-York Farmer,' furnished by Mr. Floy, contains the most of those usually planted in gardens and on lawns. These will afford a succession of flowers from spring until autumn, and may be obtained at the nurseries at moderate prices.

CATALOGUE, &c.

Amorpha fruticosa, Indigo shrub, produces handsome bunches of purple flowers in June and July.

Amygdalus nana, Dwarf double-flowering Almond; a very beautiful shrub, about three feet high; blossoms early in April.

Aralia spinosa, or Angelica tree, about ten feet high; flowers in very large bunches, and continues a long while in bloom.

Cytisus Laburnum, or Golden Chain; a most elegant shrub, producing long racemes or bunches of yellow flowers in June and July; there are two kinds, the English and the Scotch Laburnum. The Scotch is the largest, forming a pretty large shrub; the English kind is greener, more compact, and by some thought to be the handsomest; they ought to be in every garden.

Calycanthus Floridus, Allspice, or sweet-scented shrub, a native of the Southern States; the flowers are of a very dark chocolate colour, and the fragrance very much resembles ripe strawberries; easily kept when once introduced. This shrub generally grows about five feet high in gardens, and blossoms from May to August.

Ceanothus Americanus, Red Root, or Jersey Tea Tree; a plant or two in the collection, as it flowers in profusion, is worth having.

Cercis siliquastrum, or Judas tree. The flowers appear very early in the spring, before the leaves come out, and make a fine appearance; as it grows rather tall, it is calculated for the back row of the shrubbery.

Colutea arborescens, or Bladder Senna, having bunches of yellow flowers in June and July, which are succeeded by seed in a kind of bladder; calculated for the back or centre row of shrubberies.

Cratægus oxyacantha, the Hawthorn. It makes a pretty appearance planted out singly in the back or centre row; the flowers are very fragrant; it is sometimes called the Pride of May; the double white, double scarlet, and single scarlet Hawthorn, are very beautiful, and ought to be in every plantation. Hawthorn hedges are much used in England, where they look very handsome when clipped; but they do not answer so well in this country, the heat of our summers causing the leaves to fall off early, often in July;

on that account they are not much used. We have several things which are better calculated for that purpose.

Cydonia Japonica, or Pyrus Japonica, a very beautiful scarlet flowering shrub, from Japan. It is found to be very hardy, resisting our most severe frosts; it flowers very early, and continues a long time in bloom. A second flowering takes place in the latter part of the summer. It is every way a desirable shrub.

Daphne mezerion, one of our most early flowering shrubs, which blooms freely in April and May, and is very sweet-scented. It is rather tender in some situations, but will stand our ordinary winters very well in a sheltered situation.

Dirca palustris, or Leather Wood; a pretty little shrub, growing very regular in shape, and has the appearance of a large tree in miniature; it is a native of our Northern States; the flowers, which appear very early in the spring, are yellow, and come out before the leaves.

Gymnocladus Canadensis, or Kentucky Coffee tree. The berries bear a resemblance to coffee, and are said to be a good substitute for it; however, it is a beautiful tree, with handsome feathered leaves, and makes a fine contrast with others. It should be planted in the back or the centre of the plantation; it is very hardy.

Halesia diptera, and *Halesia tetraptera*, two-winged and four-winged Silver Bell, or Snow-drop tree. They are both natives of the Southern States, but are perfectly hardy here; our most severe winters do not injure them. The former kind flowers in April, and the latter withholds its blossoms until May. They are elegant shrubs.

Hibiscus Syriacus, fl. pleno, the double-flowering Althea frutex, of which there are several varieties; the double white, double red, double red and white, and striped, are the most showy; they begin to flower late in July, and continue until Autumn. The single kind, of which there are many varieties, are scarcely worth cultivating, the double

ones being raised quite as easily, and are equally hardy. These are indispensable in every plantation.

Hypericum frutescens, Shrubby Hypericum. There are several species of this small but beautiful shrub, all natives of the Southern States, but perfectly hardy here. They all flower profusely in the summer, and continue for a long time. They should be planted in the front row.

Kerria Japonica, or *Corchorus Japonica*, yellow Japan Globe Flower; although a native of Japan, like many other Japanese flowers, it is perfectly hardy here. It flowers in the greatest profusion at all times, except in the very dead of winter, and will grow in almost any soil or situation.

Kœlreuteria paniculata, Japan Bladder tree, or *Kœlroterius*. This is another hardy shrub from Japan. It has long racemes of flowers, succeeded by a bladder-like fruit, and is worthy of cultivation in every good collection.

Ligustrum vulgare, virens, large European Privet, a very handsome evergreen shrub, flowering profusely in June, and producing bunches of black round berries. It bears slipping well, and is therefore very suitable for hedges, or to enclose ornamental plantations. It grows quick, and is well adapted to our climate; when planted in a hedge-row, and kept clipped. The American Privet makes a beautiful hedge, and ought to be in more general use.

Philadelphus coronarius, or common Syringa, is very ornamental, producing its sweet-scented flowers early in the spring, and in abundance.

Philadelphus inodorous, and *P. grandiflorus*, Garland Syringa, are both natives of the Southern States, but quite hardy here. Their flowers are large, and continue for several months, in wreaths or garlands. They are well calculated for the centre row, and also to hide unsightly objects, and have a beautiful effect when mixed with monthly honeysuckles, &c.

Persica, or *Amygdalus Persica, fl. rosea pleno*, or double flowering Peach, is very beautiful in shrubberies. It blos-

soms early, and sometimes bears fruit, but it is cultivated entirely for its beautiful blossoms. A few trees of the Chinese double flowering Apple (*Pyrus spectabilis*) have also a beautiful effect.

Rhus cotinus, Venetian Sumach, Aaron's Beard, sometimes called fringe tree, is a fine shrub, calculated for the centre of the clump or shrubbery. Its large branches of fringe remain all the summer, and give it a curious and striking effect.

Ribes Missouriensis, or Missouri Currant; there are two species of this very ornamental shrub from Missouri, introduced by Lewis and Clarke; they are quite hardy, and flower profusely from April to June.

Robinia glutinosa, and *Robinia hispida;* the former a pretty large shrub, producing fine bunches of flowers in great abundance throughout the summer; the latter is a smaller shrub; both of them are, however, worthy of a place in large collections.

Robinia pseudo-acacia, or Yellow Locust Tree.* This is superior to any other kind of wood for ship-tunnels, mill-cogs, and fence-posts, as well as for various other purposes. Its culture is very easy, and may be propagated in great abundance, by sowing the seed in March, April, or May, in a bed of good sandy loam, which is its favourite soil, and covering them half an inch deep. Previous to sowing, put the seed in a basin, pour on scalding water, and let it stand all night; pick out such seed as are swollen, and plant them immediately; next evening repeat the same process with such as did not swell the first night, mix the whole and sow them; they will come up in the course of the following month numerously; for no seed grow more freely, notwithstanding what some say to the contrary. When the plants are a year old, transplant them out of the seed-bed into nursery rows, four feet distant, and plant from plant one foot.

* This tree is introduced here, rather on account of its usefulness than beauty, though the latter is very considerable.

Having had two or three years' growth in these rows, they may be planted successfully in any warm and tolerably rich sandy soil. They may also be propagated by suckers, which they throw up abundantly, especially if some of the wide-extending roots be cut through with an axe. An acre of these trees, planted at two feet distant each way, will contain 10,890; and four feet distant, 2,722; and it is said that no appropriation of land is more lucrative than that devoted to this purpose. The Three-thorned Acacia seed (*Gleditschia*) should be prepared in the same manner.

Rosa, or Roses, a very numerous variety of these; some reckon five or six hundred kinds. They are accounted the most beautiful of Flora's productions. Perhaps a handsome collection might be made out of about fifty of the best sorts, which, by taking such quantity, I suppose might be obtained at about fifty cents each, under name; and generally, a fine collection unnamed at half that amount. No good garden or shrubbery should be without them.

Sorbus aucuparia, Mountain Ash, or Roan tree. This is a very beautiful shrub of the larger size; the leaves are ornamental; the flowers and fruit, which are produced in large bunches, are beautiful; the fruit remains till late in the autumn. It is a native of Europe.

Sorbus Canadensis. This is a native of our Northern frontiers and mountains, but it does not grow so large as the former; the berries are smaller and red, the former larger and of an orange colour; but otherwise much resembles it.

Spartium junceum, Genista, etc. Two or three species of Broom, producing numerous bunches of yellow flowers in May and June; the *Genista*, or Spanish Broom, which has white flowers, is also very pretty, but not quite so hardy as the former.

Symphoria racemosa, or Snow-berry, sometimes called St. Peter's Wort, a pretty little shrub; the bunches of wax-like white berries, which it produces during the whole summer, give it a beautiful appearance.

Syringa vulgaris, or common Lilac, blossoming in May, is well known to all, and needs no comment. The white variety is not quite so common. They are only used for outside plantings, as they sucker very freely, and soon make themselves common.

Syringa Persica, or Persian Lilac, is a delicate low shrub, the flowers very abundant, and the leaves small and delicate. There are two varieties of the Persian Lilac; the white flowering, and the blue or purple flowering.

The *Chinese* cut-leaved Lilac is very curious; the leaves are cut like Parsley, the flowers growing in longer racemes than the former.

Siberian, or large Persian Lilac. The bunches of flowers are very large, and continue in season a long time after the common Lilac.

Tamarix Gallica, or French Tamarix, and the *Tamarix Germanica*, German Tamarix, are two pretty shrubs; the leaves and branches are small and slender, producing quantities of beautiful flowers, which form a very striking contrast to the other parts of the shrubbery.

Viburnum opulus, or Guelder Rose, otherwise called Snowball, is a very showy shrub, producing large balls of snow-white flowers in May, and is indispensably necessary to every shrubbery.

Vitex agnus castus, or Chaste Tree, a pretty and singular shrub, flowering the most part of the summer.

CLIMBING PLANTS.

Ampelopsis hederacea. This plant, on account of the largeness of its leaves and rapidity of its growth, is well adapted for covering walls. There are several species, all resembling the vine in habit and flower.

Aristolochia sipho, Birthwort, or Dutchman's Pipe. A very curious blooming plant, with extraordinarily large foli-

age, well calculated for an arbour; affording a dense and cooling shade.

Atragene alpina. A free-growing deciduous shrub, with small pinnated foliage, and large blush-coloured flowers, which continue from May to July.

Bignonia crucigera is a desirable evergreen, being of a luxuriant growth. It will cover in a few years an area of fifty feet, and bloom from May to August; colour orange.

Bignonia radicans, or Trumpet Creeper, produces large bunches of red trumpet-shaped flowers in July and August.

Bignonia grandiflora, is much like the former in habit and appearance, but the flowers are much larger. It is said to be a native of China, and the former a native of this country. They are both perfectly hardy, and will climb up brick work or wooden fences, without any assistance.

Clematis, or Virgin's Bower. There are several species, some of them tender, or not sufficiently hardy for our severe winters, without protection. The *Clematis azurea, bicolor, and flama*, are splendid varieties. The *Clematis Virginica, Viorna, Viticelli*, and *Vitalba*, are perfectly hardy, and blossom throughout the summer.

Glycine Sinensis, or *Wistaria Sinensis*, is a handsome Chinese Creeper of recent introduction from China, and is not yet common in our nurseries. It is a beautiful vine, running to a great height, and loaded with long racemes of purple flowers throughout the summer.

Glycine frutescens, or *Wistaria frutescens.* This beautiful brother of the Chinese kind is a native of our Southern States, grows much in the same way as the others, and is, perhaps, not inferior. Although this fine creeper has been long known in England, we have not heard much about it by English writers; the conclusion seems to be, that it does not flower well in England. In fact none of our Southern plants do well in that country, while those from China do very well; here, however, it is quite the reverse. I have the Chinese *Wistaria Sinensis*, from fifteen to twenty feet high,

and the American *Wistaria* about the same height. The Chinese does not look so vigorous and green as his American brother. The American *Wistaria* should be planted in every garden with other creepers, or to run up the trees in shrubberies, according to its natural habit.

Hedra Helix, Irish Ivy, is a desirable evergreen for covering naked walls, or any other unsightly object. The leaves are of a lively green, and from three to five angled. There are several varieties of it, all calculated for growing in confined, shady situations, where plants in general will not thrive.

Jasminum officinale, Garden Jasmine. This delicious climbing shrub has from time immemorial been common in Europe for covering arbours. Its delicate white fragrant flowers render it very desirable; but it is rather tender for our Northern winters, unless well protected. In the Southern States, this plant, and also the yellow Jasmine, (*revolutum*,) grow luxuriantly and bloom profusely, and even *Jasminum grandiflora* will endure the winters of South Carolina and Georgia.

Lonicera, comprehending all the fine sweet-scented honeysuckles. Of the Italian kinds, the monthly honeysuckle is decidedly superior, continuing to flower all through the summer, until late in autumn, and is very fragrant. Some of the other European kinds may be occasionally introduced into large shrubberies. There is a white honeysuckle, lately introduced from France, denominated *Hedysarum coronarium*, which is in great repute. Two or three American kinds deserve particular notice.

Lonicera sempervirens, or Coral Trumpet, monthly honeysuckle, is extremely beautiful, flowering the whole of the summer, with its thousands of scarlet bunches; it is, however, destitute of scent.

Lonicera Fraseri, also an American; the flowers are like the other kind in almost every particular except colour, this being a bright yellow.

Lonicera pubescens, or *Caprifolium pubescens*, a large and

beautiful honeysuckle from the Northwest coast; the flowers are large, and of a bright copper colour, inclining to orange. They are all perfectly hardy.

Lonicera flexuosa, Chinese Honeysuckle, of late introduction; it is perfectly hardy, withstanding our most severe frosts without the least injury; it is a very sweet-scented honeysuckle, grows rapidly, and to an immense height. It flowers in pairs and threes all up the branches, covering the whole plant completely with flowers. It blossoms in spring and autumn, and is a very valuable acquisition to our gardens and shrubberies.

Lonicera Japonica, or Japan Honeysuckle. This bears flowers in great profusion, which are white, afterward becoming of a light yellow. It is not so hardy as the Chinese, and requires a little protection in the winter.

Passiflora, or Passion Vine. There are several hardy species, but the best is the *Passiflora incarnata;* this, although it dies to the ground every winter, will, during the summer, grow from twenty to thirty feet, and yield abundance of beautiful purple flowers.

Periplaca græca, or Silk Vine. A prolific climber, wood slender, twining and elastic, leaves smooth, ovate, lanceolate. Established plants will grow thirty or forty feet in one season, and yield flowers in clusters, of a brownish yellow colour, from May to July.

I shall only add to the above, the running kind of Roses; although there are many other things which might be men tioned

Rosa multiflora, from China, is pretty well known, producing thousands of small double red roses in bunches. It requires a sheltered situation from some of our keen northwesters. *Rosa multiflora alba*, from the same country, is of late importation, but as it increases readily, may be obtained at about the same price as the former; the bunches of flowers are white. *Rosa Grevillia*, a running rose, also from China, the flowers of various colours. *Rosa rubifolia*, Rasp-

berry-leaved Rose, from our Northern frontiers, and extending over the Western country; although a single flowering rose, it produces large bunches of flowers, which are differently coloured on the same bunch, exactly like the former China kind, and is another instance of the similarity of the native Chinese plants to those of our country.

Rosa canina, fl. pleno, English double Dog Rose, is a very pretty little double rose, and will run to a great height. *Rosa Banksii*, Lady Banks's double white China running Rose; it runs up and spreads much: it may be easily known from others of the running roses, by its being entirely destitute of prickles. *Rosa Noisette*, and Champney's, are said to have been raised from China seed in Carolina; they are not strictly running roses, but as they grow tall, are fine ornaments for the shrubbery, flowering during the whole of the summer and autumn, in large clusters. The Maderia Rose, or double white cluster, musk, flowers throughout the summer and autumn months, and is therefore well adapted for the shrubbery. *Rosa Cherokensis*, called the Nondescript, or Georgia Rose; the flowers are very large, being white, with yellow centre. This is a running rose, growing very high around trees, &c.

Rosa rubiginosa, or Sweetbriar, is too well known to need description.

PROPAGATION OF FLOWERING SHRUBS.

Flowering shrubs are variously propagated by slips, cuttings, layers, suckers, buds, or scions; and these may be thus defined:

1. Slips are simply small branches, slipped down from the side of a large branch, or from the main stem. These should be taken from the parent plants carefully, so as to leave an eye or heel at the lower or butt end.

2. Cuttings should be made from shoots or stalks of a prior year's growth; and such should be selected as are well ripened, having their joints not far apart: they may be cut so as to have three or four joints in each cutting. In some species of succulent plants, the joints being near together, cuttings need not be more than from four to six inches long; but shrubby plants in general will admit of their being from ten to twelve inches.

3. Layers differ from cuttings in nothing, except that they strike root into the soil, while yet adhering to the parent plant.

4. Suckers are in reality young plants, connected to the parent at the root, which should be carefully separated in spring or autumn, and transplanted in the same manner as plants raised by any other method; either in a nursery-bed, shrubbery, or flower-border.

5. Scions are of two sorts; scions properly so called, and buds. A scion is a cutting, or portion of a plant, which is caused to grow upon another plant, from which it extracts fluid for the nourishment of its leaf buds; these thus fed, gradually grow upward into branches, and send woody matter downward, so as to become connected with the stock grafted on.

The business of planting slips, cuttings, &c., of the tender kinds into nursery pots, and the hardy kinds into borders, is generally performed in spring and autumn; there are, however, some exceptions to this rule, which will be explained hereafter. [See Calendar and Index.]

For the purpose of raising hardy flowering shrubs by slips or cuttings, let a border be prepared in a shaded and sheltered situation, by manuring and deep digging. Provide plants about a foot long, and insert them into the ground full one-third of their length; the rows may be about two feet apart, and the plants nine inches from each other in the rows. Press the ground around the stems, and rake it smooth. The after management of nursery beds made in

spring, is to keep them watered in dry weather, hoe them occasionally, and by autumn the plants will be rooted.

In cold climates, plantations made in autumn should be protected by a covering of leaves, straw, or litter, merely sufficient to screen the plants from wind and the sun's rays in time of freezing, the heat of the sun being more destructive to vegetation in winter than the cold weather.

To increase flowering shrubs, rose bushes, or any other plants, by layers, dig the ground about the plants to be operated on to a good depth; then with a sharp knife cut between two joints half through the stalk or branch on the under part, turn the edge of the knife upward and make a slit, carrying it past the first joint half way to the next above; make a hollow in the ground, and insert the cut part from one to three inches deep, according to the nature of the plant operated on, keeping the branch perpendicular, and the slit open. Each layer should be pegged down with a hooked stick, made from small branches of trees, to keep it in its proper position, as well as to prevent the cut part from uniting whence the roots form for the young plants.

Budding, grafting, and inarching are often practised on shrubs, with a view to perpetuate improved varieties. Budding may be performed on roses of different descriptions, as the White Moss, Unique, Tuscany, and other fine varieties, upon such wild kinds as are of a strong habit. The best time for performing the operation is toward the end of July or early in August, as the buds are then generally matured so that the bark parts freely from the wood, which is essential to the successful accomplishment of the business.

Grafting is generally performed in the spring. There are many methods practised on trees, as cleft grafting, whip grafting, saddle grafting, side grafting, root grafting, inarching or grafting by approach, &c., which methods are all fully explained under the head of "Budding and Grafting," in the fruit department. I shall, however, here present a short view of the mode best adapted for shrubs.

Scallop budding is performed by cutting from a small stock a thin narrow scallop of wood, about an inch in length, and taking from the chosen twig a thin scallop of wood of the same dimensions; this is instantly applied, and fitted perfectly at top and bottom, and as nearly as possible on its sides, and firmly bound with bass matting. This may be performed in spring, and if it fails, it may be repeated in the month of July. The French practise this mode on Roses.

The most simple method of grafting is, to cut off the stock in a wedge-like manner; then prepare a graft having three or four eyes; proceed to cut a slit in it upward, and thrust it on the stock, taking care to join the bark of each together; tie them firmly together with bass, and immediately cover the grafted part with clay and horse dung mixed; which being well prepared, should be closed securely round the graft in an oval form.

Inarching, or grafting by approach, may be performed as follows: The shrubs to be grafted must be growing very near to those which are to furnish the grafts; a branch of each must then be prepared by making a long sloping cut nearly to its centre; the two must be brought together, and secured by a bandage of matting, so that the bark may meet as nearly as possible. The graft may then be covered with clay composition; and when a complete union has taken place, the plants may be separated with a sharp knife, by cutting off below the junction.

As the above directions are applicable to the propagation and management of green-house, tender, and half-hardy plants, as well as to hardy shrubs and vines, it may be necessary here to remind the reader, that delicate roses and half-hardy woody plants left out during the winter, should be protected either by bending down the branches and covering them with soil, or by tying them up to stakes, and binding straw snugly around them. At the same time throw some dung on the ground about the roots; the longest of which may be raked off on the approach of spring, and the shortest

forked in, so as to manure the plants, and thus give vigour to their rising shoots.

Deciduous shrubs may be transplanted at any time after they lose their leaves, and before the buds begin to expand in spring, provided the ground can be brought into good condition to receive them; the holes should be dug capacious enough to hold the roots without cramping them, and some earth, well pulverized, must be thrown equally among the fibres of the roots, which should be well shaken, and the earth trodden down around the plants, until brought to the level required. Evergreens should be removed carefully with a ball of earth connected with their roots, and some good mould should be provided to fill in with.

The spring pruning of shrubs and vines should be attended to before the buds begin to rise; say March in the Northern, and January in the Southern States. In performing this business, use a sharp knife, in order that all amputations and wounds be cut and pared smooth, and in a slanting manner. Divest the plants of all dead wood, superfluous branches, and those which cross each other. Regulate the plantation in such manner, that the natural form and habit of each plant may be retained as much as possible, and train the branches so that the sun can have free access to every part; bearing in mind the hints thrown out in the Introduction to our Catalogue. Some shrubs and vines will need a summer pruning, merely to thin out young shoots, superfluous wood, &c., and to train straggling branches.

THE

BEAUTIES OF APRIL AND MAY.

THE following article is submitted, as being well calculated to afford amateurs mental recreation while engaged in rural pursuits; and it is presumed that the practical gardener will not view the insertion of this article as a digression, as it exhibits the beauty and order of the flower tribe in propitious climates, or when cultivated at the proper season, in a truly appropriate and amusing light.

APRIL.

"Descend, sweet April, from yon watery bow,
And liberal strew the ground with budding flowers,
With leafless Crocus, leaf-veiled Violet,
Auricula, with powdered cup, Primrose
That loves to lurk below the Hawthorn shade."

It is generally admitted that the month of April gives the most perfect image of spring; for its vicissitudes of warm gleams of sunshine and gentle showers, have the most powerful effect in hastening the universal springing of the vegetable tribes, from whence the season derives its appellation. Next comes the favourite month of the year, in poetical description,

MAY.

"For thee, sweet month, the groves green liv'ries wear;
If not the first, the fairest in the year;
Thou dost afford us many pleasant hours,
While Nature's ready pencil paints the flowers."

The pious Hervey, in his Meditations on the Flower Garden, has furnished us many sublime ideas respecting the order, variety, and beauty of the flower tribe.* It is in vain to attempt a catalogue of those amiable gifts. There is an end-

* Those who have read Hervey's Meditations on the Flower Garden, will discover that the pious author's phraseology, and several of his sublime ideas, are interspersed through this article, which, from being blended with other matter, could not be designated in the customary way.

less multiplicity of their characters, yet an invariable order in their approaches. Every month, almost every week, has its peculiar ornaments; not servilely copying the works of its predecessors, but forming, still forming, and still executing, some new design; so lavish is the fancy, yet so exact is the process of Nature. Were all the flower tribe to exhibit themselves at one particular season, there would be at once a promiscuous throng, and at once a total privation.

We should scarcely have an opportunity of adverting to the dainty qualities of half, and must soon lose the agreeable company of them all. But now, since every species has a separate post to occupy, and a distinct interval for appearing, we can take a leisurely and minute survey of each succeeding set. We can view and review their forms, enter into a more intimate acquaintance with their charming accomplishments, and receive all those pleasing sensations which they are calculated to yield.

Before the trees have ventured to unfold their leaves, and while the icicles are pendant on our houses, the Snow-drop breaks her way through the frozen soil, fearless of danger. Next peeps out the Crocus, but cautiously and with an air of timidity. She shuns the howling blasts, and cleaves closely to her humble situation. Nor is the Violet last in the shining embassy, which, with all the embellishments that would grace a royal garden, condescends to line our borders, and bloom at the feet of briars. Freely she distributes the bounty of her emissive sweets, while herself retires from sight, seeking rather to administer pleasure than to win admiration. Emblem, expressive emblem, of those modest virtues which delight to bloom in obscurity. There are several kinds of Violets, but the fragrant, both blue and white, are the earliest. Shakspeare compares an exquisitely sweet strain of music to the delicious scent of this flower:

> "Oh! it came o'er my ear like the sweet South,
> That breathes upon a bank of Violets,
> Stealing and giving odour."

The pious Hervey, in his admonitions to those who indulge in sloth, has thrown out the following sublime ideas: What sweets are those which so agreeably salute my nostrils? They are the breath of the flowers, the incense of the gardens. How liberally does the Jasmine dispense her odoriferous riches! How deliciously has the Woodbine embalmed this morning walk! The air is all perfume. And is not this another most engaging argument to forsake the bed of sloth? Who would be involved in senseless slumbers, while so many breathing sweets invite him to a feast of fragrancy, especially considering that the advancing day will exhale the volatile dainties? A fugitive treat they are, prepared only for the wakeful and industrious. Whereas, when the sluggard lifts his heavy eyes, the flowers will droop, their fine sweets be dissipated, and instead of this refreshing humidity, the air will become a kind of liquid fire.

With this very motive, heightened by a representation of the most charming pieces of morning scenery, the parent of mankind awakes his lovely consort. There is such a delicacy in the choice, and so much life in the description of these rural images, that I cannot excuse myself without repeating the whole passage. Whisper it, some friendly genius, in the ear of every one, who is now sunk in sleep, and lost to all these refined gratifications!

> "Awake! the morning shines, and the fresh field
> Calls you: ye lose the prime, to mark how spring
> The tended plants, how blows the Citron grove;
> What drops the Myrrh, and what the balmy Reed;
> How Nature paints her colours; how the bee
> Sits on the bloom, extracting liquid sweets."

How delightful is this fragrance! It is distributed in the nicest proportion; neither so strong as to oppress the organs, nor so faint as to elude them. We are soon cloyed at a sumptuous banquet; but this pleasure never loses its poignancy, never palls the appetite. Here luxury itself is innocence; or rather, in this case, indulgence is incapable of ex-

cess. This balmy entertainment not only regales the sense, but cheers the very soul; and, instead of clogging, elates its powers.

"The soft green grass is growing
O'er meadow and o'er dale;
The silv'ry founts are flowing
Upon the verdant vale;
The pale Snow-drop is springing
To greet the glowing sun;
The Primrose sweet is flinging
Perfume the fields along;
The trees are in their blossom,
The birds are in their song;
As Spring upon the bosom
Of Nature's borne along.

"So the dawn of human life
Doth green and verdant spring:
It doth little ween the strife—
Like the Snow-drop it is fair,
And like the Primrose sweet,
But its innocence can't scare
The blight from its retreat."

Our subject is so enchanting, that we had inadvertently wandered from the path we first entered. We now retrace our steps, and take a glance at surrounding objects. The fields look green with the springing grass. See the Daffodil how it spreads itself to the wind! The leaves of Honeysuckles begin to expand, the Lilacs, or Syringas, of various hues, unfold their buds. The Almond exhibits its rosy clusters, and the Corchorus its golden balls. Many of the lowlier plants exhibit their yellow and purple colours, and the buds of Lilies, and other Perennial plants, prepare to show themselves. If we turn our attention to the orchard, we behold the Apricots, Nectarines, and Peaches, lead the way in blossoming, which are followed by the Cherry and the Plum. These form a most agreeable spectacle, as well on account of their beauty as of the promise they give of future benefits. It is, however, an anxious time for the possessor, as the fairest prospect of a plentiful increase is often blighted

Shakspeare draws a pathetic comparison from this circumstance, of the delusive nature of human expectations:

> "This is the state of man: to-day he puts forth
> The tender leaves of hope; to-morrow blossoms,
> And bears his blushing honours thick upon him;
> The third day comes a frost, a killing frost,
> And nips his root."

But now we return to the garden. Before we have time to explore Nature's treasures, many disappear; among these are the humble Daisy, which shrinks from the intense heat, and the several varieties of Primulas, or early spring flowers. The various grades of Polyanthus deserve a close inspection; these, for a while, exhibit their sparkling beauties, but, alas! soon disappear. Scarcely have we sustained this loss, but in comes the Auracula, and more than retrieves it. Arrayed she comes in a splendid variety of amiable forms, with an eye of crystal, and garments of the most glossy satin. A very distinguished procession this! the favourite care of the florist; but these also soon disappear. Who could forbear grieving at their departure, did not the various sorts of bulbous flowers burst their bands asunder, or rather expand so as to exhibit their fragrance and beauty.

> "Fair-handed Spring
> Throws out the Snow-drop and the Crocus first,
> The Daisy, Primrose, Violet darkly blue,
> And Polyanthus with unnumbered dyes.
> Then comes the Auracula, enriched with shining meal,
> O'er all their velvet leaves."

While we reluctantly dispense with the sweet perfumes of the Hyacinth and Narcissus, we behold the Tulips begin to raise themselves on their fine wands or stately stalks. They flush the parterre with one of the gayest dresses that blooming Nature wears. Here one may behold the innocent wantonness of beauty. Here she indulges a thousand freaks, and sports herself in the most charming diversity of colours. In a grove of Tulips, or a bed of Pinks one perceives a differ-

ence in almost every individual. Scarcely any two are turned and tinted exactly alike. What colours, what colours are here! these so nobly bold, and those so delicately languid!

What a glow is enkindled in some! what a gloss shines upon others! With what a masterly skill is every one of the varying tints disposed! Here they seem to be thrown on with an easy dash of security and freedom; there they are adjusted by the nicest touches of art and accuracy. Those colours which form the ground are always so judiciously chosen, as to heighten the lustre of the superadded figures; while the verdure of the impalement, or shadings of the foliage, impart new liveliness to the whole. Fine, inimitably fine, is the texture of the web on which these shining treasures are displayed. What are the labours of the Persian looms; what all the gay attire which the shuttle or the needle can furnish, compared with Nature's works? One cannot forbear reflection in this place, on the too prevailing humour of being fond and ostentatious of dress. What an abject and mistaken ambition is this! How unworthy the dignity of man, and the wisdom of rational beings! Especially since these little productions of the earth have indisputably the pre-eminence in such outward embellishments.

"Bright Tulips, we do know,
Ye had your coming hither,
And fading time doth show,
That ye must quickly wither.

"Your sisterhood may stay,
And smile here for an hour,
But ye must quickly die away,
E'en as the meanest flower.

"Come, virgins, then, and see
Your frailties, and bemoan ye;
For lost like these—'twill be
As time had never known ye."

But let us not forget the fragrant, the very fragrant Wall and Gilyflowers; some of these regale us with their per-

fumes through various vicissitudes and alternations of the season, while others make a transient visit only.

"I love thee, lone and pensive flower,
Because thou dost not flaunt thy bloom
In pleasure's gay and garnish'd bower,
Or luxury's proud banquet room;
But on the silent, mouldering wall
Thy clinging leaves a fragrance shed,
Or give to the deserted hall,
A relic of its glories fled.

"These wreaths, in vivid freshness bright,
Methinks the fluttering herd portray,
Who bask on fortune's golden light,
And wanton in her joyous way;
But thou art like that gentle love,
Which blooms when friends and fame have pass'd,
Towers the dark wreck of hope above,
And smiles through ruin to the last."

In favoured climates arises the Anemone, encircled at the bottom with a spreading robe, and rounded at the top into a beautiful dome. In its loosely-flowing mantle, you may observe a noble negligence; in its gently-bending tufts, the nicest symmetry. This may be termed the fine gentleman of the garden, because it seems to possess the means of uniting simplicity and refinement, of reconciling art and ease. The same month has the merit of producing the Ranunculus. All bold and graceful, it expands the riches of its foliage, and acquires by degrees the loveliest enamel in the world. As persons of intrinsic worth disdain the superficial arts of recommendation practised by fops, so this lordly flower scorns to borrow any of its excellencies from powders and essences. It needs no such attractions to render it the darling of the curious, being sufficiently engaging from the elegance of its figure, the radiant variety of its tinges, and a certain superior dignity of aspect.

JUNE.

"Now have young April, and the blue-eyed May,
Vanished awhile, and lo! the glorious June
(While Nature ripens in his burning noon)
Comes like a young inheritor."

I had intended to confine our meditations to the beauties of April and May, but Nature seems to improve in her operations. Her latest strokes are the most masterly. To crown the collection, she introduces the Carnation, which captivates our eyes with a noble spread of graces, and charms another sense with a profusion of exquisite odours. This single flower has centred in itself the perfection of all the preceding. The moment it appears, it so commands our attention, that we scarcely regret the absence of the rest.

"Maternal Flora, with benignant hand,
Her flowers profusely scatters o'er the land:
These deck the valleys with unnumbered hues,
And far around their pregnant sweets diffuse,
The broad CARNATIONS, gay and spotted Pinks,
Are showered profuse along the rivers' brinks."

The field we have entered is so extensive and so enchanting, that we cannot extricate ourselves without taking a cursory glance at the airs and habits, the attitude and lineaments, of each distinct class. See the Pæonia of China, splendid and beautifully grand! View the charming Rose, delicate and languishingly fair! and while you inhale its balmy sweetness, you will be constrained to admire it, notwithstanding its thorny appendages.

"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!
Resplendant Rose! the flower of flowers,
Whose breath perfumes Olympus' bowers;
Whose virgin blush, of chasten'd dye,
Enchants so much our mental eye."

Behold all the pomp and glory of the parterre, where Nature's paint and perfumes do wonders. Some rear their heads as with a majestic mein, and overlook, like sovereigns or nobles, the whole parterre. Others seem more modest in their aims, and advance only to the middle stations; a genius turned for heraldry might term them the gentry of the border; while

others, free from all aspiring airs, creep unambitiously on the ground, and look like the commonality of the kind. Some are intersected with elegant stripes, or studded with radiant spots. Some affect to be genteelly powdered, or neatly fringed; while others are plain in their aspect, unaffected in their dress, and content to please with a naked simplicity. Some assume the monarch's purple; some look most becoming in the virgin's white; but black, doleful black, has no admittance into the wardrobe of Spring. The weeds of mourning would be a manifest indecorum, when Nature holds a universal festival. She would now inspire none but delightful ideas, and therefore always makes her appearance in some amiable suit. Here stands a warrior clad with crimson; there sits a magistrate robed in scarlet; and yonder struts a pretty fellow, that seems to have dipped his plumes in the rainbow, and glitters in all the gay colours of that resplendent arch. Some rise into a curious cut, or fall into a set of beautiful bells. Others spread themselves in a swelling tuft, or crowd into a delicious cluster. In some the predominant stain softens by the gentlest diminutions, till it has even stolen away from itself. The eye is amused at the agreeable delusion, and we wonder to find ourselves insensibly decoyed into quite a different lustre. In others one would think the fine tinges were emulous of pre-eminence; disdaining to mingle, they confront one another with the resolution of rivals, determined to dispute the prize of beauty; while each is improved, by the opposition, into the highest vivacity of complexion.

"Mrs. Pæony came in quite late in a heat,
With the Ice-plant, dew-spangled from forehead to feet;
Lobelia, attired like a queen in her pride,
And Dahlias, with trimmings new furbish'd and dyed,
And the Blue-bells, and Hare-bells in simple array,
With all their Scotch cousins from highland and brae,
Ragged Ladies and Marigolds clustered together,
And gossip'd of scandal, the news, and the weather;
What dresses were worn at the wedding so fine
Of sharp Mrs. Thistle and sweet Columbine."

OBSERVATIONS ON THE CULTIVATION

OF

BULBOUS AND TUBEROUS-ROOTED PLANTS.

These plants exhibit a striking variety of the beauties of Nature. It would seem as if every change she is capable of forming, was included in the radiant colours of the Tulip. Never was a cup either painted or enamelled with such a profusion of tints. Its stripes are so glowing, its contrasts so strong, and the arrangement of them both so elegant and artful, that it may, with propriety, be denominated the reigning beauty of the garden in its season. The Hyacinth is also an estimable flower for its blooming complexion, as well as for its most agreeable perfume and variety.

> "The Hyacinth, purple, white, and blue,
> Which flung from its bells a sweet peel anew,
> Of music so delicate, soft, intense,
> It was felt like an odour within the sense."

The Double Dahlia, in its numerous varieties, is inconceivably splendid. It was only at the latter end of the eighteenth century that the first of these, which were single, were introduced into Europe from Mexico.

Double Dahlias of three colours were first known in the year 1802, and since that time the varieties have increased so rapidly, that those which a few years ago were considered beautiful, are now thrown away to give place to the more splendid sorts. I have good authority for stating, that upward of twenty thousand seedlings are raised yearly in England, only a few of which are introduced into the collections of amateurs, to take the place of such old sorts as may from time to time be rejected. This is done, in order that none but the very choicest may be retained in such collections.

In some gardens in Holland they cultivate, by distict names, about eleven hundred varieties of Tulips, thirteen hundred of Hyacinths, and six hundred of Ranunculuses and Anemones, some of which are sold as high as sixty dollars the single root. It is stated in the travels of Mr. Dutens, of his having known ten thousand florins, equal to $4,000, refused for a single Hyacinth; and Dodsley says, in his Annual Register for 1765, that the Dutch of all ranks, from the highest to the lowest, during the years from 1634 to 1637 inclusive, neglected their business to engage in the Tulip trade. Accordingly in those days, the *Viceroy* was sold for £250, the *Admiral Liefkeens* for £440, and the *Semper Augustus* at from £500 to £1,000 each; and a collection of Tulips was sold by the executors of one Wouter Broekholsmentser for £9,000. It is stated that in one city in Holland, in the space of three years, they had traded for a million sterling in Tulips.

As a full catalogue of all the varieties of bulbous and tuberous-rooted plants would occupy a number of pages, without affording much general interest, I shall content myself by devoting a short paragraph in describing some of each particular species, which will be accompanied with directions for their culture, in a brief, and, at the same time, explicit manner.

It may here be necessary to define the difference between bulbous and tuberous roots. Those designated bulbous have skins similar to Onions, or the *Allium* tribe; and tuberous roots imply all such as produce tubers something similar to Potatoes.

The soil for bulbous and tuberous roots in general should be light, and yet capable of retaining moisture; not such as is liable to become bound up by heat, or that, in consequence of too large a portion of sand, is likely to become excessively hot in summer; but a medium earth between the two extremes. As many city gardens do not contain a natural soil of any depth, a suitable compost should be provided in such cases, which may consist of equal parts of sand, loam, rotten manure, mould, &c.

When ready, the beds may be laid out, from three to four

feet wide, and they should be raised two or three inches above the level of the walks, which will give an opportunity for all superfluous moisture to run off. Let the beds thus formed be pulverized to the depth of fifteen or eighteen inches; and at the time of planting, let a small quantity of beach sand be strewed in the apertures or trenches prepared for the roots to grow in, both before and after placing them therein, which will prove beneficial.

A southern exposure, dry and airy, and sheltered from the northwest winds, is preferable for most bulbs. But Anemones and Ranunculuses should be in some measure sheltered from the intense heat of noon.

Beds of hardy bulbous and tuberous roots should be covered on the approach of winter with litter, leaves, straw or such earth as is formed by the decay of leaves, to the depth of two or three inches, as it prevents any ill effects which a severe season may have on the roots; but it should be carefully raked off in the spring.

Bulbous roots in general should be taken up in about a month or six weeks after the bloom is exhausted, or when the foliage is about half decayed. If fine warm weather, the bulbs may be dried on the beds they grow on, by placing them in separate rows, being careful not to mix the several varieties. To prevent such an accident, labels may be affixed to, or placed in the ground opposite each bulb. They will keep much better when dried gradually; to this end, a little dry earth may be shaken over them, to screen them from the heat of the sun. If it should rain before they get dry, take them in, or cover them with boards; when dry, clear them of the fibres and stems, and then put them away in dry sand or if wrapped in paper, they may be kept in boxes or drawers until the season of planting returns.

The tender tuberous roots, such as Dahlias, and the like, will have to be taken up before the cold becomes severe. As the Dahlia exhibits its flowers in all their splendour until nipped by the frost, the roots ought, in the event of a very

sudden attack, to be secured from its blighting effects. They are not apt to keep well if taken up before they are ripened; the tops should therefore be cut down as soon as they have done flowering, and the ground covered around the roots with dung or litter; this will enable them to ripen without being injured by frost; and in about a week after being cut down, or on the appearance of severe weather, they should be dug up and packed in dry sand, and then stowed away in a dry place out of the reach of frost. The temperature suited to keep green-house plants will preserve them in good order. Some people complain of the difficulty of keeping Dahlia roots through the winter. I am of opinion that they are often killed from being taken up before they are ripe, and then put in a confined, damp place; or are by some, perhaps, subjected to the other extreme, and dried to a husk. I keep mine on shelves in the green-house, and seldom lose one in a hundred. If it be an object with the cultivator to have the names perpetuated from year to year, each plant should have a small label affixed to the old stalk, by means of small brass or copper wire, as twine is very apt to get rotten.

Cape bulbs, and such tuberous roots as are cultivated in pots, on account of their tenderness, should be kept dry after the foliage is decayed, until within about a month of their period of re-germinating, at which time they should, after having been deprived of their surplus offsets, be re-potted in good fresh earth.

There are some descriptions of bulbous and tuberous roots that need not be taken up oftener than once in two or three years, and then only to deprive them of their young offsets, and to manure the ground. These will be described hereafter under their different heads.

In the articles which follow, I have named the preferable season for planting the various kinds of bulbous and tuberous roots; but as some bulbs will keep in good condition several months, there can be no objection to retaining such out of the ground, to suit any particular purpose or convenience.

DIRECTIONS FOR THE CULTIVATION

OF

BULBOUS AND TUBEROUS-ROOTED PLANTS.

AMARYLLIS.

Of this genus of flowering bulbs there are about eighty species, and upward of one hundred varieties; they are natives of South America, and in Europe are generally kept in the hot-house; some of the varieties are hybrids, produced by cultivation; these succeed very well in the green-house, and in this country we frequently have very perfect flowers in the borders. A few of the choicest varieties are as follows:

Amaryllis Aulica, or Crowned Amaryllis, is one of the most beautiful; it produces four flowers, about seven inches in diameter, on an erect stem, about two feet and a half high, with six petals of green, crimson, and fine transparent red colours.

A. Ballota produces three or four rich scarlet flowers on the stem, each about five inches in diameter; there are two or three varieties of this species, all beautiful.

A. Johnsoniensis. The stem of this variety rises about two feet, and exhibits four beautiful scarlet flowers, with a white streak in the centre of each petal, each flower about six inches diameter. It sometimes produces two stems.

A. Longifolia, or *Crinum Capense*, is perfectly hardy; it flowers in large umbels of a pink colour, inclining to white, and is a good garden variety.

Amaryllis formosissima, or Jacobean Lily, produces a flower of great beauty; although a low-priced plant, it throws out gracefully its glittering crimson-coloured petals, which have a brilliancy almost too intense for the eye to rest upon.

The *A. Lutea* produces its bright yellow flowers in October

in the open air; but the bulb requires a little protection in winter, or it may perish.

The most suitable soil for the Amaryllis is a clean new earth, taken from under fresh grass sods, mixed with sand and leaf mould; the latter ingredient should form about a third of the whole, and the sand about a sixth. Some of the varieties may be planted in pots during the month of April, and others will do very well in the open ground, if planted early in May, in a sunny situation. The bulb should not be set more than half its depth in the ground; as, if planted too deep, it will not bloom; the plant deriving its nourishment only from the fibres. When the bulbs have done flowering, such as are in pots should be watered very sparingly, so that they may be perfectly ripened, which will cause them to shoot stronger in the ensuing season, and those in the ground should be taken up, and preserved in sand or paper.

ANEMONE AND RANUNCULUS.

These are medium, or half-hardy roots, producing beautiful little flowers of various hues, and are highly deserving of cultivation. The bulbs should be planted in a fresh, well pulverized, loamy soil, enriched with cow dung. If planted in the garden, the beds ought not to be raised above one inch higher than the alleys, and the surface should be level, as it is necessary for the prosperity of these plants, rather to retain than to throw off moisture. The plants will generally survive our winters; but it is always safest to plant them in such a manner that a temporary frame of boards can be placed over them when the weather sets in severe; and if they are to be shaded while in flower, the posts intended for the awning may be fixed in the ground at the same time; these will serve to nail the boards to, and thus answer two purposes.

Anemones and *Ranunculuses* may be planted during October or November, in drills two inches deep, and six inches

apart; the roots should be placed with claws downward, about four inches distant from each other, and covered up, leaving the bed quite level. The awning need not be erected over the beds until they come into bud, which will be early in May; the extreme heat of the American climate is, however, unfavourable to the perfect development of their beautiful blossoms in ordinary seasons, even when shaded.

CROCUS.

These are hardy little bulbs, said to be natives of Switzerland. There are in all about fifty varieties of this humble, yet beautiful plant, embracing a great variety of hues and complexions, and their hardiness, and earliness of flower, offer a strong motive for their cultivation. The bulbs may be planted in October or November, in rows about six inches from the edgings; if in beds, they may be placed in ranks of distinct colours, about four inches apart, and from one to two deep, which will afford to their admirers considerable amusement and gratification, and that at a very early season. They are generally in full perfection early in April.

CROWN IMPERIAL.

This is a species of the genus *Fritillaria*, of which there are about twenty species and varieties, chiefly natives of Persia. These squamose bulbs produce tall, luxuriant stems, embellished with green glossy foliage, and flowers of various hues; but there are only a few of the most curious cultivated, perhaps on account of their odour, which to some persons is disagreeable. They are, however, very hardy, and produce singular and showy flowers in April and May. suited to make variety in the flower borders, in which they may be planted in August and September, from three to four inches deep; they need not be taken up every year as other bulbs,

and when they are, which may be about every third year, they ought not to be retained too long out of the ground before they are replanted.

COLCHICUM.

This curious little bulb, being planted in the month of June, about two inches deep, produces its flowers in October; it then dies, without leaving any external appearance of seed; they, however, lie buried in the bulb all the winter, and in the spring produce a stalk with seed, which get ripe by the first of June, just in time to plant for flowering in the ensuing autumn. How wonderful are the provisions of Nature!

CYCLAMEN.

There are several species of the Persian Cyclamen which are worthy of cultivation in pots; the varieties Coum and Persicum will bloom in a green-house, or warm room, from January to April, if planted in good light compost early in September. The foliage of these plants is of a dark green velvet colour; and the flowers of the variety Coum are of a dark crimson colour; those of the variety Persicum are of a delicate French white, tipped with pink, and their fragrance is similar to that of the wild rose.

DOUBLE DAHLIA.

This may with propriety be denominated one of the most important perennial tuberous-rooted plants that can be introduced into a garden, and from the circumstance of its having become so fashionable of late years, I have felt anxious to furnish in this work a catalogue of all the choicest varieties attainable; I therefore applied for this purpose to Mr. G. C. Thorburn, who, from a regular correspondence with connois-

seurs, both in England and America, becomes acquainted with all the most beautiful and rare varieties; and he has kindly furnished a list and description of about one hundred, including the choicest seedlings of the last two years, which will be cultivated for the first time in America, in his garden at Astoria, next year; plants from which will be for sale at No. 15, John street. To these I have added about one hundred and twenty varieties, most of which I have had under cultivation in my own garden, and which may be justly denominated pre-eminent.

In making this selection, several superb varieties are omitted, not because they are undervalued, but for the sake of brevity, which in a work of this kind must be consulted. Those marked thus † are native American varieties. Those marked thus * obtained the greatest number of premiums at the various Floricultural and Horticultural exhibitions in Great Britain, as well as in our own country. There are, perhaps, fifty more in this Catalogue not far beneath them, but none are marked except those which, from having been tested in this climate, can with confidence be recommended as being free and perfect bloomers. The choicest seedlings of last year which have been purchased in England at from fifteen shillings to five pounds sterling each, are marked thus §. It may be necessary to observe, that many of our choice old varieties, as well as several of the new ones hereinafter described, have not been offered in competition at public exhibitions; these are, therefore, not to be undervalued for want of the star or asterisk, and it is presumed that the brief description given of the different shades will be sufficient to govern amateurs in their choice.

As much depends on the climate, soil, and situation in which Dahlias are cultivated; and as the descriptions which follow have been given by various persons, in different parts of England, as well as America, whose soils and situations are different, the height of these plants may vary a foot or more from our estimate, when planted in one uniform soil and situation

CATALOGUE OF DOUBLE DAHLIAS.

† Denotes American Seedlings. * Free Bloomers. § New Varieties.

	Feet high.
§Admirable Baudain, white, tipped with red,	4 to 5
Admirable, *Spary's*, bright rose, superb flower,	4 to 5
§Admiral Stopford, *Trentfield's*, extra dark flower, cupped petals,	4 to 5
*Adventure, *Toward's*, extra fine purple,	4 to 5
Agamemnon, *Widnall's*, rich ruby crimson,	5 to 6
Alexander, *Miller's*, bright orange buff,	5 to 6
Alba Purpurea, *Young's*, white, edged with purple,	5 to 6
§Alba Purpurea Superba, *Bales's*, dark purple, edged with white,	5 to 6
§America, *Drummond's* fine purple,	4 to 5
Andrew Hofer, *Holmes's*, maroon, splendid flower,	4 to 5
Antiope, *Case's* beautiful lilac, fine shape,	4 to 5
§Arethusa, *Union's*, blush white, veined with pink,	3 to 4
*Argo, *Widnall's*, bright yellow, beautiful form,	5 to 6
*Ariel, *Inwood's*, white, edged with lilac,	4 to 5
§Array, *Walter's*, dark crimson, fine flower,	3 to 4
Attila, *Whale's*, shaded rose and lilac, fine form,	4 to 5
*Aurora. *Maule's*, white, striped with crimson,	4 to 5
*Bannard's Rival, supurb dark crimson,	4 to 5
§Bachelor, clear red, fine form, and abundant bloomer,	3 to 4
*Beauty of England, *Girling's*, white, margined with crimson,	3 to 4
†Beauty of Philadelphia, *Schmitz's*, yellow, tip'd with rose, good shape,	4 to 5
Beauty of the Plain, *Spary's*, white, deeply margined with purple,	4 to 5
§Beauty of Wakefield, *Barret's*, white, edged with light purple, fine form, good habit, and constant,	3 to 4
§Bedford Surprise, *Sheppard's*, rosy crimson, splendid form,	3 to 4
†Black Prince, *Kent's*, extra dark maroon,	3 to 4
Blandina, delicate white, fine form,	4 to 5
Bloomsbury, *Lee's*, fine vivid scarlet, large,	5 to 6
Bloomsbury, *Pamplin's*, large buff, fine form,	4 to 5
§Bridal Ring, white and lavender,	3 to 4
§Bride, *Fawcett's*, blush, veined and tipped with rose,	3 to 4
Bridemaid, *Brown's*, white, edged with purple,	3 to 4
§British Queen, shaded bronze, fine form,	3 to 4
*Burnham Hero, *Church's*, superb deep crimson,	3 to 4
*Calliope, extra fine ruby scarlet,	5 to 6
§Candidate, *Silverlock's*, plum colour, fine form,	5 to 6
Captain Boldero, blush, tipped with purple,	4 to 5
*Charles XII., *Miller's*, plum colour, tipped with white,	4 to 5
§Chancellor, *Whale's*, light rosy crimson, large flower,	5 to 6
Clara, *Seaman's*, extra fine white,	4 to 5
Cleopatra, extra fine white,	4 to 5
†Columbus, *Schmitz's*, fine rosy crimson, cupped petals,	4 to 5
Compte de Paris, fine Canary yellow,	4 to 5
Conqueror of Europe, *Elphinstone's*, blush, shaded with pink,	4 to 5
Conqueror of the World, *Stein's*, yellow, tipped with crimson,	4 to 5

† Denotes American Seedlings. * Free Bloomers. § New Varieties.

	Feet high.
Conqueror, *Springall's*, very dark maroon,	4 to 5
Constancy, *Keyne's*, shaded purple, fine flower,	5 to 6
*Conservative, *Seaman's*, bright ruby scarlet,	5 to 6
Conservative, *Low's*, light purple, fine form,	5 to 6
*Constantia, *Cox's*, white, beautifully shaded with pink,	5 to 6
§Coronation, *Harrison's*, crimson, beautifully shaded with purple,	4 to 5
Coronet, superb dark puce, large flower,	4 to 5
Countess of Liverpool, beautiful shaped scarlet,	6 to 8
Danecroft Rival, *Girling's*, bright scarlet, showy flower,	5 to 6
Diana, *Elphinstone's*, beautiful crimson and yellow,	4 to 5
Dennissii, fine ruby purple,	5 to 6
*Dowager Lady Cooper, delicate peach blossom, cupped petals,	4 to 5
*Duchess of Richmond, *Fowler's*, fine orange and pink,	4 to 5
Duke of Bedford, *Dennis's*, large crimson maroon,	5 to 6
*Duke of Cornwall, *Law's*, ruby rose, high centre,	4 to 5
§Duke of Richmond, *Fowler's*, bronzy pink,	4 to 5
§Duke of Wellington, *Smith's*, rich scarlet crimson, high centre, cup'd,	5 to 6
Eclipse, *Catleugh's*, vermillion rose, superb flower,	3 to 4
Elizabeth, *Trentfield's*, white, edged with purple,	4 to 5
§Eleame de Beaucour, fine rosy blush,	4 to 5
§Emperor of China, dark purple, superb form,	5 to 6
*Empress, *Dennis's* yellow, edged with purple,	5 to 6
*Etonia, *Keeler's*, extra fine salmon colour, cupped petals,	4 to 5
§Euclid, *Ward's*, lilac purple, fine form,	4 to 5
Eva, *Foster's*, blush white, cupped petals,	4 to 5
*Exemplar, *Widnall's*, extra fine white,	5 to 6
*Exquisite, *Girling's*, superb salmon colour, cupped petals,	5 to 6
Fanny Keynes, *Keynes's*, beautifully shaded rose,	4 to 5
Fire Ball, *Squibbs's*, vivid scarlet,	4 to 5
Fanny, *Hieskell's*, white, tipped with lilac,	4 to 5
Fisherton Champion, *Squibbs's*, fine dark crimson,	5 to 6
Frances, *Jones's*, white, margined with purple,	5 to 6
*Formosa, *Girling's*, fine buff, tipped with rose,	5 to 6
Gaine's Primrose, fine delicate primrose,	4 to 5
§Garrick, dark puce, splendid form,	4 to 5
§Gem, *Smith's*, white, tipped with bright crimson, good form,	5 to 6
§General Houston, *Briell's*, light purple, good habit,	5 to 6
§Gipsy Maid, *Girling's*, dark crimson, edged with purple,	4 to 5
*Glory, *Douglass's*, extra large bright scarlet,	5 to 6
†Golden Fleece, *Neale's*, fine golden yellow,	4 to 5
Glory of Plymouth, *Rendle's*, white, tipped with purple,	4 to 5
*Grace Darling, *Dodd's*, rosy salmon, fine formed flower,	4 to 5
*Grandis, extra large ruby purple,	5 to 6
Grand Turk, *King's*, very dark, nearly black, and good form,	3 to 4
*Grand Tournament, superb blush, fine formed flower,	5 to 6
§Great Western, *Bragg's*, light purple, mottled with crimson,	4 to 5
§Grenadier, bright orange, showy flower,	5 to 6
Haidee, *Wildman's*, white and pink, cupped petals,	4 to 5

† Denotes American Seedlings. * Free Bloomers. § New Varieties.

	Feet high.
§Honourable Miss Abbot, lilac, cupped petals and fine habit,	4 to 5
§Hope Triumphant, *Wildman's*, fine formed rose,	4 to 5
Hope, *Neville's*, fine rose colour,	4 to 5
Indispensable, *Girling's*, violet purple, fine form,	5 to 6
Ingestive Rival, *Taylor's*, bright lilac,	5 to 6
§Jersey Maid, *Langelier's*, blush, fine form,	4 to 5
Julia, *Clarke's*, sulphur, tipped with crimson,	4 to 5
*Juliet, *Widnall's*, fine cupped rose,	4 to 5
Lady Ann, *Hopwood's*, white, laced with lilac,	3 to 4
†Lady Ashburton, *Russell's*, pure white, tipped with carmine lake,	5 to 6
*Lady Ann Murray, *Catleugh's*, white, mottled with purple,	4 to 5
Lady Bathurst, white, laced with crimson,	4 to 5
Lady Catharine Jermyn, white, mottled with crimson scarlet,	4 to 5
§Lady Glentworth, *Widnall's*, shaded claret, fine form	4 to 5
§Lady Harland, *Jeffries's*, rosy lilac, large showy flower,	5 to 6
Lady Sonde's, *Cox's*, pale yellow, edged with rose,	4 to 5
Le Grande Baudain, *Low's*, rosy lilac, centre tinged with yellow,	5 to 6
*Letitia, *Wells's*, yellow and brown, fine shape,	3 to 4
Lewisham Rival, white, elegantly cupped,	4 to 5
§Liberty, *Girling's*, fine large cupped lilac,	4 to 5
Lord Morpeth, *Evans's*, dark puce, finely cupped,	4 to 5
Lovely Ann, *Dickerson's*, blush white, tinted with lilac,	4 to 5
*Lucina, *Spencer's*, fine lilac, edged with crimson,	4 to 5
§Madame de Schaunenfeld, *Girling's*, bright vermilion, tipped with white, fine shape and habit,	4 to 5
§Madeline Bray, *Atwell's*, primrose, tipped with lilac,	3 to 4
*Maid of Bath, *Davis's*, white, edged with purple,	4 to 5
Mary, *Ward's*, primrose yellow, large flower,	4 to 5
†Mary Ann, *Schmitz's*, pure white, large flower, and perfect,	4 to 5
§Mary Jane, *Edward's*, white, tipped with purple,	3 to 4
Maria, *Wheeler's*, deep rose, superb form,	4 to 5
§Marchioness of Aylesbury, *Whale's*, fine white, tipped with scarlet,	4 to 5
*Marchioness of Breadalbane, lilac and white, mottled,	5 to 6
Marchioness of Lansdowne, blush, with purple edge,	4 to 5
§Marquis of Landsdowne, *Brown's*, shaded orange, large flower,	4 to 5
*Majestic, *Widnall's*, shaded rose, free bloomer,	5 to 6
*Marshal Soult, *Elphinstone's*, lilac and red,	4 to 5
Maresfield Hero, *Mitchell's*, yellow, tipped with crimson,	4 to 5
Mary Queen of Scots, white, margined with purple,	5 to 6
Mazeppa, *Widnall's*, rich ruby purple,	4 to 5
Metella, plum colour, fine form,	3 to 4
*Middlesex Rival, extra fine dark purple,	5 to 6
§Miracle, *Milliez's*, blood red, superior form,	4 to 5
§Miss Chester, *Stein's*, fine white, a good form and habit,	4 to 5
Miss Johnston, *Willison's*, deep rose, extra fine form,	4 to 5
†Miss Percival, *Schmitz's*, clear white, free bloomer,	4 to 5
Miss Scroope, *Hedley's*, extra fine rose, cupped,	5 to 6

Denotes American Seedlings. * Free Bloomers. § New Varieties.

	Feet high.
§Miranda, *Brown's*, blush lilac,	4 to 5
§Miss Watson, *Girlings*, light purple, tipped with white,	4 to 5
Miss Wilson, white, tipped with scarlet,	5 to 6
†Mrs. Fletcher Webster, *Russell's*, white, tipped with purple,	5 to 6
†Mrs. Rushton, *Buist's*, blush white, tipped with lilac,	5 to 6
Napoleon, *Smith's*, dark crimson, excellent formed flower,	5 to 6
Ne plus Ultra, *Widnall's*, fine shaped, purple and crimson,	3 to 4
Newick Rival, *Mantell's*, beautiful ruby rose,	5 to 6
*Nimrod, *Widnall's*, fine dark crimson,	5 to 6
§Northern Beauty, *Robinson's*, white tipped with purple,	4 to 5
*Orange Boven, *Calleugh's*, beautiful bronzy lilac, large flower,	4 to 5
§Oriental Pearl, *Atwell's*, creamy white, good form,	5 to 6
§Osgar, *Widnall's*, excellent dark crimson, cupped petals,	5 to 6
Painted Lady, white and blood red,	5 to 6
Penelope, *Hedley's*, blush, tinted with purple,	4 to 5
§Perpetual Grand, large purple,	4 to 5
†Philadelphia, *Schmitz's*, white, spotted with purple, showy flower,	4 to 5
Phenomenon, *Whale's*, white, edged with rosy lilac,	5 to 6
§Phœnix, *Hedley's*, deep red scarlet, good form,	4 to 5
*Pickwick, dark purple, fine show flower,	4 to 5
Picta Magniflora, *Wells's*, yellow, edged with red,	3 to 4
§Plough Boy, *Girling's*, dark purple, large and fine flower,	4 to 5
Premier, *Bowman's*, fine cupped yellow,	4 to 5
*President, *Wilmer's*, dark purple, well formed,	5 to 6
President of the West, dark crimson, fine form,	4 to 5
Pride of Sussex, fine white, excellent form,	4 to 5
Prima Donna, *Squibbs's*, blush, tinted with rosy lilac,	5 to 6
§Prince Albert, *Adams's*, chestnut brown, shaded with salmon,	4 to 5
§Prince of Wales, *Dodd's*, fine yellow, cupped petals,	3 to 4
§Princess Royal, *Hudson's*, pale amber, edged with pink, cup'd petals,	3 to 4
§Princess Royal, *Herwood's*, fine primrose, good form,	4 to 5
§Princess Royal, *Thompson's* bright orange, margined with red,	3 to 4
*Queen Victoria, *Fowler's*, white, laced with purple,	4 to 5
Queen, *Ansell's*, white, mottled and edged with pink,	3 to 4
*Queen, *Widnall's*, true peach blossom, splendid form,	4 to 5
§Queen of Lilacs, *Appleby's*, fine form and constant bloomer,	4 to 5
§Rainbow, *Smith's*, yellow, beautifully edged with rosy purple,	4 to 5
Rainbow, *Widnall's*, purple and crimson, shaded,	5 to 6
*Reliance, *Widnall's*, orange, finely cupped,	5 to 6
Revenge, *Cox's*, fine sulphur, large flower,	4 to 5
Rival Prince of Orange, *Widnall's*, light orange,	5 to 6
Rival Rose, *Goodwin's*, superb ruby rose, cupped,	3 to 4
*Rienzi, *Widnall's*, crimson and puce, mottled,	4 to 5
Rosa Supurba, *Elphinstone's*, extra fine ruby rose,	5 to 6
Rose Superior, *Girling's*, very splendid, perfect flower,	5 to 6
§Rose Unique, *Ansell's*, light rose, fine centre, and free bloomer,	4 to 5
Rosetta, *Mayhew's*, fine ruby rose,	5 to 6

† Denotes American Seedlings. * Free Bloomers. § New Varieties.

Feet high.

Rouge et Noir, *Ansell's*, deep crimson, shaded with dark purple, 4 to 5
*Ruby Superb, *Walter's*, fine ruby red, excellent form, free bloomer, 5 to 6
Royal Standard, *Whale's*, rich rosy purple, - - - - 5 to 6
§Satirist, *Mortlock's*, lilac purple, fine form and habit, - - 4 to 5
Scarlet Defiance, *Coudrey's*, fine bright scarlet, - - 4 to 5
*Scarlet Defiance, *Cousins's*, vivid scarlet, - - - - 5 to 6
§Sir R. Sale, *Smith's*, crimson purple, cupped petals, with fine centre, 4 to 5
§Sir F. Johnston, *Hillier's*, rosy purple, fine form, - - - 4 to 5
Spectabile, *Widnall's*, light primrose, with purple margin, - 4 to 5
Springfield Major, *Gaines's*, large dark crimson purple, - - 6 to 7
*Stella, fine crimson, cupped petals, constant and free, - - 4 to 5
*Striata Formosissima, *Bates's*, blush white, striped and spotted with crimson, - - - - - - - - - 4 to 5
§St. George, *Fawcett's*, deep rose, good form, - - - - 5 to 6
§Stanley, *Jones's*, fine rose blush, excellent form, - - - 5 to 6
§Surprise, *Oakley's*, bright scarlet, finely tipped with white, - 4 to 5
*Sulphurea Elegans, *Jones's*, sulphur yellow, - - - - 5 to 6
*Suffolk Hero, *Girling's*, fine dark maroon, - - - - 4 to 5
Sunbury Hero, *Wilmer's*, yellow, tipped with red, - - - 5 to 6
*Sylph, *Widnall's*, white, edged and mottled with rose, - - 4 to 5
†T. G. Percival, *Schmitz's*, large dark crimson, round petals, fine form, 4 to 5
*Tournament, *Catleugh's*, ruby scarlet, extra fine, - - - 5 to 6
*Triumph, *Milliez's*, white, tinted with purple, superb flower, - 5 to 6
§Turville's Essex Triumph, very dark, almost black, - - 3 to 4
§Twyford Perfection, *Young's*, deep ruby, cupped petals, - - 5 to 6
Unique, *Ansell's*, light yellow, tipped with red, - - - 4 to 5
Unique, *Walter's*, white, delicately laced with pale lilac, - - 5 to 6
Upway Rival, light purple, fine form, - - - - - 4 to 5
*Uxbridge Magnet, *Catleugh's*, mottled purple, fine large flower, 5 to 6
*Vesta, *Wells's*, blush, fine bold flower, - - - - - 4 to 5
Victory, *Knight's*, rich dark crimson, - - - - - 5 to 6
Village Maid, beautiful light blush, - - - - - 4 to 5
Viola, *Read's*, rose colour, tipped with red, - - - - 4 to 5
§Virgil, *Mountjoy's*, ruby purple, - - - - - - 4 to 5
Virgin Queen, clear white, finely formed flower, - - - 5 to 6
†Washington Irving, *Schmitz's*, light purple, free bloomer, - 5 to 6
§Westbury Rival, *Hall's*, puce, fine form and constant bloomer, - 4 to 5
§White Defiance, *Langelier's*, very fine white, good form, - - 3 to 4
*Will Watch, *Girling's*, shaded ruby, constant and fine, - - 5 to 6
Windmill Hill Rival, white and violet, neat flower, - - - 4 to 5
*Winterton Rival, *Nelson's*, light yellow, good form, - - 5 to 6
Xarifa, *Oxer's*, pale yellow, fine form, - - - - - 4 to 5
Yellow Climax, *Wildman's*, extra fine yellow, perfect shape, - 4 to 5
Yellow Defiance, *Cox's*, brilliant yellow, - - - - - 4 to 5
†Yellow Victory, *Schmitz's*, brimstone yellow, finely cupped, - 4 to 5
*York and Lancaster, fine rose pink, free bloomer, - - - 5 to 6
Zeno, *Elphinstone's*, beautiful purple, - - - - - 4 to 5

As some amateurs are apt to fancy that the most economical method of obtaining a supply of Dahlias in their gardens, is to raise them from seed, it may be necessary to remind such, that the trouble and expense of raising any quantity of seedlings, is equal to that attending the cultivation of the same number of the choicest varieties; and when it is considered that the greatest proportion of a plantation may be single, and semi-double, and that but few double flowering plants can be expected, equal to those above described, it must appear evident that it is the interest of such persons as desire to have their gardens unencumbered with plants that are not calculated to ornament the same, to procure plants or roots of such varieties as have been tested, and highly recommended, as is the case with all those described in the preceding Catalogue, and also those which are generally sold by the regular florists. But as I am writing for young gardeners, it may be necessary to state, that although new varieties are usually raised from seed of the finest double flowers some successful propegators prefer that procured from semi double varieties. Sow seed toward the end of February, or early in March, in pots, and plunge them in a moderate hot-bed, or seed may be deposited in the earth of the beds, in shallow drills, and the beds attended to as directed in the Calendar for February and March.

Nothing is more simple than the cultivation of Dahlia roots. In March or April, they will, if properly kept through the winter, begin to sprout around the old stems and tubers. To forward these sprouts in growth, the roots should either be buried in light earth on the top of a moderate hot-bed, or else potted, and then set in a warm room, or green-house, and watered. As soon as the shoots have grown to the length of two or three inches, the roots may be divided in such a manner as to have a good strong shoot attached to a piece of the tuber, or old stem; each of these will, if properly managed, make a plant. Those who may commence cultivating at an early season, should put the plants thus

separated into small pots, and keep them in a growing state until about the middle of May at which time they may be turned out of the pots with the balls of earth entire, and planted in the open borders, from three to four feet from each other.* Let the ground be well pulverized, and enriched with good old manure, before the plants are set out. If the top soil be shallow, and the subsoil inferior, it would be beneficial to the plants to dig holes to the depth of from a foot to eighteen inches, and then replenish the earth with good rich compost, consisting of two thirds of fresh loam, and one third of well-rotted manure.

Many cultivators have found late planting to suit better than early; and I myself have had more perfect flowers from plants set out about the middle of June, than from those planted in May: this is easily accounted for. In July and August the weather is generally hot, which brings the most forward plants into bud at an early season, and in the event of a continuation of hot, dry weather, such buds fail to produce perfect flowers; whereas those plants which are set out late, keep growing through the hot weather, and produce their buds just in time to receive all the benefit of the autumnal rains. From a consideration of these circumstances, I think early in June the safest time to set out Dahlia plants; and if those persons who have no convenience to force their roots, set them out in May, in ground prepared as before directed, they will generally succeed very well, provided they take care to cover them in case of a cold change of weather. The roots may be thus cultivated entire, as is frequently done; but if it be desired to have them parted, this business can be easily accomplished without disturbing the roots, and the offsets may be planted in the ground separately or potted.

* In order to obtain an extra number of plants from any choice varieties, cuttings are frequently taken from the shoots when about three inches in length, which are planted in nursery-pots, and cultivated in hot-beds; they require to be shaded from the sun, by mats, for the first fortnight, after which they may be gradually innured to the air, and treated as plants raised in the ordinary way.

Previous to setting out the plants, it will be necessary to provide for their preservation through the varied changes of the season, or a sudden gust of wind may destroy the expectations of a year. The branches of the Dahlia are extremely brittle, and, therefore, a good stout pole, or neat stake, should be driven down near each root, of a suitable height, so that the branches, as they progress in growth, may be tied thereto at every joint, which may be done with shreds of matting or twine. If the poles be in readiness, they are much more easily fixed at the time of planting the Dahlias than afterward; but it may be done at any time after the ground has been softened by rain, provided it be not delayed too long, so as to subject the plants to risk. Sometimes a few forward buds of the Dahlias will exhibit their premature beauties to the beams of a July and August sun; but their lustre is quickly dimmed. The latter end of September, sometimes all October, and part of November, witness the Dahlia in all its glory; and dwarf plants, cultivated in pots, will sometimes blossom at Christmas; but they require more than ordinary care, at a late period of their growth.

GLADIOLUS, CORN-FLAG, OR SWORD LILY.

Of this genus of bulbs there are about fifty species, natives of the Cape of Good Hope. They produce flowers of various colours, in August and September, and are well worthy the attention of those who cultivate tender exotic plants. They may be planted in September or October, about an inch deep, in pots, which must be kept in a green-house or light room, and watered sparingly until they begin to grow. The following are known to be superb species and varieties:

G. alatus, or Wing-Flowered, producing bright orange coloured flowers.

G. blandus produces flowers of a beautiful blush rose colour.

G. Byzantinus, or Turkish Flag, has large delicate purple flowers.

G. cardinalis. This variety produces very large flowers of superb scarlet, spotted with white.

G. floribundus, or Cluster Flower, produces large flowers of white and pink colour.

The *Gladiolus Natalensis*, or *Psittacina*, is perhaps the most desirable to cultivate of all others. It blossoms freely, and the colours are exquisitely beautiful. In its progress of blooming, it exhibits variable colours, as vermilion, red, yellow, green, white, crimson, &c., which brighten, as the flower arrives at perfection, to the brilliancy of a rainbow. Another good quality displays itself in the bulb, which, if properly managed, will yield an abundance of offsets; these being cultivated, will flower the third year in perfection, and thus continue to multiply perpetually.

I have named September and October as the time for planting, because it is considered the preferable season for most bulbs; but if these be preserved in good condition through the winter until early in April, and then planted in a soil consisting of about one half fresh loam, equal parts of leaf mould, and sand, well mixed, they may be forwarded in a warm room, green-house, or moderate hot-bed, until settled warm weather, and then turned out of the pots into a border, where they can be shaded from the sun at noonday; this will induce each of them to throw up three or four stems, from three to four feet high, each stem producing five or six gorgeous blossoms, in great perfection. Those planted in the autumn or winter, may also be turned out of the pots in June; and, from the fibres having taken substantial root in the soil before transplanting, such plants may be taken up again in August, or early in September; and on being planted in large pots, they may be removed, so as to perfect their bloom, within view of the parlour or sitting-room, which will afford considerable amusement and gratification.

HYACINTH.

"Hail to thee! hail, thou lovely flower!
Still shed around thy sweet perfume,
Still smile amid the Wintry hour,
And boast e'en then a spring-tide bloom.
Thus hope, mid life's severest days,
Still smiles, still triumphs o'er despair;
Alike she lives in pleasure's rays,
And cold affliction's Winter air."

There are, as has been already stated, about thirteen hundred varieties of this family of plants, comprising all the various hues, as white, pink, red, yellow, blue, purple, crimson, &c., and some of those with various coloured eyes. They begin to produce their flowers in the open borders early in April, on short erect stems covered with florets or small bells; each floret is well filled with petals rising toward the centre, and is suspended from the stem by short strong footstalks, the longest at the bottom, and the uppermost florets stand so erect as to form a pyramid. A plantation, or bed of these, has a very beautiful appearance, provided they are well attended to. In planting them, which should be in the months of October or November, care should be taken to have the colours so diversified as to suit the fancy; they may be placed in short rows across the bed, about eight inches apart, and from three to four inches deep, measuring from the top of the bulb, and covered up at the setting in of winter, as before recommended for bulbs in general.

Those who may have a fine collection, should have an awning erected in the spring, to screen them from the chilling blast, and also from drenching rains and the noonday sun; and they should be looked over as soon as they make their appearance above ground, to see if they are all perfect and regular; if faulty or inferior bulbs should appear to have been planted in a conspicuous part of the bed, by accident or mistake, they can be taken out, and by shortening the rows, others may be substituted with a trowel. When all are regulated, look over them frequently, and as the stems

shoot up, tie them to wires, or small rods, with shreds of bass matting or thread, being careful not to injure the florets. In about six weeks after they have done flowering, the bulbs may be taken up, and managed as recommended for bulbs in general, in a former page.

IRIS, OR FLOWER DE LUCE.

There are two distinct species of plants cultivated under the name of *Flower de Luce*, each consisting of several varieties. The bulbous species and varieties are designated as English, Spanish, Chalcedonian, and American. These, if introduced into the flower borders, and intermixed with perennial plants of variable colours, have a very pretty appearance when planted in clumps or patches. This may be done in the month of October, by taking out a spadeful of earth from each place allotted for a plant, and then inserting three or four bulbs, about two inches deep. If the ground be poor, some rich compost may be dug in around the spot before the bulbs are planted; and if several sorts be planted in the same border, let them be of various colours. The tuberous-rooted are of various colours, as blue, yellow, brown, and spotted; they are easily cultivated, and flower freely in a loose soil inclining to moisture, if planted in March or April.

IXIAS.

These are tender, but very free flowering bulbs, producing on their stems, which vary in height from six inches to two feet, very delicate flowers of various colours, as orange, blush, white, purple, green, crimson, scarlet, and some have two or three colours blended in the same plant.

There are, in all, upward of twenty species, which may be cultivated in the green-house, by planting the bulbs in pots in September or October, and placing them near the light, and watering them sparingly until they begin to shoot.

JONQUILS.

This is a hardy race of bulbs, and produces very delicate yellow flowers early in May. There are different varieties, some of which are single flowering, and others double. Their fragrance is very grateful, being similar to that of Jasmines. The bulbs may be planted about two inches deep in the flower borders, or in pots, in October, or before the setting in of winter; they flower better the second year than in the first, and, therefore, should not be moved and replanted oftener than once in three years.

LACHENALIAS.

These are tender little bulbs, natives of the Cape of Good Hope. There are supposed to be in all about forty species and varieties. Those most cultivated with us are the *Lachenalia quadricolor*, and *L. tricolor*, which are very beautiful when in full bloom, exhibiting flowers of various colours on a stem of from six inches to a foot in height, and much in the character of Hyacinths. The colours, which are yellow, scarlet, orange, green, &c., are very pure and distinct. *L. nervosa*, *L. orchoides*, *L. punctata*, and *L. rubida*, are all excellent species, and worthy of cultivation. They may be planted from one to two inches deep, in small pots, in the months of August and September, and watered but sparingly until they begin to grow.

LILIES.

There are several plants under this name, of different genera, some of which are indigenous. The Canada Lily, with yellow spotted drooping flowers, may be seen in wet meadows toward the last of June, and early in July. The Philadelphia Lily blooms also in July; its flowers are red.

There are some pure white, and others yellow, growing in various parts of the country. Among the foreign genera are several species. Of the *Martagon*, or Turk's Cap Lilies, there are some beautiful varieties; as the *Caligula*, which produces scarlet flowers; and there is one called the Crown of Tunis, of purple colour; beside these, are the Double Violet Flamed, the White, the Orange, and the Spotted; these are all hardy, and may be planted in various parts of the garden, by taking out a square foot of earth, and then, after manuring and pulverizing it, the bulbs may be planted therein before the setting in of winter, at different depths, from two to four inches, according to the size of the bulbs. Some of the Chinese varieties are very beautiful, as the Tiger, or Leopard Lily, and the dwarf red, *Lilium concolor*. There are others with elegant silver stripes, which are very showy, and there is one called *Lilium superbum*, that has been known to have twenty-five flowers on a single stalk.

Beside those above enumerated, there are some others which are generally cultivated in green-houses, as the *Calla*, or Ethiopian Lily; and the following, which have been known to endure our winters, by protecting them with dung, &c.: *Lilium longiflorum*, in two varieties; these produce on their stalks, which grow from twelve to eighteen inches high, beautiful rose coloured flowers, streaked with white, which are very sweet-scented. These roots are sometimes kept out of the ground until spring, and then planted in the flower borders, but they should be preserved carefully in sand or dry mould. *Lilium Japonicum:* of these there are two varieties, which produce several stalks at once, yielding very showy flowers. One of the varieties is blue flowered, and the other produces flowers of the purest white.

NARCISSUS.

The species and varieties of this plant are numerous. The *Incomparable* is perfectly hardy, and produces its flowers in April, which are called by some *pasche*, or *paus* flowers, by others, butter and eggs; perhaps because their bright yellow petals are surrounded with large white ones. Some persons dislike the smell of these, and it is said that the odour has a pernicious effect upon the nerves; but the white fragrant double, as well as the Roman, and Polyanthus Narcissus, are free from this objection, being of a very grateful and agreeable smell. Some of these are justly held in great esteem for their earliness, as well as for their varied colours. The *Grand Monarque de France*, the *Belle Legoise*, and some others, have white flowers with yellow cups. The *Glorieux* has a yellow ground, with orange coloured cups; beside these are some white and citron coloured, as the *Luna*, and others entirely white, as the *Rein Blanche* and *Morgenster*. All these varieties are very suitable either for the parlour or green-house, and may be planted in pots, from October to December, from two to three inches deep. The double Roman Narcissus are very sweet-scented; if these be planted in pots, or put into bulb glasses in the month of October, they will flower in January and February.

Polyanthus Narcissus are more delicate than Hyacinths or Tulips; when they are planted in the open border, they should be covered about four inches with earth, and before the setting in of winter, it is advisable to cover the beds with straw, leaves, or litter, to the depth of six or seven inches, and to uncover them about the middle of March.

ORNITHOGALUM, OR STAR OF BETHLEHEM.

There are about fifty varieties of these bulbs, natives of the Cape of Good Hope, some of which are from three to five inches in diameter, and shaped similar to a pear; others

are much like Hyacinth bulbs. Among those cultivated in America are the *O. lacteum*, and the *O. aureum;* the former produces fine white flowers, and the spike is about a foot in length; and the latter produces flowers of a golden colour, in contracted racemose corymbs. The *O. maritimum*, or Sea Squill, is curious; from the centre of the root rise several shining glauceus leaves, a foot long, two inches broad at the base, and narrowing to a point. If kept in a green-house, these are green during the winter, and decay in the spring; then the flower-stalk comes up rising two feet, naked half way, and terminated by a pyramidal thryse of white flowers.

These bulbs are generally cultivated in the green-house, and require a compost consisting of about one half fresh loam, one third leaf mould, and the remainder sand, in which they may be planted in September. When cultivated in the garden, they should be planted four or five inches deep, and protected with dung, &c. They produce their flowers early in June.

OXALIS.

The Oxalis is a native of the Cape of Good Hope; the species are numerous, and their roots are very small bulbs, articulated, jointed, or granulated, in a manner peculiar to this genus. They produce curious flowers of various hues, yellow, purple, rose, red, white, striped, vermilion colour, &c. The bulbs should be planted in very small pots, in August and September, in a compost consisting of about two thirds loam, and one third leaf or light mould, and treated in the same manner as other Cape Bulbs. They increase in a peculiar manner, by the parent bulb striking a fibre down from its base, at the extremity of which is produced a new bulb for the next year's plant, the old one perishing. These plants will flower freely in a green-house.

PÆONY.

"Pæonia round each fiery ring unfurls,
Bares to the noon's bright blaze her sanguine curls."

Of this genus of splendid plants there are known to be about twenty species, and as many varieties. It is said that the *Pæonia officinalis rubra*, or common double red Pæony, was introduced into Antwerp upward of two centuries ago, at which time it was sold at an enormous price. It has since been highly esteemed in Europe and America, and is to be found in all well-established gardens, exhibiting its vivid crimson petals early in June. Many superb species have of late years been brought from China, a few of which may be noticed, with some others which are in very great repute.

Pæonia alba Chinensis is one of the finest of the herbaceous sorts. The flowers are white, tinged with pink at the bottom of the petals.

P. edulis whitlèji has also white flowers, which are very large and splendid.

P. edulis fragrans, is a fine large double scarlet variety, and produces flowers perfumed like the rose.

P. humei has beautiful large double dark blush-coloured flowers.

P. paradoxa fimbriata produces fringed double red flowers, which are very beautiful.

These are all hardy, and may be planted about four inches deep in the garden, in October or November. The flowers exhibit themselves to the best advantage when planted on a bed that is elevated, and of a circular form.

The following are half hardy and half shrubby; these have been known to survive the winter by being well protected, but are kept much better in a green-house; and they also exhibit their flowers to greater advantage than when exposed to the full sun.

P. moutan Bankskii, or Tree Pæony, produces very large double blush flowers in abundance, with feathered edges to every petal. This variety is highly deserving of cultivation.

P. moutan rosea is a fine rose-coloured double variety, and produces very splendid flowers.

P. moutan papaveracea produces very large white flowers, with pink centres. This splendid variety frequently bears flowers from nine to eleven inches in diameter.

Beside the above, are several others of various colours, some of which are semi-double.

TULIP.

"For brilliant tints to charm the eye,
What plant can with the Tulip vie?
Yet no delicious scent it yields
To cheer the garden or the fields;
Vainly in gaudy colours dressed,
'Tis rather gazed on than caressed."

The Tulip is a native of the Levant, and has been in cultivation nearly three centuries. It may be justly entitled the King of Flowers, for the brilliancy and endless combination of all colours and shades. The varieties of the Tulip are very numerous, and are divided into different classes. Those cultivated in regular beds by amateurs are rose-coloured, *bybloemen*, and *bizarres*. There are a great many beautiful varieties, denominated *Parrot* Tulips, which have notched petals, striped or diversified with green; and also some very dwarfish kinds, both single and double, which are generally cultivated in parlours and green-houses.

Mr. T. Hogg, of Paddington, near London, has published a work, entitled 'A Treatise on the cultivation of Florists' Flowers,' which comprises the Tulip, Carnation, Auricula, Ranunculus, Polyanthus, Dahlia, German and China Asters, Seedling Heart's Ease, and New Annuals. In that work, which is dedicated to Queen Adelaide, the author remarks that the cultivation of the Tulip is one of the most fascinating and pleasing pursuits imaginable, and that when "The Tulip mania has fairly got hold of any one, it sticks to him

like the skin on his back, and remains with him the rest of his life." He instances a Mr. Davey, of Chelsea, as being in his seventy-fifth year, and in whose breast the fancy for Tulips was so predominant, that in the autumn of 1832, he was induced to part with a hundred sovereigns for one single Tulip, named "Miss Fanny Kemble." Perhaps a better definition of what constitutes the properties of a good Tulip, could not be given than a description of this "precious gem, or loveliest of all Tulips;" but, lest my readers should conclude that the old man was in his dotage, I would inform them that this favourite bulb was purchased of the executors of the late Mr. Clarke, with whom it originated, and that it had not only been the pet of its owner, but had excited the envy and admiration of all the amateurs who went to view it.

"This precious gem, a *bybloemen* Tulip, was raised from one of Mr. Clarke's seedling breeders, and broke into colour three years ago; it has produced two offsets since, and is adapted to the second or third row in the bed; the stem is firm and elastic; the foliage full and broad, of a lively green; the cup large, and of the finest form; the white pure and wholly free from stain; the pencilling on the petals is beautifully marked with black or dark purple, and the feathering uniform and elegant; it preserves its shape to the last, the outer leaves not sinking from the inner; in a word, it is considered the first flower of its cast, and the best that has ever been produced in England."

The article in the work already alluded to, on the cultivation of Tulips alone, occupies ninety-six pages; I, therefore, cannot attempt any thing more than an abridgement of the author's ideas on some important points. Those of my readers who may desire full information, are referred to the work itself, which may be obtained of Mr. G. C. Thorburn.

The following description may serve to govern the choice of amateurs. Tulips exhibited at the show are, in general, classed and distinguished as follows: *Flamed Bizarres, Feathered Bizarres, Flamed Bybloemens, Feathered Bybloe-*

mens, Flamed Roses, Feathered Roses, and *Selfs,* or plain-coloured.

A *Bizarre* Tulip has a yellow ground, marked with purple or scarlet of different shades; it is called *flamed* when a broad or irregular stripe runs up the middle of the petals, with short abrupt projecting points, branching out on each side; fine narrow lines, called arched and ribbed, often extend also from this broad stripe to the extremity of the leaves, the colour generally appearing strongest in the inside petals; a Tulip, with this broad coloured stripe, which is sometimes called beamed or splashed, is, at the same time, frequently feathered also.

It is called *feathered* when it is without this broad stripe; but yet it may have some narrow lines, joined or detached, running up the centre of the leaf, sometimes branching out and carved toward the top, and sometimes without any spot or line at all; the petals are feathered more or less round the edges or margin inside and out; the pencilling or feathering is heavy or broad in some, and light or narrow in others, sometimes with breaks or gaps, and sometimes close and continued all round.

A *Bybloemen* Tulip has a white ground, lined, marked, striped, or variegated with violet or purple, only of various shades; and whether feathered or flamed, is distinguished by the same characters and marks which are pointed out and applied to the Bizarred Tulips.

A *Rose* Tulip is marked or variegated with rose, scarlet, crimson, or cherry colour, on a white ground; and the Feathered Rose is to be distinguished from the Flamed by the same rules as described before; the Rose is very often both feathered and flamed.

A *Self,* or plain-coloured Tulip, properly so called, is either white or yellow, and admits of no farther change; other plain-coloured Tulips, whether red or purple, are called breeders, and are hardly worthy of being exhibited. Mr. Hogg informs us, that £100, say $500, judiciously expended

at the present time, will give a moderate-sized bed, that shall contain the greater part of the finest varieties grown; such a bed as £250 would not have purchased twelve or fourteen years ago.

To describe minutely the mode of planting a regular bed of Tulips would exceed our limits; suffice it to state that the name of every bulb should be written in a book, and that they should be so classed as to have the varied colours show advantageously; to this end, the tallest should be allotted for the middle of the bed, and others in regular gradation, so as to have the most dwarfish on the sides. The bulbs must be covered with good mould to the depth of three inches from the top of the bulb on the sides of the bed, and about four inches in the middle. Let a small spoonful of clean drift sand be used around each bulb, and see that the bed be left sufficiently round from the middle to the edges. The beginner must understand that no unsightly tallies, or number sticks, are to distinguish the Tulips; but that he must adopt a sort of ground plan, dividing the whole bed into rows of seven bulbs across; for example, write down the names and places of the Tulips in the first row, and continue the same form all through to the other end of the bed.

Row First,

No. 1.	Fenelon, - - - - - - -	this is a	Bybloemen.
2.	Duchess of Clarence, - -	"	Rose-coloured.
3.	Charlemagne, - - - -	"	Bybloemen.
4.	Louis the Sixteenth, - -	"	Bybloemen.
5.	Memnon, - - - - - -	"	Bizarre.
6.	Volney, - - - - - -	"	Bybloemen.
7.	Lady Crewe, - - - - -	"	Rose-coloured

Good fresh loam, taken from under healthy grass sods, is the most suitable soil for Tulips to grow in; under which should be buried, to the depth of a foot, about two inches' thickness of well-rotted cow or horse droppings. The reason for placing the dung so low is, that the fibres may get down

to it, (which they will do,) and that the bulbs may not be injured by it, as is apt to be the case if too much dung is used around them. The best time for planting the bulbs is early in November, and the beds should be made a fortnight previous, in order that the earth may become sufficiently settled.

If severe frosts set in after the Tulips show themselves above ground in the spring, some protection should be given; single mats placed over hoop bends answer very well; and at the time of blooming, an awning should be erected over them, to screen them from the intense heat of the sun, which awning should be sufficiently spacious to admit of persons walking under it, to view the beautiful flowers to the greatest possible advantage.

TUBEROSE.

This fragrant and delightful flower has been cultivated in English flower gardens for upward of two centuries; there the bulbs are generally cultivated in pots early in the spring, and transferred to the flower borders as soon as it becomes settled warm weather; for they are very tender. They generally succeed very well here, if planted at once in the open border toward the end of April, and produce flowers, which are pure white, and highly odoriferous, on a stem three to four feet high.

The bulbs produce a number of offsets, which should be preserved with the parent plants through the winter, and then parted off and planted by themselves, in April or early in May, to produce flowering roots for the ensuing year. These roots thrive best in a light rich soil, well pulverized, in which they should be planted about two inches deep, not forgetting to take them up again before the approach of winter.

TIGER FLOWER.

Perhaps there is no flower treated of in this work that is more beautiful than some of the species of the genus *Tigridia*. Like all Mexican bulbs, these are tender, and should either be cultivated in the green-house, or carefully preserved until settled warm weather, and then planted in good light soil, in a sheltered situation. A bed of these beautiful flowers would afford as much gratification to some amateurs as a bed of Tulips.

The *Tigridia conchiflora* is of a rich yellow colour, tinged and spotted with white and crimson; the colours are very vivid and finely contrasted. The *Tigridia pavonia* is of the brightest scarlet, tinged and spotted with brilliant yellow. The corolla, which is about four inches in diameter, is composed of six petals; the outer petals are thrown backward, and exhibit the blossom in all its splendour, which exists only a single day; but as if to compensate for its transient visit, each plant will produce a number of flowers; and where a bed of them can be collected, they will amuse their admirers for several weeks from July to September. In such case the bulbs may be planted about two inches deep, say nine by fifteen inches apart, toward the end of April, or early in May, and taken up again in October, to preserve for planting the ensuing year.

OBSERVATIONS

ON

THE CULTURE OF BULBOUS ROOTS,

IN POTS OR GLASSES, IN THE WINTER SEASON.

The culture of bulbous roots in a green-house, or light room, during the winter, is comparatively easy, provided two points be attended to: the first is to keep them near the light, and turn the pots or glasses round frequently, to prevent their growing crowded; and the second is, when the plants have done growing, to give them little or no water; for want of attention to these points, bulbs have been known to produce foliage year after year, without showing any sign of blossoms.

All bulbs, at a certain period of the year, are in a dormant condition; this, in a state of nature, is invariably after the seed has ripened; but as, in a green-house, many of this family do not ripen seed, the cultivator should watch the period when the leaves show indications of decay; at which time, the supplies of water should be lessened, and shortly afterward the earth should be suffered to get dry, and remain so until the season returns when the bulbs re-germinate.

Many sorts of bulbs will keep best in pots, under the soil, in a dry, shady place, and in the same temperature as that in which they are in the habit of growing; but others, such as the Hyacinth, Tulip, Narcissus, &c., may be taken out of the soil, and preserved as before directed, until the return of the proper season for replanting.

Dutch bulbous roots intended for blooming in pots during the winter season should be planted during the months of

October and November, and be left in the open air until it begins to freeze; and then be placed in the green-house, or in a room, exposed to the sun. They will need occasional moderate waterings until they begin to grow; then they should have abundance of air in mild weather, and plenty of water from the saucers underneath the pots, while in a growing state; and should be exposed as much as possible to the sun, air, and light, to prevent the foliage from growing too long, or becoming yellow.

For this purpose, single Hyacinths, and such as are designated earliest among the double, are to be preferred. Single Hyacinths are by some held in less esteem than double ones; their colours, however, are more vivid, and their bells, though smaller, are more numerous; some of the finer sorts are exquisitely beautiful; they are preferable for flowering in winter to most of the double ones, as they bloom two or three weeks earlier, and are very sweet-scented. Roman Narcissus, double Jonquils, Polyanthus Narcissus, double Narcissus, and Crocuses, also make a fine appearance in the parlour during winter. It is a remarkable circumstance of the Crocus, that it keeps its petals expanded during tolerably bright candle or lamp light, in the same manner as it does during the light of the sun. If the candle be removed, the Crocus closes its petals, as it does in a garden when a cloud obscures the sun; and when the artificial light is restored, they open again, as they do with the return of the direct solar rays.

Hyacinths and other bulbs intended for glasses should be placed in them about the middle of November, the glasses being previously filled with pure water, so that the bottom of the bulb may just touch the water; then place them for the first ten days in a dark room, to promote the shooting of the roots; after which expose them to the light and sun as much as possible; they will blossom without the aid of the sun, but the colours of the flowers will be inferior. The water should be changed as often as it becomes impure;

draw the roots entirely out of the glasses, rinse the fibres in clean water, and also the glasses inside; care should be taken not to suffer the water to freeze, as it not only bursts the glasses, but often causes the fibres to decay. Whether the water be hard or soft, is of no great consequence; but soft, or rain water, is generally preferred, and it must be perfectly clear.

Forced bulbs are seldom good for any thing afterward; however, those who wish to preserve them, may immerse them wholly in water for a few days; and then, having taken them out, and dried them in the shade for a short time, they may be planted in a good soil, in the garden, where they will sometimes flower the next year. It does not clearly appear in what way the water operates when the bulb is wholly immersed; but it is certain that bulbs so treated increase in size and solidity, and have an incomparably better chance of flowering the second year, than those which have not been so treated; most probably their total immersion enables them to obtain a greater proportion of oxygen from the water.

Nosegays should have the water in which their ends are inserted changed, on the same principal as bulbous roots; and a much faded nosegay, if not dried up, may often be recovered for a time, by covering it with a glass bell, or cup, or by substituting salt water for fresh.

Very fine Hyacinths have been grown in a drawing-room, in the following novel manner. A quantity of moss, classically called *hypnum*, and vulgarly fog, was placed in a water-tight box, about eight or nine inches deep, into which the bulbs were placed, at the end of September, without mould, and duly watered; the result of this experiment was highly favourable.

OBSERVATIONS

ON THE

GENERAL MANAGEMENT OF GREEN-HOUSE PLANTS.

HAVING already exceeded my limits, I am compelled to be brief in my observations on such ornamental plants as are generally cultivated in hot and green-houses. This description of plants embraces those which are collected from various climates, and thrive best in a temperature and soil similar to that in which nature first produced them: hence those who propagate exotic plants must provide suitable composts, and also separate departments, where the different degrees of heat may be kept up, according to their nature and description. Some of these are raised from seed sown in the spring, others by layers, suckers, and offsets detached from the old plants, and many by slips or cuttings, planted at different seasons of the year, according to their various natures and state of the plants. Many kinds require the aid of glass coverings and bottom heat, created by fresh horse dung, tan, &c. [See Calendar and Index.]

Were I to attempt to give directions for the propagation of all the varieties of useful and ornamental exotic plants cultivated in various parts of our country, it would require several volumes. The catalogue of green-house plants alone, kept by the enterprising proprietor of the Linnæan Botanic Garden, at Flushing, occupies fifty pages of close matter; it would, therefore, be impossible to do justice to the subject without dividing upward of two thousand species of plants into classes, and treating of them under distinct heads; I shall, therefore, not attempt in this edition to write largely on the subject.

In order to render this work useful to those who may wish to avail themselves of the pleasure of nursing some of those beauties of nature in dwelling or green-houses during the most chilling days of our severe winters, and to afford amusement to the ladies at a season when our gardens are deprived of their lovliest charms, I shall notice some essential points connected with the management of green-house plants in as explicit a manner as possible, and subjoin a brief catalogue of such species as are most generally cultivated, of which there are innumerable varieties; descriptions of which, with all the varied features of the floral kingdom, may be found in the voluminous works of Loudon, Sweet, Chandler, and other English writers.*

The generality of those denominated green-house plants, and which are kept in rooms, should be placed where they can have the light of the sun, without being exposed to frost. Air, heat, and moisture are essential to the growth of plants; but these should be given in due proportions, according to circumstances. In frosty weather they should

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* All the most popular English books on this subject, are imported by Thorburn & Co., No. 15 John street, among which are the following:

'Loudon's Encyclopædia of Plants,' illustrated by engravings and with figures of nearly ten thousand species, exemplifying several individuals belonging to every genus included in the work. Completed in one large volume, 8vo —$20.

'Loudon's Encyclopædia of Gardening,' comprising the Theory and Practice of Horticulture, Floriculture, Arboriculture, and Landscape Gardening; including all the latest improvements. A new edition, in one large volume, 8vo., closely printed, with upward of 700 engravings.—$12.

'Chandler (of London) on the Camellia;' containing ample directions for the cultivation of this fine plant, with a superb plate of all the present known varieties in England. 1 vol. 4to.—$45.

'Hortus Brittanicus;' a Catalogue of Plants cultivated in the gardens of Great Britain, arranged in natural orders.—$6.

'The British Flower Garden;' containing coloured figures, and descriptions of all the most ornamental and curious plants; with their scientific and English names; best method of cultivation and propagation; the heights they generally attain; or any other information respecting them, that may be considered useful or interesting. By R. Sweet, F. L. S., &c.; the drawings by E. D. Smith, F. L. S. In 5 vols., 8vo., calf, and continued in monthly numbers. A splendid work.—$100.

be kept from the external air, and watered very sparingly. When water is necessary, it should be applied in the morning of a mild sunny day. The plants should be kept free from decayed leaves, and the earth at the top of the pots should be sometimes loosened to a moderate depth, and replenished with a portion of rich compost.

Plants kept in private houses are often killed with kindness. The temperature of a room in winter need not be more than ten degrees above freezing. If plants are healthy, they may be kept so by attention to the preceding hints; unhealthiness generally arises from their being subjected to the extremes of heat, cold, or moisture, or from total neglect.*

In order that the ideas above advanced may be duly considered, it may be useful to indulge in a more minute description of the nature of plants, and to show in what manner the elements operate upon them. It is an acknowledged fact, that the roots of plants require moisture, and therefore penetrate the earth in search of it, and that the plants themselves are greatly nourished by air, and spread their branches and leaves to catch as much as possible its enlivening influence. Light also is so far essential, that there can be no colour without it; witness the blanching of celery and endive, where the parts deprived of light become white; place

* An amateur florist of this city has suggested the following hints in regard to the management of plants in rooms. He says that he keeps his plants in a room, the windows of which, having a southern exposure, will admit the sun all day. The plants are placed on a table with rollers attached to the legs, which in moderate weather is kept as near to the glass as possible. In cold weather he removes the table into the middle of the room, and places a pail of water near the plants to attract the frost. He considers it a great mistake to suppose that plants kept in warm rooms require much fire heat, on the contrary, he contends, that a moderate degree of cold will agree with plants much better than a very high temperature. He, however, considers it needless to attempt to keep plants in a cold room, the windows of which face the north. A southeastern, or even eastern exposure may answer without any fire, except in very cold weather. It may be observed, farther, that excessive moisture injures plants more than drought, and that plants in general do not require water while the surface of the earth in the pots is moist.

a plant in almost any situation, it will invariably show a tendency to turn to the light; the sunflower is a striking example of this singular fact. As the leaves supply the plant with air, and the fibres of the roots with nourishment, to strip off the leaves or destroy the fibres is to deprive it of part of its means of support.

Having shown that air and water are essential to vegetation, and light to its colour, experience shows us that heat, in a greater or less degree, is not less necessary to the growth of plants; it is therefore requisite, that in taking plants into our rooms, we should attend to these particulars.

The internal structure of plants consists of minute and imperceptible pores, which serve the same important purpose in the vegetable, as veins in the animal, system; they are the medium of the circulation of the sap in the former, as the veins are of the blood in the latter; but it is by no means settled as yet by physiologists how the food of plants is taken up into the system, and converted into their constituent parts.

From the foregoing considerations and facts, it is evident, that, as air, heat, and moisture are each essential to vegetation, water should only be given in proportion as heat and air are attainable. In the summer season, green-house plants may be exposed to the open air, from the early part of May until the end of September, by being placed on the ledges of windows, or on a stand erected for the purpose, or, in the absence of a nursery bed of flowering plants, they may be introduced into the regular flower-beds, to supply the place of such plants as may wither and die in the course of the summer, by being turned out of the pots and planted, or plunged in the earth with the pots.

In the heat of the summer season, plants generally require water every evening, and in the absence of dews, the earth about their roots may sometimes need a little in the morning; but experience shows, that the roots of plants

more frequently get injured from being soddened with water, than from being kept moderately dry.

Having before intimated that exotic plants will generally thrive best in a temperature and soil similar to that in which nature first produced them, it may be necessary to remind the reader, that we have the means of obtaining suitable composts from our own soils, and from sand, decayed leaves, rotten dung, and various kinds of peat, bog, and rock mould; these ingredients being judiciously mixed and prepared, may be suited to all the various kinds of plants, and should be used as occasion requires.

As the roots of plants make considerable growth in the course of a summer, it will be necessary to examine them by turning them out of the pots; this may be done in the latter part of August or early in September, at which time all matted and decayed roots should be pared off, and the plants shifted into larger pots, which being filled with suitable compost, and watered, will be ready for removal into the house on the approach of cold nights, which is generally early in October.

Green-house plants require an annual pruning, and should be occasionally headed down, in order that their size and appearance may be improved; the best time for doing this is soon after they have done flowering, and while they are in a growing state.

Having endeavoured to furnish my readers with the artificial means of preserving tender plants in a climate foreign to that in which nature first produced them, I shall call their attention to another class of plants well calculated for the windows of a house.

I allude to the many beautiful varieties of the Chinese Chrysanthemum; these are frequently cultivated in pots, and may be taken from the ground and put into pots, even when in full flower, without injury, and when the bloom is over, returned to the garden. In the spring following they will throw up an abundance of suckers.

The following list contains some of the best varieties of the Chrysanthemum, and are entitled to a place in every flower garden. In October and November, when the waning year has left our gardens comparatively cheerless, these, with their various colours, deck them out in gayety, and prolong the semblance of summer. They are perfectly hardy, and will brave our severest winters.

The gold bordered red; *the petals are red, striped with golden yellow.*
White quilled.
Pale buff, or orange.
Changeable, *red and orange on same plant.*
Lilac quilled.
Rose-coloured, or pink.
Lilac and white, *changeable, the flowers vary to lilac, to white with a purple centre, and to pure white.*
Dark crimson, or Spanish brown.
Straw coloured quilled.
Golden yellow.
Tasselled white.
Semi-double quilled do.
Paper white.
Quilled light purple.
Expanded do. do.
Quilled yellow.
Double Indian yellow.
Double Indian white.
Dark purple.
Early blush.
Golden Lotus.
Quilled purple.
Starry purple.
Park's small yellow, *fine.*
Quilled salmon.
Semi-double quilled.
Pale orange.
Two-coloured red.
Curled buff, or salmon.
Large lilac.
Late pale purple.
Quilled fine yellow.
Sulphur do.
Superb clustered do.
Small do.
Single flame yellow.
Quilled pink.
Quilled orange.
Early crimson.
Curled lilac.
Two-coloured incurved.
Blush ranunculus.
Late quilled purple.
Tasselled lilac.
Tasselled yellow.
Yellow waratah.
Pale lilac.
Large buff, superb.
Barclay's.
Alton's.
Sabine's.

Chrysanthemums may be propagated from hardy cuttings, and each plant will produce several suckers, which may be separated every spring. As the flowers are liable to be injured by the rain in autumn, it is advisable to take up a few plants, and place them in a light room or greenhouse, which will preserve them for some time.

Many people keep their late blooming plants in the house through the winter; this is a bad practice, as the heat and want of air will exhaust or destroy the plants altogether. If the flowers fade before hard frost prevails, it is best either to plunge the pots into the ground with the plants, or to turn them out of the pots and plant them, with the balls of earth entire, into the borders of the flower garden.

Early in May, such as may be intended for potting the ensuing season should be divided at the roots, if not potted,

and planted, each kind by itself. One single stem is sufficient for a moderate sized pot, if the object be to have bushy plants; but if showy plants are desired, one of each of the varied colours may be selected for each pot, which should be sufficiently capacious to hold them without crowding them, as this will cause the plants to grow weak and slender. If such happens early in the summer, a stocky growth may be produced by clipping the tops, and they will bloom in great perfection in their usual season.

INTRODUCTION TO THE CATALOGUE OF GREEN-HOUSE PLANTS.

To promote brevity and avoid tautology, I here submit the following statement:

That the directions accompanying our catalogue of Annual, Biennial, and Perennial Flower Seed, will apply to such plants in the green-house department as are ordinarily raised from seed.

That the directions annexed to the catalogue of Flowering and Ornamental Shrubs, including propagation by cuttings, layers, &c., are applicable to a great portion of the plants hereinafter described, and that the exceptions are shown in the monthly calendar.

That such Bulbous roots as are generally embraced in green-house catalogues, from their being adapted to artificial culture, have been already treated of, under each head, in numerous articles; to which the reader is referred.

That, with the exception of hot-house plants, which require a uniformly warm climate to perpetuate their existence, all such other tender and half-hardy plants as need protection in winter, may come under the denomination of green-house plants; some species however, may, notwithstanding, be preserved in frames, pits, cellars, or warm rooms.

That many of those species designated thus § and thus † in our first two catalogues, are of such description; and as they have been treated of in the chapters thereto annexed, the following catalogue and explication will be necessarily brief, when compared with one general catalogue of exotic plants.

DESCRIPTIVE CATALOGUE.

Acacia. Of this and the *Mimosa*, which are by some considered as one genus, there are upward of a hundred species and varieties, suited for artificial culture. The blossoms, which are generally straw colour and yellow, except the most tender, some of which are crimson, succeed each other from February to June.

Agapanthus. A beautiful species of Lily, producing large blue flowers from April to June; some varieties have striped leaves and delicate white blossoms.

Aloe. Of this genus there are numerous species and varieties, some of which are very curious, being possessed of all the varied forms and figures peculiar to succulent plants. Some species flower annually from March to September, and all, except the Century Aloe, blossom frequently; the colours are generally yellow, pink, and red. The singular figure and habits of these plants render them desirable for green-house culture.

Alstræmeria. Of this genus of plants there are several species, which have tuberous roots. The flowers of the varieties are of different shades, as rose coloured, scarlet, yellow, red, &c.; and some are variegated, as the *Alstræmeria psittacina*, which is red, yellow, and green, and the *A. tricolor*, which is black, white, and yellow. They are beautiful plants when kept in good order.

Arbutus, European Strawberry Tree. A half-hardy evergreen shrub, of which there are several species and varie-

ties, producing crimson and pink blossoms, and fruit which remain on the plant a considerable time.

Ardesia, Chinese Ardesia. This is generally cultivated as a hot-house plant; and if kept in the green-house, should be placed in a warm situation. There are several species, producing oblong shining leaves, pink flowers, and red berries, which are very ornamental.

Aster argophyllus, Musk Plant. A plant of no great beauty, but esteemed by some for its musky fragrance; leaves ovate, lanceolate, and silky beneath.

Aucuba Japonica. A half-hardy shrub, with pale green leaves spotted with yellow. It produces small purple blossoms, but is desirable for its foliage only: to preserve which in good condition, shade in the summer is absolutely necessary.

Azalea. The Chinese species of Azalea are numerous and beautiful, producing blossoms of various hues, as white, purple, scarlet, yellow, &c., and some are striped and spotted, which succeed each other from February to May, under good cultivation.*

Banksia. A genus of plants named in honour of Sir Joseph Banks, of which there are over twenty species, all curious in flower, and variable in foliage; colours, yellow and green. They generally blossom from May to August.

Beaufortia. There are two species of this beautiful shrub, yielding scarlet and pink flowers from the sides of their stalks, from May to July.

Bellis perennis. Daisy. This half-hardy dwarf species, of which there are several varieties, as recorded in our Perennial Catalogue, are worthy of farther notice, from their yield

* A skilful florist, Mr. William Russell, has some hybrids which he raised, by crosses between the different species of Azaleas and Rhododendrons, both of the hardy and choicest green-house varieties. He has already flowered several plants which partake of the Rhododendron in the umbels, and embrace all the good qualities of the Azalea. He intends to propagate these rare plants for sale, at his establishment, in Brooklyn, Long Island.

ing thousands of button-formed flowers from January to July, or until checked by the summer heat, from which they should be screened, by being planted in a shaded border in the spring. The colours are white, red, and variegated, and some, called Hen and Chicken Daisies, grow in clusters.

Bletia Tankervilli. A delicate plant, producing spikes of purple flowers, similar to the Hyacinth, from April to July.

Bouvardia. Mexican Bouvardia. A beautiful plant, producing brilliant scarlet flowers from May to September, when carefully cultivated.

Baronia. There are several species of this plant, natives of New Holland; the flowers of some are star-like, rose-coloured, and sweet-scented; in perfection in April and May.

Brunia. This species of plants have foliage similar to the *Erica*, but the leaves are three-cornered; the plants when young are very handsome. *Brunia nodiflora* produces chaste white globular flowers in abundance. There are several other varieties highly esteemed by amateurs.

Brunsvigia Josephinæ. This cape bulb produces splendid rose-coloured flowers in large umbels, on a stem about two feet high. There are several other species, some of which produce scarlet, others purple, and variegated blossoms, in perfection, when cultivated in a warm green-house.

Buddlea madagascariensis. This plant, when properly cultivated, will blossom freely during winter, producing spikes of orange-coloured flowers, of an agreeable fragrance.

Buonapartea juncea. This is a curious low-growing plant, with long narrow leaves, and spikes of small blue flowers, which, when cultivated in a warm situation, will continue sometime in bloom.

Burchellia. A dwarf evergreen shrub, producing orange-coloured flowers in large terminal clusters, from March to June.

Cactus. Of this family of plants there are numerous species, supposed to be of different genera, from the variation of their character and habits. Some are denominated

Cereus, others *Epiphyllums*, *Mamillarias*, *etc.* The night blooming *Cereus* is much celebrated. They all belong to the hot-house, but succeed well in a warm room or good green-house. Some are formed into erect pyramids, others are of a trailing habit; and all produce from the sides of their succulent stalks and leaves, beautiful crimson, scarlet, white, or pink flowers, from March to August.

Calceolaria Of this species of delicate dwarf plants, there are several splendid varieties annually raised from seed; producing red, yellow, and orange-coloured flowers from April to August, when shaded from the noonday sun; they will otherwise suffer from heat.

Calothamnus. A beautiful evergreen shrub, similar to a dwarf pine, producing scarlet blossoms from the old wood, from April to November.

Callicoma serratifolia. A beautiful plant, producing tufted yellow heads of flowers from May to July.

Camellia. Of this admired winter-blooming genus of plants, there are several distinct species, the varieties from many of which multiply annually. Its durable glossy foliage, and splendid flowers, which excel those of any other plant, will insure it a pre-eminence in every green-house; as in good collections, flowers of various hues may be gathered from October to May.

Cheiranthus. Under this title have been generally embraced all those fragrant and beautiful half-hardy species of Biennial Plants known as Wall and Gilly Flowers; the latter species is now, however, denominated Mathiola in our catalogues. The beautiful blossoms and delicious fragrance of these families, from February to June, entitle them to more than a passing notice. Their perfumes are exquisite.

Cineraria cruenta. Canary Aster. A dwarf half-shrubby plant, producing purple flowers in April and May.

Cineraria maritima. Silvery-leaved Ragwort, or Powdered Beau. A white plant, producing bright yellow globular flowers from April to June or July.

Cistus. Rock Rose. A half-hardy dwarf shrub, of which there are upward of twenty species, natives of Europe; the flowers, which are white and purple, multiply abundantly in May and June.

Citrus. Orange, Lemon, &c. This genus embraces the Orange, Lemon, Lime, Shaddock, &c., of each of which there are several varieties. They are indispensable in a good green-house, for their handsome evergreen foliage, and odoriferous blossoms, and beautiful golden fruit, which by careful cultivation may be kept constantly on the plants. Those varieties with variegated, yellow, and green foliage, are very generally admired.

Clethra arborea variegata. A fine sweet-scented shrub, producing spikes of white downy blossoms; the leaves are oblong and serrated, having a gold-coloured edge.

Correa. A genus of dwarf shrubby plants, consisting of several species, producing their orange, white, red, and green blossoms frequently in the winter, and sometimes in May or June.

Coronilla glauca. A desirable green-house dwarf shrub, yielding numerous sweet-scented yellow flowers in clusters, from January to April. There are other varieties which blossom in summer.

Cotyledon orbiculata. Cape Navelwort. A succulent plant, producing finger-like suckers and successional joints, which blossom annually; the curiosity of the foliage, however, is its chief recommendation.

Crassula. A species of dwarf succulent plants, producing scarlet and variegated wax-like flowers from April to June or July.

Crinum amabile. A large beautiful flowering bulb, of which there are several species, chiefly calculated for hot-house culture, where some varieties frequently yield three stems of beautiful crimson, purple, or white flowers in a year.

Cypripedium insignis. This species is known by the name

of Lady's Slipper plant; the flowers, which are green and purple, have a waxy appearance, and are similar in shape to an Indian shoe. It should be cultivated in a warm, moist situation.

Daphne odora. A beautiful dwarf evergreen shrub, yielding white fragrant blossoms in many-flowered terminal heads, from December to March. There are other species and varieties, one of which has its leaves edged with yellow.

Dianthus. Under this name are embraced the admirable species of Carnations, Picotees, Pinks, Sweet Williams, &c., recorded in our catalogue of Perennials; and which are in universal esteem for the fragrance and beauty of their flowers, which succeed each other from May to August. They are all hardy, except the Carnation and Picotee tribes, which are well deserving green-house or frame culture.

Diosma. A dwarf genus of heath-leaved shrubs, producing numerous small flowers of a white colour from March to May. Some of the varieties are sweet-scented.

Dryandrus. To this genus belong several species, similar to the *Banksias;* they are delicate plants, producing orange and straw coloured thistle-like flowers in abundance.

Echeveria. This genus of succulent plants are natives of Mexico and California. Some of the species produce green and red blossoms; the flowers of the variety *pulverulenta* are red, and the foliage is covered with powder, which gives it a beautiful appearance.

Epacris. This is a native of New South Wales, of which there are several species, mostly erect-growing plants, varying from two to four feet; the leaves are small, and the blossoms, which, in different varieties, are crimson, pink, purple, and white, are, under good cultivation, abundant from January to June.

Eranthemum. This species belong to the hot-house, and will not flower in perfection without plenty of heat. The *Eranthemum pulchellum* produces flowers of a fine blue colour from December to April; and the *Eranthemum bicolor* will

yield purple and white flowers from April to August, under good cultivation.

Erica, Heath. Upward of five hundred species and varieties of this plant are cultivated in Great Britain, where a continued succession of bloom is kept up from January to December; the most prominent colours are white, scarlet, purple, yellow, and red. They are desirable plants to cultivate in any country, as they furnish material for the bouquet in winter, but they must be screened from the noonday sun in summer, and only moderately watered; as extremes of drought or moisture are destructive to this family of plants.

Erythrina, Coral plant. There are several species of this plant, chiefly adapted to the hot-house, producing long spikes of crimson or scarlet flowers. Some keep them in good condition in a green-house; they must, however, be well attended to, and frequently re-potted, which will sometimes induce them to bloom two or three times in a year.

Escallonia. There are several species of this plant, some of which will survive the winters of our Southern States. When cultivated in a green-house as half-hardy shrubs, they yield their red, white, and pink flowers throughout a long season.

Enonymus. This plant is called by some the variegated Camellia; the flowers are not very showy, but the silvery and golden edged foliage of the different varieties, render them very attractive. They are natives of China.

Euphorbia. There are several species of this plant adapted to the green-house, some of which are beautiful, especially the *E. splendens*, and Poinsett's scarlet, or *Euphorbia Poinsetti.* They flower freely from December to May, if kept in a warm part of the house.

Eupatorium elegans. A dwarf plant, producing white sweet-scented flowers early in the spring; to promote bushiness, the plant, after blossoming, should be closely pruned.

Eutaxia myrtifolia. A beautiful little evergreen shrub; foliage small, but very neat, furnishing numerous red and

yellow-coloured blossoms from March to May, under good culture.

Ficus elastica, India-rubber tree, and *Ficus australis*, are both evergreen plants, and grow luxuriantly in a green-house; the foliage, which is large and glossy, is pink on the under side.

Ficus, Fig Tree. A plant easily cultivated, of which there are many species and varieties, which, kept in pots or tubs, in a temperature adapted to the Orange tree, will fruit freely, and ripen two crops a year.

Fuchsia, Lady's Ear-drop. Of this beautiful shrub there are several varieties, producing clusters of small scarlet flowers, the stamens of which are encircled with a petal of purple; in bloom from April to September.

Gardenia, Cape Jasmine. A very popular evergreen plant, producing white fragrant rose-like flowers from May to August. There are several species and varieties, some of which are more dwarfish than others, but all are desirable.

Gelsemium nitidum, Carolina Jasmine. A beautiful climbing evergreen, producing in the month of May large yellow trumpet-like blossoms, of delicious fragrance.

Gloxinia. A desirable herbaceous plant, of which there are several varieties, yielding beautiful showy flowers; colours, blue, lilac, and white.

Gnapalium, Everlasting Flower. Of this plant there are several species or varieties, some of which yield clusters of yellow flowers, and others red, from March to June.

Gnidia, Flax-leaved Gnidia. A dwarf shrub, of which there are several varieties, furnishing pretty tubular and corymbose straw-coloured flowers in the winter and spring.

Grevillea. There are several species of this evergreen dwarf shrub, which are very handsome in flower and foliage. The flowers of some grow in racemose spikes, and of others on flowering branches; the colours are white, rose, green, and straw or light yellow. They yield seed, and are easily cultivated.

Heliotropium, Peruvian Heliotrope. A species of soft shrubby dwarf plants, which, when cultivated in a warm situation, will yield abundance of delicate blue or purple flowers from January to September.

Helychrysum, Eternal Flower. There are several species and varieties of this plant, producing soft downy foliage and durable flowers, which, if cut before they are too far advanced, will retain their splendour several years.

Hibbertia. A species of climbing evergreen shrubs, which yield fine yellow flowers in succession from May to September, under good culture.

Hibiscus Chinensis. This half-hardy herbaceous plant is worthy of a place in the green-house, as some species will yield flowers six inches in diameter, if well attended to and frequently watered; the colours are crimson and blush.

Hovea. This is a pea-flowering evergreen shrub, of which there are several species, natives of New South Wales. The *Hovea celsii* is a beautiful runner, yielding numerous blue flowers.

Hoya, Wax Plant. A fine climbing species, adapted to the hot-house; the leaves being succulent, green, and fleshy, they require considerable heat and but little water. Some produce pink flowers, and others white, in April and May.

Hydrangea hortensis. The Hydrangea is a well-known deciduous, half-hardy, soft-wooded shrub, producing large pink balls of blossom, when cultivated in a shaded border, from May to October; and by mixing iron dust from a blacksmith's shop with the soil, or by growing the plants in swamp earth, or mould from decayed leaves, the flowers will become blue.

Hypericum, St. John's Wort. A half-hardy little plant, producing yellow flowers from April to June. There are several species, some producing scarlet blossoms.

Illicum, Aniseed Tree. A dwarf species of shrub, the leaves of which, when rubbed, smell like anise; some produce red, and others yellow flowers, in March and April.

Indigofera, Indigo Tree. A free flowering shrub, of which there are several species; the flowers, which grow in long pinnacles, are red, yellow, and pink.

Jacarandus. A genus of evergreen shrubs, of easy culture, containing five species, most of which produce blue or purple flowers, on loose branching pannicles, in abundance.

Jambosa vulgaris. This species of evergreen shrub is generally called Rose Apple, from its producing rose-scented fruit, which is about an inch in diameter, and eatable. There are several varieties, yielding either white, rose, green, or straw-coloured flowers in erect spreading stamens. They are of easy culture.

Jasminum, Jasmine. Of this favourite genus there are several species, of various complexions. The Catalonian Jasmine, or *J. grandiflorum*, produces white fragrant blossoms in winter; the Indian Jasmine, or *J. odoratissimum*, and also the *J. revolutum*, yield very sweet-scented yellow flowers from April to June, and the *J. officinale*, a climbing plant, blossoms through the summer.

Justicia. The plants of this genus are generally cultivated in the hot-house; some produce scarlet flowers in large terminale spikes, from December to March, and others purple.

Kennedia. A beautiful evergreen climber, of which there are several species, producing blossoms of various hues, as scarlet, blue, crimson, and purple, from February to June.

Lagerstræmia. A half-hardy deciduous plant, the roots of which, if planted in the garden in March, will produce large spikes of red flowers, from May to August.

Lantana. A genus of dwarf shrubs, which being cultivated in the hot-house, or a warm green-house, will yield their blossoms in April and May; the species are of various colours; yellow, orange, pink, white, purple, and variable.

Laurus nobilis, Laurel. This evergreen shrub is by some esteemed for its fragrant leaves; there are several species

distinguished as sweet bay, royal bay, &c., and some species are without scent.

Lavendula, Lavender. A species of soft-wooded, half-hardy plants with narrow, scented leaves, yielding spikes of fragrant blue flowers in May and June.

Lechenaultia formosa. A dwarf plant with heath-like foliage and bright scarlet blossoms; in bloom a long season, under good culture.

Leptospermum. This genus is somewhat celebrated from the leaves of the species *L. scoparium* being used by the crew of Captain Cook's ship as a substitute for Tea, the leaves having an agreeable bitter flavour; the blossoms, which are small, are white.

Leucadendron, Silver Tree. A neat evergreen shrub with silver-like foliage, of which there are several species, all admirable for their beauty.

Linum, Flax. Two species of this plant are worthy of cultivation in a green-house, where they will bloom in February and March. The *Linum trigynum* produces large yellow flowers in clusters, and *Linum ascyrifolium* yields spikes of blue and white flowers, which are similar to those of the Convolvulus.

Lobelia. There are several species of this plant, which are generally herbaceous; they produce an abundance of little flowers of brilliant colours. The *Lobelia crinus* is a pretty trailing plant, yielding numerous blue flowers all the summer.

Lychnis coronata, Coronet-flowered Lychnis. This half-hardy plant, embraced in our catalogue of Perennials, is worthy of protection, from its furnishing trusses of beautiful orange scarlet flowers, from June to August. As it yields no seed, the roots should be taken from the ground in autumn, and returned the ensuing spring.

Magnolia. Most of the species of this justly-admired genus are hardy, and blossom in the summer; there are, however, some of the Chinese varieties, which, cultivated

in a green-house, will produce their beautiful purple, yellow, and white blossoms, from January to April.

Melaleucas. A beautiful genus of plants, natives of New Holland; the diversity of their foliage and singularity of flowers, some of which are scarlet, and shoot from the wood like fringes, render them worthy of good cultivation.

Menettia. This is a desirable climber, of which there are several species; some produce variegated flowers, others bright scarlet, and the variety *cordiflora* is curious as well as beautiful.

Mesembryanthemum. A genus of succulent plants, consisting of hundreds of species and varieties, chiefly natives of the Cape of Good Hope. They vary greatly in their forms, attitudes, and habits of growth; some are upright, others procumbent; some are thick, others cimeter or slender-leaved. They are all singular, and many of them beautiful. The colours of the flowers, which are of every shade, are great ornaments from May to August; some species and varieties are cultivated as annuals in the flower garden, where they prove a great acquisition.

Metrosideros. A genus of Australasian shrubs, some species of which are willow and others spear-leaved, producing their cones of scarlet or white flowers from March to May.

Myrtus, Myrtle. A genus of dwarf evergreen shrubs, of which there are several species and varieties; the foliage is chiefly glossy and fragrant, yielding numerous small flowers. There are some species known as Cape Myrtles, or *Marsines*, which also yield abundance of white and purple flowers from March to May.

Nandina domestica, Japan Nandina. A half-hardy evergreen shrub; leaves supra-decompound, with entire lanceolate leaflets; a kind of foliage that is very rare.

Nerium, Oleander. A well-known and admired shrub, yielding clusters of rose-like flowers from May to September. The *Nerium splendens* is the most esteemed of the red

varieties; the true double white and striped are very rare; but some of those cultivated for sale, producing semi-double flowers, are by no means desirable.

Olea fragrance, Dwarf Olive. This variety of the Olive recommends itself to notice, for its dwarf habit of growth, and from the foliage and white blossoms being highly odoriferous; from March to May.

Passiflora, Passion flower. Of this celebrated genus of climbing plants, there are several species and varieties, which produce splendid flowers of various colours, red, blue, white, purple, scarlet, &c., beautifully contrasted, and some species yield fruit. They generally blossom from May to September, and some will flower in the hot-house in winter.

Pelargonium, Geranium. The species and varieties of this beautiful genus is supposed to exceed a thousand, which are of every character, colour, and lineament, and some so beautifully blended as to astonish the beholder; the agree able fragrance also, of which many of them are possessed, will always render them favourites to amateur florists. The best blooming season is from April to June, or July.

Pittosporum. A Chinese evergreen shrub, with handsome glossy foliage, yielding numerous white clusters of flowers in April and May, which are of delicious fragrance. There are several species, one of which is variegated.

Plumbago capensis, Cape Plumbago. A beautiful dwarf plant, with oblong leaves, yielding numerous spikes of showy blue flowers nearly all the summer.

Polygata cordati, Heart-shaped Polygata. A beautiful little plant, producing abundance of rich purple flowers nearly all the winter.

Protea. A beautiful race of plants, the foliage of which is very diversified, and the flowers also; being red, white, straw, brown, green, and purple, and most of these colours are frequently to be seen on the same plant; in flower from March to June.

Primula. In this genus are embraced all the varieties of

the Primrose, Polyanthus, Auricula, Cowslip, Oxlip, &c., already inserted in our Biennial and Perennial catalogues. The flowers, which appear early in spring, are mostly sweet-scented, and of various colours, red, white, yellow, lilac, purple, crimson, &c., which in some are beautifully variegated. The above are natives of England; besides which are two varieties, white and pink, natives of China, producing umbels of flowers from January to May.

Pyrus Japonica alba, or Cydonia Japonica. One of the earliest flowering dwarf shrubs of the garden, producing beautiful blush flowers; there is another variety, which produces scarlet blossoms, already described in our catalogue of shrubs.

Reseda, Mignonette. This fragrant little plant has been already treated of as an annual; it may, however, be kept under cultivation from January to December, by sowing seed at different seasons in a green-house or warm room.

Rhododendron, Rose Bay. A beautiful genus of plants, chiefly natives of India, furnishing clusters of flowers of various shades, as purple, scarlet, or crimson, and these variegated in spots and flakes; in flower from March to May.

Rosea, Rose. This Queen of Flowers, so universally admired, nature seems to have distributed over the whole civilized world; and varieties have been so multiplied of late years, as to render it difficult to make a judicious choice; many of the new varieties, however, being shy bloomers, are not so desirable for green-house culture as the common China Rose, a select assortment of which, carefully cultivated, will produce blossoms from January to December.

Rosmarinus, Rosemary. A fragrant, half-hardy, slender-leaved plant, which has been held in great esteem for ages. In some parts of Europe it is customary to distribute sprigs among the guests at weddings and funerals.

Ruella. A desirable plant, of which there are several species; they produce purple or scarlet tunnel-shaped flowers from December to March.

Salvia, Mexican Sage. A free-blooming plant, producing in the different species, scarlet and blue flowers in spiked whorls; cuttings of which, if taken from stock plants in the green house early in spring, and planted in good garden soil, will embellish the borders three or four months of the summer.

Sempervivum arboreum, Tree House Leek. A succulent plant, similar to the common house leek, on a dwarfish stem; by some admired as an evergreen.

Stapelia. A genus of dwarf succulent plants, producing beautiful purple, striped, freckled, and star-like flowers, within six inches of the surface; in its varieties from May to November.

Stevia serrata, Vanilla-scented Stevia. This plant, al though usually cultivated as an annual, is worthy of green house culture, from its affording fragrant and ornamental materials for bouquets the whole winter.

Strelitzia regina, Queen's Strelitz. A beautiful dwarf plant, producing from a stalk from one to two feet long, several flowers of a bright yellow, contrasted with blue, from May to September.

Tecoma capensis. A perennial plant, producing orange-coloured trumpet flowers in clusters, very similar to the Bigonia tribe, toward the end of summer.

Thea, Tea. Of this celebrated Chinese plant, which supplies a great portion of the human family with their domestic beverage, there are two varieties, *Thea virdis* and *Thea bohea*. The plants, when cultivated in a green-house, are by no means of rapid growth, nor are the flowers, which are white, of any great beauty.

Tussilago fragrance. A half-hardy herbaceous Perennial plant, by some much esteemed for its heliotrope-scented blossoms, which spring up in clusters from December to March.

Verbena triphylla, named in some catalogues *Aloysa citri odora*. A deciduous shrub, generally admired for the fra-

grance of its leaves, which is its chief recommendation, the blossoms, which are white, being small.

Verbena, Splendid Verbena. A tribe of plants increasing in variety annually, and which already embrace every shade of colour, scarlet, blue, rose, lilac, white, pink, &c. Planted in the flower borders, they impart beauty and variety through the summer, and cultivated in the green-house, they embellish it a great part of the winter.

Viburnum tinus, Laurustinus. A much-admired half-hardy evergreen shrub, producing clusters of white blossoms from January to May. There are other species very similar in habit, and one with striped leaves.

Viola, Violet. Of these beauties of the garden, some of which are denominated "Florist's Flowers," there are upward of a hundred species and varieties. The early Violets are highly fragrant, and the variety and beauty of the Pansey tribe almost exceed description or conception. As these splendid dwarf plants decorate the green-house and flower borders from January to December, they are worthy of careful cultivation.

Yucca aloe-folia, and its beautiful variety, *variegata*, are desirable plants to cultivate, from their singular appearance, contrasted with other plants. Their blossoms, which are white, grow in spikes, but the plants do not flower much until several years old.

The following invaluable compendium is from the pen of JOHN LINDLEY, F. R. S., Professor of Botany in the University of London, and Associate Secretary of the Horticultural Society, &c. &c. As this outline embraces the very essence of Horticulture and Floriculture, it is well adapted as an appendage to this department of the work.

AN OUTLINE

OF THE

FIRST PRINCIPLES OF HORTICULTURE.

I. Genreral Nature of Plants.

1. Horticulture is the application of the arts of cultivation, multiplication, and domestication to the vegetable kingdom. Agriculture and Arboriculture are branches of Horticulture.

2. The vegetable kingdom is composed of living beings, destitute of sensation, with no power of moving spontaneously from place to place, and called plants.

3. Plants are organized bodies, consisting of masses of tissue that is permeable by fluids or gaseous matter.

4. Vegetable tissue consists either of minute bladders, or tubes adhering by their contiguous surfaces, and leaving intermediate passages where they do not touch.

5. Tissue is called *Cellular* when it is composed of minute bladders, which either approach the figure of a sphere, or are obviously some modification of it, supposed to be caused by extension or lateral compression.

6. When newly formed it is in a very lax state, and possesses great powers of absorption; probably on account of the excessive permeability of its membrane, and the imperfect cohesion of its cells.

7. Cellular tissue, otherwise called Parenchyma, constitute the soft and brittle parts of plants; such as pith, pulp, the spaces between the veins of leaves, the principal part of the petals, and the like.

8. Succulent plants are such as have an excessive developement of cellular tissue.

9. It may be considered the most essential kind of tissue, because, while no plants exist without it, many are composed of nothing else.

10. Tissue is called *Woody Fibre* when it is composed of slender tubes, which are conical and closed at each end, and placed side by side.

11. Woody fibre is what causes stiffness and tenacity in certain parts of plants; hence it is found in the veins of leaves, and in bark, and it constitutes the principal part of the wood.

12. *Vascular Tissue* is that in which either an elastic tough thread is generated spirally within a tube that is closed and conical at each end; or rows of cylindrical cellules, placed end to end, finally become continuous tubes by the loss of their ends.

13. The most remarkable form of vascular tissue is the *Spiral Vessel*, which has the power of rolling with elasticity when stretched.

14. Other kinds of vascular tissue are incapable of unrolling, but break when stretched.

15. Spiral vessels are not found in the wood or bark, and rarely in the roots of plants.

16. Vascular tissue of other kinds is confined to the root, stem, veins of leaves, petals, and other parts composed of leaves. It is not found in bark.

17. The common office of the tissue is to convey fluid or air, and to act as the receptacle of secretions.

18. Cellular tissue conveys fluids in all directions, absorbs with great rapidity, is the first cause of the adhesions that take place between contiguous parts, and is the principal receptacle of secreted matter.

19. Adhesion will take place at all times during the growing season, when the cellular tissues of two different parts, or of two different plants, is kept for some time in contact; but as none but tissues of nearly the same nature will adhere, grafting and budding, which are caused by the adhesion of contiguous parts, can only take place either between different varieties of the same species, or between nearly related species; and even then only when the corresponding parts of the scion or bud, and the stock, are placed in contact.

20. Woody fibre conveys fluid in the direction of its length, gives stiffness and flexibility to the general system, and acts as a protection to spiral and other delicate vessels.

21. Spiral vessels convey oxygenated air.

22. Other vessels probably conduct fluid when young, and air when old.

23. As the bodies of which all tissue is composed are perfectly simple, unbranched, and regular in figure, having, when elongated, their two extremities exactly alike, they are more or less capable of conveying gaseous matter or fluids in any direction; and, consequently a current may be reversed in them without inconvenience: hence inverted cuttings or stems will grow.

24. All parts of plants are composed of tissue, whether they be soft, as pulp; or hard, as the bony lining of a peach.

25. With regard to Horticultural operations, the parts of plants should be considered under the heads of *Root* (II.); *Stem* (III.); *Leaf Buds* (IV.); *Leaves* (V.); *Flowers* (VI.); *Sexes* (VII.); *Fruit* (VIII.); and *Seed* (IX).

II. Root.

26. The Root is the part that strikes into the earth when a seed begins to germinate, and which afterward continues to lengthen beneath the soil.

27. It is also the part which is sometimes emitted by the stem, for the purpose of absorbing nutriment from the atmosphere; as in Ivy, Air-Plants, Vines, &c.

28. It is distinguished from the stem by the absence of leaves in any state, of regular leaf-buds (IV.); of evaporating pores or stomata (131); and of pith in Exogenous plants.

29. Therefore, such underground bodies as those called Tuber (61) in the Potato; Bulb (96) in the Onion; and solid Bulb or Cormus (61) in the Crocus, are not roots.

30. The office of the root is to absorb food in a fluid or gaseous state; and also to fix the plant in the soil, or to some firm support.

31. The latter office is essential to the certain and regular performance of the former.

32. It is not by the whole of their surface that roots absorb food; but only by their young and newly formed extremities, called *Spongioles*.

33. Hence the preservation of the spongioles in an uninjured state is essential to the removal of a plant from one place to another.

34. A Spongiole consists of very young vascular tissue (12) surrounded by very young cellular substance (5).

35. It is therefore one of the most delicate parts of plants, and the most easily injured.

36. Hence whatever is known to produce any specific deleterious action upon leaves or stems, such as certain gases (298) and mineral or vegetable poisons, will produce a much more fatal effect upon the spongioles.

37. These organs have no power of selecting their food, but will absorb whatever the earth or air may contain, which is sufficiently fluid to pass through the sides of their tissue.

38. So that if the spongioles are developed in a medium which is of an unsuitable nature, as they will still continue to absorb, they cannot fail to introduce matter which will prove either injurious or fatal to life, according to its intensity.

39. This may often explain why trees suddenly become unhealthy, without any external apparent cause.

40. Plants have the power of replacing spongioles by the formation of new ones; so that an individual is not destroyed by their loss.

41. But this power depends upon the co-operation of the atmosphere, and upon the special vital powers of the species.

42. If the atmosphere is so humid as to hinder evaporation, spongioles will have time to form anew; but if the atmosphere is dry, the loss by evaporation will be so much greater than can be supplied by the injured roots, that the whole system will be emptied of fluid before the new spongioles can form.

43. This is the key to Transplantation (XV.)

44. As roots are destitute of leaf-buds (IV.), and as leaf-buds are essential to the multiplication of an individual (108), it should follow that roots can never be employed for the purpose of multiplication.

45. Nevertheless, roots when woody have, occasionally, the power of generating adventitious leaf-buds (IV.); and when this is the case, they may be employed for the purpose of multiplication; as those of Cydonia Japonica, &c.

46. The cause of this power existing in some species, and not in others, is unknown.

47. It is therefore a power that can never be calculated upon, and whose existence is only to be discovered by accident.

48. Although roots are generated under ground, and sometimes at considerable depths, yet access to a certain quantity of atmospheric air appears indispensable to the healthy execution of their functions. This is constantly exemplified in plants growing in the earth at the back of an ill-ventilated forcing-house, where the roots have no means of finding their way into the earth on the outside of the house.

49. It is supposed by some that the introduction of oxygen into their system is as indispensable to them as to animals.

50. It seems more probable that the oxygen of the atmosphere, seizing upon a certain quantity of carbon, forms carbonic acid, which they absorb, and feed upon.

51. It is at least certain that the exclusion of air from the roots will always induce an unhealthy condition, or even death itself. This may be one of the reasons why stiff tenacious soils are seldom suited to the purposes of the cultivator, until their adhesiveness has been destoyed by the addition of other matter.

52. Spongioles secrete excrementitious matter, which is unsuitable to the same species afterward as food; for poisonous substances are as fatal to the species that secrete them as to any other species.

53. But to the other species the excrementitious matter is either not unsuitable, or not deleterious.

54. Hence, soil may be rendered impure (or, as we inaccurately say, worn out) for one species, which will not be impure for others.

55. This is the true key of the theory of rotation of crops.

56. This also may serve to explain in part why light soil is indispensable to many plants, and heavy or tenacious soil suitable to so few; for in the former case the spongioles will meet with little resistance to their elongation, and will consequently be continually leaving the place where their excrementitious matter is deposited; while in the latter case, the reverse will occur.

III. Stem.

57. The Stem is that part of a plant which is developed above ground, and which took an upward direction at the period of germination.

58. It consists of a woody axis, covered by bark having stomata (131) on its surface, bearing leaves with leaf-buds, in their exillæ, and producing flowers and fruit.

59. The points where leaves are borne are called *Nodi;* the spaces between the leaves, are *Internodia.*

60. The more erect a stem grows, the more vigorous it is; and the more it deviates from this direction to a horizontal or pendulous position, the less is it vigorous.

61. Some stems are developed under ground, such as the Tubers of the Potato and the Cormus of the Crocus; but they are known from roots by the presence of leaves, and regular leaf-buds, upon their surface.

62. Stems increase in diameter in two ways.

63. Either by the addition of new matter to the outside of the wood and the inside of the bark; when they are *Exogenous;* ex. Oak.

64. Or by the addition of new matter to their inside; when they are *Endogenous;* ex. Cane.

65. In Exogenous stems, the central portion, which is harder and darker than that at the circumference, is called *Heart Wood;* while the exterior, which is softer and lighter, is called *Albernum*, or *Sap Wood.*

66. The inside of the bark of such stems has also the technical name of *Liber.*

67. The heart wood was, when young, Albernum, and afterward changed its nature by becoming the receptacle of certain secretions peculiar to the species.

68. Hence the greater durability of heart wood than of sap wood. While the latter is newly formed empty tissue, almost as perishable as bark itself, the former is protected against destruction by the introduction of secretions that become solid matter, which is often insoluble in water, and never permeable to air.

69. The secretions by which heart wood is solidified are prepared in the leaves, whence they are sent downward through the bark, and from the bark communicated to the central part of the stem.

70. The channels through which this communication takes place are called *Medullary Rays*, or *Silver Grain*.

71. Medullary rays are plates of cellular tissue, in a very compressed state, passing from the pith into the bark.

72. The wood itself is composed of tubes consisting of woody fibre and vascular tissue, imbedded longitudinally in cellular substance.

73. This cellular substance only developes horizontally; and it is to it that the peculiar character of different kinds of wood is chiefly due.

74. for this reason the wood of the stock of a grafted plant will never become like that of its scion, although, as will be hereafter seen (IV.), t. woody matter of the stock must all originate in the scion.

75. The stem of an exogenous plant may therefore be compared to a piece of linen, of which the weft is composed of cellular tissue, and the warp of fibrous and vascular tissue.

76. In the spring and autumn a viscid substance is secreted between the wood and the liber, called the *Cambium*.

77. This cambium appears to be the matter out of which the cellular horizontal substance of the stem is organized.

78. In Endogenous stems the portion at the circumference is harder than that in the centre; and there is no separable bark.

79. Their stems consist of bundles of woody matter, imbedded in cellular tissue, and composed of vascular tissue surrounded by woody fibre.

80. The stem is not only the depository of the peculiar secretions of species, (67), but is also the medium through which the sap flows in its passage from the roots into the leaves.

81. In exogenous stems (63) it certainly rises through the alburnum, and descends through the bark.

82. In endogenous stems (64) it probably rises through the bundles of wood, and descends through the cellular substance; but this is uncertain.

83. Stems have the power of propagating an individual only by means of their LEAF-BUDS. If destitute of leaf-buds, they have no power of multiplication, except fortuitously.

IV. LEAF-BUDS.

84. Leaf-buds are rudiments of branches, enclosed within scales, which are imperfectly formed leaves.

85. All the leaf-buds upon the same branch are constitutionally and anatomically the same.

86. They are of two kinds; namely, *regular* or *normal*, and *adventitious* or *latent* (119).

87. Regular leaf-buds are formed at the axillæ of leaves.

88. They are organs capable of propagating the individual from which they originate.

89. They are at first nourished by the fluid lying in the pith, but finally establish for themselves a communication with the soil by the woody matter which they send downward.

90. Their force of developement will be in proportion to their nourishment; and, consequently, when it is wished to procure a young shoot of unusual vigour, all other shoots in the vicinity are prevented growing, so as to accumulate for one shoot only all the food that would otherwise have been consumed by several.

91. Cutting back to a few eyes is an operation in pruning to produce the same effect, by directing the sap, as it ascends, into two or three buds only, instead of allowing it to expend itself upon all the others which are cut away.

92. When leaf-buds grow, they develope in three directions; the one horizontal, the other upward, and the third downward.

93. The horizontal developement is confined to the cellular system of the bark, pith, and medullary rays.

94. The upward and downward developements are confined to the woody fibre and vascular tissue.

95. In this respect they resemble seed; from which they differ physiologically in propagating the individual, while seed can only propagate the species.

96. When they disarticulate from the stem that bears them, they are called *Bulbs*.

97. In some plants, a bud, when separated from its stem, will grow and form a new plant if placed in circumstances favourable to the preservation of its vital powers.

98. But this property seems confined to plants having a firm, woody, perennial stem.

99. Such buds, when detached from their parent stem, send roots downward and a stem upward.

100. But if the buds are not separated from the plant to which they belong, the matter they send downward becomes wood and liber (66), and the stems they send upward become branches. Hence it is said that wood and liber are formed by the roots of leaf-buds.

101. If no leaf-buds are called into action, there will be no addition of wood; and, consequently, the destruction or absence of leaf-buds is accompanied by the absence of wood; as is proved by a shoot, the upper buds of which are destroyed and the lower allowed to develope. The lower part of the shoot will increase in diameter; the upper will remain of its original dimensions.

102. The quantity of wood, therefore, depends upon the quantity of leaf-buds that develope.

103. It is of the greatest importance to bear this in mind in pruning timber trees: for excessive pruning must necessarily be injurious to the quantity of produce.

104. If a cutting with a leaf-bud on it be placed in circumstances fitted to the developement of the latter, it will grow and become a new plant.

105. If this happens when the cutting is inserted in the earth, the new plant is said by gardeners *to be upon its own bottom*.

106. But if it happens when the cutting is applied to the dissevered end of another individual, called a *stock*, the roots are insinuated into the tissue of the stock, and a plant is said to *be grafted*, the cutting being called a *scion*.

107. There is, therefore, little difference between cuttings and scions, except that the former root into the earth, the latter into another plant.

108. But if a cutting of the same plant without a leaf-bud upon it be placed in the same circumstances, it will not grow, but will die.

109. Unless its vital powers are sufficient to enable it to develope an adventitious leaf-bud (119).

110. A leaf-bud separated from the stem will also become a new individual, if its vital energy is sufficiently powerful.

111. And this, whether it is planted in earth, into which it roots like a cutting, or in a new individual, to which it adheres and grows like a scion. In the former case it is called an *eye*, in the latter a *bud*.

112. Every leaf-bud has, therefore, its own distinct system of life and of growth.

113. And as all the leaf-buds of an individual are exactly alike, it follows that a plant is a collection of a great number of distinct identical systems of life, and, consequently, a compound individual.

114. Regular leaf-buds being generated in the exillæ of the leaves, it is there that they are always to be sought.

115. And if they cannot be discovered by ocular inspection, it may nevertheless be always inferred with confidence that they exist in such situations, and may possibly be called from their dormant state into life.

116. Hence, wherever the scar of a leaf, or the remains of a leaf, can be discovered, there it is to be understood that the rudiments exist of a system of life which may be, by favourable circumstances, called into action.

117. Hence, all parts upon which leaves have ever grown may be made use of for purposes of propagation.

118. From these considerations it appears that the most direct analogy between the Animal and Vegetable kingdoms is with the Polypes of the former.

119. Adventitious leaf-buds are in all respects like regular leaf-buds, except that they are not formed at the exillæ of leaves, but develope occasionally from all and any part of a plant.

120. They are occasionally produced by roots, by solid wood, or even by leaves and flowers.

121. Hence roots, solid wood, or even leaves and flowers, may be used as means of propagation.

122. But as the developement of adventitious buds is extremely uncertain, such means of propagation can never be calculated on, and form no part of the *science* of cultivation.

123. The cause of the formation of adventitious leaf-buds is unknown.

124. From certain experiments it appears that they may be generated by sap in a state of great accumulation and activity.

125. Consequently, whatever tends to the accumulation of sap in an active state may be expected to be conducive to the formation of adventitious leaf-buds.

V. Leaves.

126. Leaves are expansions of bark, traversed by veins.

127. The veins consist of spiral vessels enclosed in woody fibre; they originate in the medullary sheath and liber; and they are connected by loose Parenchyma (7), which is full of cavities containing air.

128. This parenchyma consists of two layers, of which the upper is composed of cellules perpendicular to the cuticle, and the lower of cellules parallel with the cuticle.

129. These cellules are arranged so as to leave numerous open passages among them for the circulation of air in the inside of a leaf. Parenchyma of this nature is called *cavernous*.

130. Cuticle is formed of one or more layers of depressed cellular tissue, which is generally hardened, and always dry and filled with air.

131. Between many of the cells of the cuticle are placed appertures called *stomata*, which have the power of opening and closing as circumstances may require.

132. It is by means of this apparatus that leaves elaborate the sap which they absorb from the albernum, converting it into the secretions peculiar to the species.

133. Their cavernous structure (129) enables them to expose the greatest possible surface of their parenchyma to the action of the atmosphere.

134. Their cuticle is a non-conducting skin, which protects them from great variations in temperature, and through which gaseous matter will pass readily.

135. Their stomata are pores that are chiefly intended to facilitate evaporation; for which they are well adapted by a power they possess of opening or closing as circumstances may require.

136. They are also intended for facilitating the rapid emission of air, when it is necessary that such a function should be performed.

137. The functions of stomata being of such vital importance, it is always advisable to examine them microscopically in cases where doubts are entertained of the state of the atmosphere which a particular species may require.

138. Leaves growing in air are covered with a cuticle.

139. Leaves growing under water have no cuticle.

140. All the secretions of plants being formed in the leaves, or at least the greater part, it follows that secretions cannot take place if leaves are destroyed.

141. And as this secreting property depends upon specific vital powers connected with the decomposition of carbonic acid, and called into action only when the leaves are freely exposed to light and air (279), it also follows that the quantity of secretion will be in direct proportion to the quantity of leaves, and to their free exposure to light and air.

142. The usual position of leaves is spiral, at regularly increasing or diminishing distances; they are then said to be alternate.

143. But if the space, or the axis, that separates two leaves, is reduced to nothing at alternate intervals, they become opposite.

144. And if the spaces that separate several leaves be reduced to nothing, they become verticillate.

145. Opposite and verticillate leaves, therefore, differ from alternate leaves only in the spaces that separate them being reduced to nothing.

VI. Flowers.

146. Flowers consist of two principal parts, namely, *Floral Envelopes* (149), and *Sexes* (VII.)

147. Of these, the former constitute what is popularly considered the flower; although the latter are the only parts that are absolutely essential to it.

148. However different they may be in appearance from leaves, they are all formed of those organs in a more or less modified state, and altered in greater or less degree by mutual adhesion.

149. The floral envelopes consist of two or more whorls of transformed leaves; of which part is calyx, its leaves being called sepals, and part corolla, its leaves being called petals.

150. The sexes are also transformed leaves (187).

151. The calyx is always the outermost, the corolla is always the innermost whorls; and if there is but one floral envelope, that one is calyx.

152. Usually the calyx is green, and the corolla coloured and more highly developed: but the reverse is frequently the case, as in Fuchsia, Ribes sanguineum, &c.

153. A flower being, then, an axis surrounded by leaves, it is in reality a stunted branch; that is, one the growth of which is checked, and its power of elongation destroyed.

154. That flowers are stunted branches is proved, first, by all their parts, especially the most external, occasionally reverting to the state of ordinary leaves; secondly, by their parts being often transformed into each other; and, thirdly, by the whorls of flower-buds being dislocated and actually converted into branches whenever any thing occurs to stimulate them excessively.

155. Their most essential distinctive character consists in the buds at the exillæ of their leaves being usually dormant, while those in the exillæ of ordinary leaves are usually active.

156. For this reason, while leaf-buds can be used for the purpose of propagation, flower-buds cannot usually be so employed.

157. Being stunted branches, their position on the stem is the same as that of developed branches.

158. And as there is in all plants a very great difference in the developement of leaf-buds, some growing readily into branches, others only unfolding their leaves without elongating, and many remaining altogether dormant, it follows that flower-buds may form upon plants of whatever age and in whatever state.

159. But to produce a general formation of flower-buds it is necessary that there should be some general predisposing constitutional cause, independent of accidental circumstances.

160. This predisposing cause is the accumulation of sap and of secreted matter.

161. Therefore, whatever tends to retard the free flow of sap, and causes it to accumulate, will cause the production of flower-buds or fertility.

162. And, on the other hand, whatever tends to produce excessive vigour, causes the dispersion of sap, or prevents its elaboration, and causes sterility.

163. Transplantation with a partial destruction of roots, age, or high temperature accompanied by a dry atmosphere, training obliquely or in an inverted direction, a constant destruction of the extremities of young growing branches, will all cause an accumulation of sap, and secretions; and, consequently, all such circumstances are favourable to the production of flower-buds.

164. But a richly manured soil, high temperature, with great atmospheric humidity, or an uninterrupted flow of sap, are all causes of excessive vigour, and are consequently unfavourable to the production of flower-buds.

165. There is a tendency in many flowers to enlarge, to alter their colours, or to change their appearance by transformation and multiplication of their parts, whenever they have been raised from seed for several generations, or domesticated.

166. The causes of this tendency are probably various, but being entirely unknown, no certain rules for the production of varieties in flowers can be laid down, except by the aid of hybridizing (201).

167. It often happens that a single branch produces flowers different from those produced on other branches. This is technically called a *sport*.

168. As every bud on that branch has the same specific vital principle (113), a bud taken from such a branch will produce an individual, the whole of whose branches will retain the character of the sport.

169. Consequently, by buds an accidental variety may be made permanent, if the plant that sports be of a firm woody nature (98).

170. As flowers feed upon the prepared sap in their vicinity, the greater the abundance of this prepared food, the more perfect will be their developement.

171. Or the fewer the flowers on a given branch, the more food they will severally have to nourish them, and the more perfect will they be.

172. The beauty of flowers will therefore be increased either by an abundant supply of food, or by a diminution of their numbers (thinning), or by both. The business of the pruner is to cause these by his operation.

173. The beauty of flowers depends upon their free exposure to light and air, because it consists in the richness of their colours, and their colours are only formed by the action of these two agents (281).

174. Hence flowers produced in dark or shaded confined situations are either imperfect, or destitute of their habitual size and beauty.

175. Double flowers are those in which the stamens are transformed into petals; or in which the latter, or the sepals, are multiplied. They should not be confounded with *Proliferous* (183), and *Discoid Compound Flowers* (184).

176. Although no certain rules for the production of double flowers can be laid down, yet it is probable that those flowers have the greatest tendency to become double, in which the sexes are habitually multiplied.

177. In Icosandrous and Polyandrous plants either the stamens or the pistilla are always very numerous when the flowers are in a natural state; and it is chiefly in such plants that double flowers occur, when they become transformed

178. It is, therefore, in such plants that double flowers are to be principally expected.

179. In proportion as the sexes of flowers habitually become few in number, do the instances of double flowers become rare.

180. Double flowers are therefore least to be expected in plants with fewest stamens.

181. Whenever the component parts of a flower adhere by their edges, as in monophyllous calyxes, monopetalous corollas, and monadelphous, or di-, or poly-adelphous stamens, the tendency to an unnatural multiplication of parts seem checked.

182. Therefore, in such cases, double flowers are little to be expected; they are, in fact, very rare.

183. Proliferous flowers are those in which parts that usually have all their axillary buds dormant, accidentally develope such buds; as in the Hen and Chickens Daisy, in which the bracteæ of the involucrum form other Daisy-heads in their axillæ; or, as in certain Roses, in which the carpellary leaves develope leaf-buds in their axillæ, so that the flower becomes a branch, the lower leaves of which are coloured and transformed, and the upper green, and in their ordinary state.

184. Discoid compound flowers are those in which the central florets of a flower-head acquire carollas, like those of the circumference, as in the Dahlia; the cultivated variety of which should be called discoid, and not double.

185. These last two are so essentially different from double flowers, that whatever laws may be supposed to govern the production or amelioration of double flowers, can have no relation to proliferous or discoid compound flowers.

VII. Sexes.

186. The sexes consist of two or more whorls of transformed leaves, of which the outer are called *Stamens* (188), and the inner *Pistillum* (191).

187. They are known to be modifications of leaves, because they very frequently are transformed into petals which are demonstrably such (149) and because they occasionally revert to the state of leaves.

188. The stamens bear at their apex an organ, called the *anther*, which contains a powder called *pollen*.

189. When the anther is full grown it opens and emits the pollen, either dispersing it in the air in consequence of the elasticity with which it opens; or depositing it upon the stigmata (191); or exposing it to the action of wind, or such other disturbing causes as may liberate it from its case.

190. The pollen consists of exceedingly minute hollow balls, or cases, containing myriads of moving particles, which are the fertilizing principle of the stamens.

191. The pistillum has at its base one or more cavities or *cells*, in which bodies called *ovula* are placed; and at its apex one or more secreting surfaces called *stigmata*.

192. The ovula are the rudiments of seed.

193. If the fertilizing powder of the pollen comes in contact with the stigmata, the ovula in the cells of the pistillum are vivified, and become seed.

194. But if this contact does not take place, the ovula cannot possibly be vivified, but shrivel up and perish.

195. The phenomenon of vivification takes place in consequence of the descent of a portion of the moving particles (190) of the pollen into the ovula, where such particles form the commencement of future plants.

196. In wild plants stigmata is usually acted upon only by the pollen of the stamens which belong to it.

197. In this case the seed thus vivified will, when sown, produce new individuals, differing very little from that by which they were themselves produced.

198. And, therefore, wild plants are for the most part multiplied from generation to generation without change.

199. But it is possible to cause deviations from this law, by artificial means.

200. If the pollen of one species is placed upon the stigmata of another species, the ovula will be vivified; and what is called a *hybrid* plant will be produced, by those ovula when they shall have grown to be seed.

201. Hybrid plants are different from both their parents, and are generally intermediate in character between them.

202. They have little power of perpetuating themselves by seed; but they may, if woody, be perpetuated by cuttings (312), buds (354), scions (335), &c.

203. Therefore, no hybrids but such as are of a woody perennial character can be perpetuated.

204. It usually happens that the hybrid has the constitution and general aspect of the polliniferous parent; but is influenced in secondary characters by the peculiarity of the female parent.

205. This should always be borne in mind in procuring new hybrid plants.

206. Really hybrid plants must not be confounded with such as are spurious, in consequence of their origin being between two varieties of the same species, and not two species of the same genus.

207. Hybrid plants, although incapable of perpetuation by seed, are often more abundant flowerers than either parent.

208. This is, probably, connected with constitutional debility (162).

VIII. Fruit.

209. Fruit, strictly speaking, is the pistillum arrived at maturity.

210. When the calyx adheres to the pistillum, and grows with it to maturity, the fruit is called *inferior;* as the Apple.

211. But when the pistillum alone ripens, there being no adhesion to it on the part of the calyx, the fruit is called *superior;* as the Peach.

212. The fruit is, therefore, in common language, the flower, or some part of it, arrived at its most complete state of existence; and consequently, is itself a portion of a stunted branch (153).

213. The nature of its connection with the stem is therefore the same as that of the branches with each other, or of leaves with their stem.

214. A superior fruit consisting only of one, or of a small number of metamorphosed leaves, it has little or no power of forming a communication with the earth and of feeding itself, as real branches have (89).

215. It has also very little adhesion to its branch; so that but slight causes are sufficient to detach it from the plant, especially at an early age, when all its parts are tender.

216. Hence the difficulty of causing Peaches and the like to *stone*, or to pass over that age, in which the vascular bundles that join them to the branch become woody, and secure them to their place.

217. For the same reason they are fed almost entirely by other parts, upon secreted matter which they attract to themselves, elaborate, and store up in the cavities of their tissue.

218. The office of feeding such fruit is performed by young branches which transmit nutriment to it through the bark (69).

219. But as young branches can only transmit nutriment downward, it follows that, unless a fruit is formed on a part of a branch below a leaf-bud, it must perish,

220. Unless there is some active vegetation in the stem above the branch on which it grows; when it may possibly live and feed upon secretions attracted by it from the main stem.

221. But inferior fruit, consisting at least of the calyx in addition to the pistillum, has a much more powerful communication with the branch; each division of its calyx having *at least* one bundle of vascular and fibrous tissue, passing from it into the branch, and acting as a stay upon the centre to prevent its breaking off.

222. Such fruit may be supposed much more capable of establishing a means of attracting secretions from a distance; and, consequently, is less liable to perish from want of a supply of food.

223. It is therefore not so important that an inferior fruit should be furnished with growing branches above it.

224. Fruit is exclusively fed by the secretions prepared for it by other parts; it is therefore affected by nearly the same circumstances as flowers.

225. It will be large in proportion to the quantity of food the stem can supply to it; and small in proportion to the inability of the stem to nourish it.

226. For this reason, when trees are weak they should be allowed to bear very little, if any, fruit; because a crop of fruit can only tend to increase their debility.

227. And in all cases each fruit should be so far separated from all others as not to be robbed of its food by those in its vicinity.

228. We find that nature has herself in some measure provided against injury to plants by excessive fecundity, in giving them a power of throwing off flowers, the fruit of which cannot be supported.

229. The flavour of fruit depends upon the existence of certain secretions, especially of acid and sugar; flavour will, consequently, be regulated by the circumstances under which fruit is ripened.

230. The ripening of fruit is the conversion of acid and other substances into sugar.

231. As the latter substance cannot be obtained at all in the dark, is less abundant in fruit ripened in diffused light, and most abundant in fruit exposed to the direct rays of the sun, the conversion of matter into sugar occurs under the same circumstances as the decomposition of carbonic acid (141 and 279).

232. Therefore, if fruit be produced in situations much exposed to the sun, its sweetness will be augmented.

233. And in proportion as it is deprived of the sun's direct rays, that quality will diminish.

234. So that a fruit which, when exposed to the sun, is sweet, when grown where no direct light will reach it will be acid ; as Pears, Cherries, &c.

235. Hence acidity may be corrected by exposure to light; and excessive sweetness, or insipidity, by removal from light.

236. It is the property of succulent fruits which are acid when wild, to acquire sweetness when cultivated, losing part of their acid.

237. This probably arises from the augmentation of the cellular tissue, which possibly has a greater power than woody or vascular tissue of assisting in the formation of sugar.

238. As a certain quantity of acid is essential to render fruit agreeable to the palate, and as it is the property of cultivated fruits to add to their saccharine matter, but not to form more acid than when wild ; it follows, that in selecting wild fruits for domestication, those which are acid should be preferred, and those which are sweet or insipid rejected;

239. Unless recourse is had to hybridism ; when a wild insipid fruit may possibly be improved (204), or may be the means of improving something else.

240. It is very much upon such considerations as the foregoing that the rules of training must depend.

IX. Seed.

241. The seed is the ovulum arrived at perfection.

242. It consists of an integument enclosing an *embryo*, which is the rudiment of a future plant.

243. The seed is nourished by the same means as the fruit ; and, like it, will be more or less perfectly formed, according to the abundance of its nutriment.

244. The plant developed from the embryo in the seed, will be in all essential particulars like its parent species,

245. Unless its nature has been changed by hybridizing (204).

246. But although it will certainly, under ordinary circumstances, reproduce its species, it will by no means uniformly reproduce the particular variety by which it was borne.

247. So that seed are not the proper means of propagating varieties.

248. Nevertheless, in annual or biennial plants, no means can be employed for propagating a variety, except the seed ; and yet the variety is preserved.

249. This is accomplished solely by the great care of the cultivator, and happens thus :

250. Although a seed will not absolutely propagate the individual, yet as a seed will partake more of the nature of its actual parent than of any thing else, its progeny may be expected, as really happens, to resemble the variety from which it sprung, more than any other variety of its species ;

251. Provided its purity has not been contaminated by the intermixture of other varieties.

252. By a careful eradication of all the varieties from the neighbourhood of that from which seed is to be saved ; by taking care that none but the most genuine forms of a variety are preserved as seed-plants ; and by com-

pelling by transplantation a plant to expend all its accumulated sap in the nourishment of its seed, instead of in the superabundant production of foliage, a crop of seed may be procured, the plants produced by which will, in a great measure, have the peculiar properties of the parent variety.

253. By a series of progressive seed-savings upon the same plan, plants will be at length obtained, in which the habits of the individual have become as it were fixed, and capable of such exact reproduction by seed, as to form an exception to the general rule; as in Turnips, Radishes, &c.

254. But if the least neglect occurs in taking the necessary precautions (252) to ensure a uniform crop of seed, possessing the new fixed properties, the race becomes deteriorated, in proportion to the want of care that has occurred, and loses its characters of individuality.

255. In all varieties those seed may be expected to preserve their individual characters most distinctly which have been the best nourished (243); it is, consequently, those which should be selected in preference for raising new plants, from which seed is to be saved.

256. When seed are first ripened, their embryo is a mass of cellular substance, containing starch, fixed carbon, or other solid matter, in its cavities; and in this state it will remain until fitting circumstances occur to call it into active life.

257. These fitting circumstances are, a temperature above 32° Fahrenheit, a moist medium, darkness, and exposure to air.

258. It then absorbs the moisture of the medium in which it lies, inhales oxygen (278), and undergoes certain chemical changes; its vital powers cause it to ascend by one extremity for the purpose of finding light, and of decomposing its carbonic acid (279), by parting with its accumulated oxygen, and to descend by the other extremity for the purpose of finding a constant supply of crude nutriment.

259. Unless these conditions are maintained, seed cannot germinate; and, consequently, an exposure to light is fatal to their embryo, because (278) oxygen will not be absorbed in sufficient quantity to stimulate the vital powers of the embryo into action, for the purpose of parting with it again, by the decomposition of the carbonic acid that has been formed during its accumulation.

X. Sap.

260. The fluid matter which is absorbed either from the earth or from the air is called sap.

261. When it first enters a plant it consists of water holding certain principles, especially carbonic acid, in solution.

262. These principles chiefly consist of animal or vegetable matter in a state of decomposition, and are energetic in proportion to their solubility, or tendency to form carbonic acid by combining with the oxygen of the air.

263. Sap soon afterward acquires the nature of mucilage or sugar, and subsequently becomes still farther altered by the admixture of such soluble matter as it receives in passing in its route through the alburnum or newly formed woody tissue (65).

264. When it reaches the vicinity of the leaves it is attracted into them, and there, having been exposed to light and air, is converted into the secretions peculiar to the species.

265. It finally, in its altered state, sinks down the bark, whence it is given off laterly by the medullary rays, and is distributed through the system.

266. No solid matter whatever can be taken off by the roots; for this reason, metals, which in the state of oxydes are poisonous, are perfectly harmless in their metallic state, as mercury; and this is, no doubt, the cause why liquid manure, which contains all the soluble parts of manure in a fluid state, acts with so much more energy than stimulating substances in a solid state.

267. The cause of the motion of the sap is the attraction of the leaf-buds and leaves.

268. The leaf-buds called into growth by the combined action of the increasing temperature and light of spring, decompose their carbonic acid (279), and attract fluid from the tissue immediately below them; the space so caused is filled up by fluid again attracted from below, and thus a motion gradually takes place in the sap from one extremity to the other.

269. Consequently, the motion of the sap takes place first in the branches and last in the roots.

270. For this reason, a branch of a plant subjected to a high tempera ture in winter, will grow while its stem is exposed to a very low tempera ture.

271. But growth under such circumetances will not be long maintained, unless the roots are secured from the reach of frost; for, if frozen they cannot act, and will consequently be unable to replace the sap of which the stem is emptied by the attraction of the buds converted into branches, and by the perspiration of the leaves (XII.)

272. Whatever tends to inspissate the sap, such as a dry and heated atmosphere, or an interruption of its rapid flow, or a great decomposition of carbonic acid, by full exposure to light, has the property of causing excessive vigour to be diminished, and flower-buds to be produced.

273. While, on the other hand, whatever tends to dilute the sap, such as a damp atmosphere, a free and uninterrupted circulation, or a great accumulation of oxygen in consequence of the imperfect decomposition of carbonic acid, has the property of causing excessively rapid growth, and an exclusive production of leaf-buds.

274. Inspissated or accumulated sap is, therefore, a great cause of fertility.

275. And thin fluid, not being elaborated, is a great cause of sterility.

276. The conversion of sap into different kinds of secretion is effected by the combined action of *Air* (XI.), *Light* (XI.), and *Temperature*.

XI. Air and Light.

277. When an embryo plant (242) is formed within its integuments, it is usually colourless, or nearly so; but, as soon as it begins to grow, that part which approaches the light (the stem) becomes coloured, while the opposite extremity (the root) remains colourless.

278. The parts exposed to the air absorb oxygen at night, absorb carbonic acid and part with oxygen again in daylight; and thus in the daytime purify the air, and render it fit for the respiration of man.

279. The intensity of this latter phenomenon is in proportion to the intensity of solar light to which leaves are directly exposed.

280. Its cause is the decomposition of carbonic acid, the extrication of

oxygen, and the acquisition by the plant of carbon in a solid state; from which, modified by the peculiar vital actions of species, colour and secretions are supposed to result.

281. For it is found that the intensity of colour, and the quantity of secretions, are in proportion to the exposure to light and air, as is shown by the deeper colour of the upper sides of leaves, &c.

282. And by the fact that if plants be grown in air from which light is excluded, neither colour nor secretions are formed, as is exemplified in blanched vegetables; which, if even naturally poisonous, may, from want of exposure to light, become wholesome, as Celery.

283. When any colour appears in parts developed in the dark, it is generally caused by the absorption of such colouring matter as pre-existed in the root or other body from which the blanched shoot proceeds, as in some kinds of Rhubarb when forced.

284. Or by the deposition of colouring matter formed by parts developed in light, as in the subterranean roots of Beet, Carrots, &c.

285. What is true of colour is also true of flavour, which equally depends upon light for its existence; because flavour is produced by chemical alterations in the sap caused by exposure to light (229).

286. The same thing occurs in regard to nutritive matter, which in like manner is formed by exposure of leaves to light. Thus the Potato when forced in dark houses, contains no more amylaceous matter than previously existed in the original tuber; but acquires it in abundance when placed in the light, and deposites it in proportion as it is influenced by light and air. Thus, also, if Peaches are grown in wooden houses, at a distance from the light, they will form so little nutritive matter as to be unable to support a crop of fruit, the greater part of which will fall off. And for a similar reason, it is only the outside shoots of standard fruit trees that bear fruit. Considerations of this kind form in part the basis of pruning and training.

287. Light is the most powerful stimulus that can be employed to excite the vital actions of plants, and its energy is in proportion to its intensity; so that the direct rays of the sun will produce much more powerful effects than the diffused light of day.

288. Hence, if buds that are very excitable are placed in a diffused light, their excitability will be checked.

289. And if buds that are very torpid are exposed to direct light, they will be stimulated into action.

290. So that what parts of a tree shall first begin to grow in the spring may be determined at the will of the cultivator.

291. This is the key to some important practices in forcing.

292. This should also cause attention to be paid to shading buds from the direct rays of the sun in particular cases; as in that of cuttings, whose buds, if too rapidly excited, might exhaust their only reservoir of sap, the stem, before new roots were formed to repair such loss.

293. As plants derive an essential part of their food from the air (280) by the action of light, it follows that in glass houses those which admit the greatest portion of light are the best adapted for purposes of cultivation.

294. The proportion of opaque matter in the roof of a glass house constructed of wood varies from one third to one seventh; that of an iron house does not exceed one twenty-third.

295. Therefore, iron-roofed houses are in this respect better suited for cultivation than wooden-roofed houses.

296. And it has been found by experiment, that light passes more freely through a curvilinear than through a plane roof, and through glass forming an acute angle with the horizon than through perpendicular glass, it follows that a curvilinear roof is best, and a plane roof with glass perpendicular sides the worst, adapted to the purposes of the cultivator.

297. For the same reason common green glass is less fitted for glazing forcing-houses than white crown glass.

298. Poisonous gases in very minute quantities act upon vegetation with great energy. A ten thousandth part of sulphurous acid gas is quickly fatal to the life of plants; and hence the danger of flues heated by coal fires, and the impossibility of making many species grow in the vicinity of houses heated by coal fires, or in large towns.

XII. Perspiration.

299. It is not, however, exclusively by the action of light and air that the nature of sap is altered. Evaporation is constantly going on during the growth of a plant, and sometimes is so copious, that an individual will perspire its own weight of water in the course of twenty-four hours.

300. The loss thus occasioned by the leaves is supplied by crude fluid, absorbed by the roots, and conveyed up the stem with great rapidity.

301. The consequence of such copious perspiration is the separation and solidification of the carbonized matter that is produced for the peculiar secretions of a species.

302. For the maintenance of a plant in health, it is indispensable that the supply of fluid by the roots should be continual and uninterrupted.

303. If any thing causes perspiration to take place faster than it can be counteracted by the absorption of fluid from the earth, plants will be dried up and perish.

304. Such causes are, destruction of spongioles, an insufficient quantity of fluid in the soil, an exposure of the spongioles to occasional dryness, and a dry atmosphere.

305. The most ready means of counteracting the evil consequences of an imperfect action of the roots is by preventing or diminishing evaporation.

306. This is to be effected by rendering the atmosphere extremely humid.

307. Thus, in curvilinear iron hot-houses, in which the atmosphere becomes so dry in consequence of the heat, that plants perish, it is necessary that the air should be rendered extremely humid, by throwing water upon pavement, or by introducing steam.

308. And in transplantation in dry weather, evergreens, or plants in leaf, often die, because the spongioles are destroyed, or so far injured in the operation as to be unable to act, while the leaves never cease to perspire.

309. The greater certainty of transplanting plants that have been growing in pots, is from this latter circumstance intelligible.

310. While the utility of putting cuttings or newly transplanted seedlings into a shady damp atmosphere, is explained by the necessity of hindering evaporation.

XIII. Cuttings.

311. When a separate portion of a plant is caused to produce new roots and branches, and to increase an individual, it is a cutting.

312. Cuttings are of two sorts: cuttings properly so called, and *eyes* (319).

313. A cutting consists of an internodia, or a part of one, with its nodi and leaf bud.

314. When the internodia is plunged in the earth it attracts fluid from the soil, and nourishes the bud until it can feed itself.

315. The bud, feeding at first upon the matter in the internodia, gradually enlongates upward into a branch, and sends organized matter downward, which becomes roots.

316. As soon as it has established a communication with the soil, it becomes a new individual, exactly like that from which it was taken.

317. As it is the action of the leaf-buds that causes growth in a cutting, it follows that no cutting without a leaf-bud will grow;

318. Unless the cutting has great vitality and power of forming adventitous leaf-buds (119), which sometimes happens.

319. An eye is a leaf-bud without an internodia.

320. It only differs from a cutting in having no reservoir of food on which to exist, and in emitting its roots immediately from the base of the leaf-bud into the soil.

321. As cuttings will very often, if not always, develope leaves before any powerful connection is formed between them and the soil, they are peculiarly liable to suffer from perspiration.

322. Hence the importance of maintaining their atmosphere in an uniform state of humidity, as is effected by putting bell or other glasses over them.

323. In this case, however, it is necessary that if air-tight covers are employed, such as bell-glasses, they should be from time to time removed and replaced, for the sake of getting rid of excessive humidity.

324. Layers differ from cuttings in nothing except that they strike root into the soil while yet adhering to the parent plant.

325. Whatever is true of cuttings is true of layers, except that the latter are not liable to suffer by evaporation, because of their communication with the parent plant.

326. As cuttings strike roots into the earth by the action of leaves or leaf-buds, it might be supposed that they will strike most readily when the leaves or leaf-buds are in their greatest vigour.

327. Nevertheless, this power is controlled so much by the peculiar vital powers of different species, and by secondary considerations, that it is impossible to say that this is an absolute rule.

328. Thus Dahlias and other herbaceous plants will strike root freely when cuttings are very young; and Heaths, Azaleas, and other hard-wooded plants, only when the wood has just begun to harden.

329. The former is, probably, owing to some specific vital excitability, the force of which we cannot appreciate; the latter either to a kind of torpor, which seems to seize such plants when the tissue is once emptied of fluid, or to a natural slowness to send downward woody matter, whether for wood or not, which is the real cause of their wood being harder.

330. If ripened cuttings are upon the whole the most fitted for multiplication, it is because their tissue is less absorbent than when younger, and that they are less likely to suffer either from repletion or evaporation.

331. For, to gorge tissue with food, before leaves are in action to decompose and assimilate it, is as prejudicial as to empty tissue by the action of leaves, before spongioles are prepared to replenish it.

332. For this reason, pure silex, in which no stimulating substances are contained (silver sand), is the best adapted for promoting the rooting of cuttings that strike with difficulty.

333. And for the same reason, cuttings with what gardeners call a *heel* to them, or a piece of the older wood, strike root more readily than such as are not so protected. The greater age of the tissue of the heel renders it less absorbent than tissue that is altogether newly formed.

334. It is to avoid the bad effect of evaporation that leaves are usually for the most part removed from a cutting, when it is first prepared.

XIV. Scions.

335. A scion is a cutting (311) which is caused to grow upon another plant, and not in the earth.

336. Scions are of two sorts: scions properly so called, and *buds* (354).

337. Whatever is true of cuttings is true also of scions, all circumstances being equal.

338. When a scion is adapted to another plant, it attracts fluid from it for the nourishment of its leaf-buds until they can feed themselves.

339. Its leaf-buds thus fed, gradually grow upward into branches, and send woody matter downward, which is analagous to roots.

340. At the same time, the cellular substance of the scion and its *stock* adheres (19), so as to form a complete organic union.

341. The woody matter descending from the bud passes through the cellular substance into the stock, where it occupies the same situation as would have been occupied by woody matter supplied by buds belonging to the stock itself.

342. Once united, the scion covers the wood of the stock with new wood, and causes the production of new roots.

343. But the character of the woody matter sent down by the scion over the wood of the stock being determined by the cellular substance, which has exclusively a horizontal developement (73), it follows that the wood of the stock will always remain apparently the same, although it is furnished by the scion.

344. Some scions will grow upon a stock without being able to transmit any woody matter into it; as some *Cacti*.

345. When this happens, the adhesion of the two takes place by the cellular substance only, and the union is so imperfect that a slight degree of violence suffices to dissever them.

346. And in such cases the buds are fed by their woody matter, which absorbs the ascending sap from the stock at the point where the adhesion has occurred; and the latter, never augmenting in diameter, is finally overgrown by the scion.

347. When, in such instances, the communication between the stock

and the scion is so much interrupted that the sap can no longer ascend with sufficient rapidity into the branches, the latter die ; as in many Peaches.

348. This incomplete union between the scion and its stock is owing to some constitutional or organic difference in the two.

349. Therefore, care should be taken that when plants are grafted on one another, their constitution should be as nearly as possible identical.

350. As adhesion of only an imperfect nature takes place when the scion and stock are, to a certain degree, dissimilar in constitution, so will no adhesion whatever occur when their constitutional difference is very decided.

351. Hence it is only species very nearly allied in nature that can be grafted on each other.

352. As only similar tissues will unite (19), it is necessary, in applying a scion to the stock, that similar parts should be carefully adapted to each other ; as bark to bark, cambium to cambium, alburnum to alburnum.

353. The second is more especially requisite, because it is through the cambium that the woody matter sent downward by the buds must pass ; and also because cambium itself, being organizing matter in an incipient state, will more readily form an adhesion than any other part.

354. The same principles apply to *buds*, which are to scions precisely what eyes (319) are to cuttings.

355. Inarching is the same with reference to grafting, that layering (324) is with reference to striking by cuttings.

356. It serves to maintain the vitality of a scion until it can form an adhesion with its stock ; and must be considered the most certain mode of grafting.

357. It is probable that every species of flowering plant, without exception, may be multiplied by grafting.

358. Nevertheless, there are many species and even tribes that never have been grafted.

359. It has been found that in the Vine and the Walnut this difficulty can be overcome by attention to their peculiar constitutions ; and it is probable that the same attention will remove supposed difficulties in the case of other species.

XV. Transplantation.

360. Transplantation consists in removing a plant from the soil in which it is growing to some other soil.

361. If in the operation the plant is torpid, and its spongioles uninjured, the removal will not be productive of any interruption to the previous rate of growth.

362. And if it is growing, or evergreen, and the spongioles are uninjured, the removal will produce no farther injury than may arise from the temporary suspension of the action of the spongioles, and the non-cessation of perspiration during the operation.

363. So that transplantations may take place at all seasons of the year, and under all circumstances, provided the spongioles are uninjured.

364. This applies to the largest trees as well as to the smallest herbs.

365. But as it is impossible to take plants out of the earth without destroying or injuring the spongioles, the evil consequence of such accidents must be remedied by the hinderance of evaporation.

366. Transplantation should therefore take place only when plants are torpid, and when their respiratory organs (leaves) are absent; or, if they never lose those organs, as evergreens, only at seasons when the atmosphere is periodically charged with humidity for some considerable time.

367. Old trees, in which the roots are much injured, form new ones so slowly, that they are very liable to be exhausted of sap by the absorption of their very numerous young buds before new spongioles can be formed.

368. The amputation of all their upper extremities is the most probable prevention of death; but in most cases injury of their roots is without a remedy.

369. Plants in pots being so circumstanced that the spongioles are protected from injury, can, however, be transplanted at all seasons without any dangerous consequences.

INTRODUCTION.

TO THE

MONTHLY CALENDAR.

THE object of the following Calendar is to furnish, in a condensed form, monthly directions for the culture of some plants not previously mentioned in this work; and also to direct the reader's attention to the regular management of such plants as have been heretofore treated of. In pursuit of the latter object, references will be made to former pages, so as to exhibit, at one view, the business of the garden in each month of the year. The figures indicate the pages in which farther directions may be found relative to the operations referred to.

JANUARY.

Winter's white sheet now covers earth's cold bed;
Pride of our home, the lovely Flowers, are dead;
Some early venturers would the aspect cheer,
The first-born children of the dawning year.

Having shown, in page 100, that heat, air, and water are the food of plants, and necessary to the preservation of their health and life, if given in due proportion according to circumstances, I would, at this season of the year, especially, salute the gardener with "Be ye temperate in all things."

Temperance in the use of water is of the utmost importance in the winter season, for several reasons which may be given. In the first place, water will attract frost, and, therefore, should be used very sparingly in frosty weather; another consideration is, that in the absence of heat and air, plants cannot absorb much moisture, and, consequently, must become injured from excessive watering; and it may be observed farther, that it is not prudent to keep plants in an extremely vigorous state, until the season arrives when the external air is soft and salubrious; they can then have a due proportion of heat, air, and moisture at the same time.

Perhaps the next important point to be attended to at this time is, to see that the green-house, or room, in which plants are intended to be preserved, is calculated for the purpose. The room should be light and airy, and yet so secure as to prevent the intrusion of external cold air, or the departure of warm air in the night season.

A Fahrenheit thermometer is indispensable in a green-house, or room, where plants are kept, and the temperature should be always kept up as nearly as possible to forty degrees, in the absence of the sun. If the gardener retire to rest in this variable climate, leaving the mercury much below forty, he may expect to find his plants frozen in the morning.

A good brick flue is better calculated for heating a small green-house than any other contrivance; because, after a sufficient fire has been made to heat the bricks thoroughly,

they will retain the heat through a winter night, whereas an iron stove with its metal pipes will cool as the fire gets low, and expose the plants to cold toward morning, which is the time they most need protection. The heat from iron is, moreover, too dry and parching, while an evaporation or salubrious steam may be raised from bricks, by sprinkling the flue occasionally, which would operate on plants similar to healthful dew-drops.

At this season of the year, sitting-rooms, or parlours, are generally heated in the daytime to full twenty degrees higher than what is necessary for the preservation of plants; consequently, as the heat decreases in the night season, plants often get injured, unless a fire is kept up. Air must be admitted to plants kept in this way, at all opportunities; and more water will be necessary for such plants, than those kept in a green-house would require. For the management of bulbous roots in pots or glasses, the reader is referred to page 94.

FEBRUARY.

Like shivering orphans on the wide world cast,
They feel the rigour of the Northern blast,
Whilst *Fortune's Favourites* claim the florist's care,
And all the comforts of the green-house share.

Having in the previous month discussed some important points relative to the general care of plants, I now proceed to notice a few of those kinds that require attention at this particular season:

Camellias, or *Japan Roses*. There are numerous varieties of this valuable class of plants, exhibiting every shade of colour, from deep crimson to the purest white; in some imperceptibly blended, in others strikingly contrasted. They are unrivalled objects of beauty from October to May, being set in a fine glossy foliage.

Double Camellias are generally propagated on stocks of the single, which are procured by planting cuttings of the young shoots in light mould under bell glasses; on these, when grown to a sufficient size, are inarched the finer kinds of double. Sometimes these latter are also struck by cuttings; but as their progress by such method is generally slow and uncertain, it is seldom resorted to. These valuable plants are too often injured by amateurs, from misapplied care bestowed upon them, so that their whole compensation and enjoyment is reduced to the mere possession of a handsome green shrub. Destined, from the extreme beauty and unrivalled delicacy of their flowers, to become the chief pride and ornament of the green-house and drawing-room in the winter season, Camellias should have a fair chance given them to exhibit their fine bloom in perfection.

It should be observed, that Camellias are by no means tender shrubs, but require to be kept in a medium, even temperature, and they generally succeed best in a green-house, where the atmosphere is damp. As the buds begin to swell, they will require more water than at any other time, which may be applied from the rose of a watering-pot, or syringe, while in bud, but when in blossom it should be applied to the earth.

If Camellias be kept where there is a dry air, occasioned from fire heat, they must have plenty of the natural air at all opportunities, or the buds will become brown and fall off; and if they are subject to extreme cold at night, which is too often the case when kept in rooms of an uneven temperature, premature decay of the buds will inevitably be the consequence.

To preserve Camellias in a healthy condition, they should be kept in a fresh, moderately light soil, consisting of sandy loam taken from under grass sods, and leaf mould well mixed; nothing being more injurious to them than over-potting; they should not be shifted into larger pots, until the projection of their roots show evidently that they are in need

of it. Few plants bear privation of sunshine in summer better than these; they should, however, be kept in an open situation, where they can have a full share of light and air.

Such bulbous roots as may be in progress of blooming, will require attention this month; turn them frequently to the light, as recommended in page 95, and increase the supplies of water as they advance toward perfection.

Attend to *Campanula Pyramidalis*, *Hepeticas*, *Mimulus*, *Senecios*, and herbaceous plants in general; those not in bud should be watered very sparingly. Shrubby plants, especially those which bud and blossom in winter, and the early part of spring, as the several varieties of the Acacias, Azaleas, Calceolarias, Correas, Coronillas, Daphnes, Diosmas, Eupatoriums, Eutaxias, Fuchsias, Gnidias, Heaths, Laurustinuses, Lemon trees, Rhododendrons, Orange trees, &c., will require water once or twice a week, according to circumstances, and air should be given at all opportunities, or the plants will not blossom in perfection.

For the benefit of such as may wish to raise early plants from seed, or to force Dahlia or other roots, I subjoin the following brief directions for making a small hot-bed: In a border exposed to the morning sun, let a pit be dug about thirty inches deep, five feet wide, and six long; this will admit of two sashes, each three feet by five. A frame of suitable dimensions may be made of plank; the back plank may be two feet wide, and the end ones sloped so as to make a fifteen-inch plank do for the front. The frame being made, set it over the pit, and then get a load of horse dung, fresh from the livery stables, (not such as has lain long, or may have been soddened with water,) spread it evenly in the pit until full, then put into the frame rich light mould, or compost, to the depth of ten or twelve inches, and the seed may be sown as soon as it gets warm. It may be necessary to observe, that in making hot-beds, the quantity of top mould should be regulated according to the substance of the manure in the pit, and this may vary according to the

use the beds are intended for, or to other circumstances. After the seed are sown, the beds will require constant attention; cover up warm in cold nights, and give air at all opportunities, to prevent the plants from growing weak.

As we are subject to northwest winds at this season, which produce extreme freezing, it will be better to delay the making of hot-beds to the first week in March, at which time opportunities will frequently offer of giving plants a tolerable share of salubrious air, which is indispensable to their preservation.

MARCH.

The "*Yellow Crocus*," in her simple dress,
And the "*pale Primrose*," chaste in loveliness,
Though the fierce Storm King rides upon the gale,
Foretel of Spring, 'midst snow and cutting hail.

As the spring progresses, the external air will be soft and salubrious; at which time it should be freely admitted to plants kept in rooms and green-houses. In proportion as the plants get air, they should have water applied from the rose of a watering-pot.

Monthly Roses will require attention this month. It should be recollected, that it is from the young wood of these plants that buds are to be expected; their growth should, therefore, be encouraged, by admitting sun and air at all opportunities, and water when necessary.

Primulas. There are several species of plants under this name, which exhibit their blossoms in March and April; some of which are very beautiful, as the Polyanthus, English Spring Flowers, Auricula, &c.; but I would now direct the reader's attention to the Chinese varieties, some of which are pure white, and others of a lilac colour. They are first raised from seed sown in the spring, and will keep two or three years.

Plants that are full grown, will commence blooming in December, and continue to produce umbels of flowers for five or six months, if well attended to; they are generally in their prime this month, at which time a little water should be applied to the earth about twice a week.

Many species and varieties of seed may be sown this month in hot-beds prepared as directed under the head February, page 145.

Auricula, Polyanthus, and all other species of *Primula* seed, should now be sown. Mignonette, Ten Week Stock, and Dahlia seed, from choice varieties, may also be sown in pots, and care should be taken, when the plants are up, that they be not injured by excess of moisture.

There are some splendid varieties of the Schizanthus which deserve attention at an early season. They are rather difficult of cultivation in pots, being apt to suffer by excess of heat or moisture; and often, when in full bloom, die off suddenly by decays at the bottom of the stem. No plants will, however, more amply repay all the care and trouble that may be bestowed on them, than those of the elegant genus Schizanthus. The best soil for them is loam and leaf mould, with a small portion of sand. They should be repotted as often as the pots are filled with roots, till they come into full flower.

All the different varieties of tender annual, biennial, and perennial flower seed, designated thus § and thus † in our Catalogues, pages 18 and 30, may be sown this month in hot-beds, or in pots kept in the green-house.

Hyacinths, Narcissus, and other bulbs in glasses, must have the water shifted every week, and the glasses should be thoroughly washed every two or three weeks, 96.

Toward the end of the month, roots of *Amaryllis formosissima, Gladiolus psittacinna*, Tiger Flower, Tuberose, and such other bulbs as may have been preserved dry through the winter, may now be planted in pots and kept in a green-house or light room, or else plunged in a hot-bed. Those

who have no such conveniences may, however, delay the planting of sound bulbs, until the weather will admit of their being planted in warm borders.

Dahlia roots should now be plunged in a hot-bed, to forward them, with a view to their being separated, as soon as the eyes are discernible, 77.

APRIL.

As Nature feels the sun's life-giving rays,
And genial showers now mark the lengthen'd days,
Buds and sweet blossoms, redolent of Spring,
To meditation soothing moments bring.

This is the most important month in the year for gardening operations. If not done toward the end of the last month, the covering must be taken from hardy flowering plants early in this month, and the beds and borders attended to as directed, pages 22 and 37; at the same time, clip edgings of box, and clean, re-lay, or make new gravel walks, &c., 15; prune and transplant flowering shrubs, 39 and 53; transplant also hardy herbaceous plants, 34 and 35.

Sow flower seed; the hardiest may be sown in the open borders, and the tender in hot-beds, 23 and 33.

All the soil of a garden should be dug this month, if possible, and pulverized as directed, 22 and 65.

It will be necessary to look over all the green-house plants in the early part of this month; let them be deprived of dead wood, if any, by a careful pruning; at the same time take off all yellow leaves; the earth at the top of the pots should be loosened, so as to admit the sun and air to the roots of the plants, 99 and 101.

If insects prevail on Roses or other plants, a fumigation with tobacco will be necessary.

Bulbous roots will require some attention this month; those in bloom in the garden should be tied up to wires or

small sticks; and those kept inside should be watered in proportion as they get heat and air.

The *Calla*, or Ethiopian Lily, and the different varieties of Rhododendrons, will need frequent watering while in bud and blossom.

Air must be admitted freely to all green-house plants toward the end of this month, in order to prepare them for the exposure of the open garden next month.

For the method of managing Dahlia roots, see page 77; prepare to plant tender bulbous roots toward the end of this, or early in the next month. The following should be forwarded in pots, which may be kept in a green-house or warm room, or they may be plunged in a hot-bed: Amaryllises, 67; Gladioluses, 80; Lilies, 84; Tuberoses, 92; Tiger Flowers, 93.

Hydrangeas, Pomegranates, Verbenas, and other deciduous shrubby plants, should be cultivated early in this month, to promote the production of leaf and flower-buds.

Biennial seed, such as Wall Flower and Stock Gilly Flower, also all kinds of tender perennials, should be sown this month, if not previously done in the green-house, or in hot-beds, 23, 33, and 103.

For an exhibition of the order of the flowering tribe in this month and the next, the reader is referred to an article, entitled 'The Beauties of April and May,' pages 54 to 62.

MAY.

The blue ey'd May, rejoicing in her train,
Spreads her green mantle o'er the grove and plain;
From beds of *Violets* grateful odours rise
In fragrant incense to benignant skies.

As the warm weather progresses, the gardener should be on the alert, in order to conquer the various kinds of insects. Burn tobacco leaves in the green-house, so as to fumigate

the plants well, before they are removed into the open garden; and such plants as may show any indications of being infested with the eggs of insects, should be sponged with soapsuds, and afterward well syringed and watered. Frequent sprinkling from the rose of a watering-pot will prevent insects from accumulating; especially if the water be impregnated with tobacco, by a bag of the leaves being steeped therein a few hours previous to using it.

Choice Geraniums will need attention this month, in order that they may exhibit their flowers to advantage. When in full bloom, care should be taken not to wet the foliage or flowers; but this may be done freely before the buds are expanded.

If awnings were not provided last month for the protection of choice flowers, it should be attended to early in this month, 69, 81, and 92; plant Amaryllises, 68; Double Dahlias, 78 and 79; Gladioluses, 80; Lilies, 84; Tuberose, 92; Tiger Flowers, 93; sow annual, biennial, and perennial flower seed in the open borders, 23 to 33. Attend to the walks, edgings, &c., and see that tall plants are neatly tied to sticks, wires, or stakes, 15, 21, 79, and 81. Procure and plant such perennial plants as may be necessary to make variety in the flower beds, 34.

Green-house plants may be set out about the middle of the month, and it should be done in cloudy weather, in order that they may be prepared gradually for the shining of the sun upon them. A situation exposed to the sun for only one half the day is preferable for most plants, especially if they can be shaded at noon, 35.

Many plants, such as Coronillas, Heaths, Aucubas, Myrtles, Oleanders, and several other sorts, are subject to be infested with white and brown scaly insects; if these cannot be effectually taken from the plants by washing and spunging, let the plants be headed down early in the month of May, and if they are well attended to, new branches will shoot out on the old stem.

Such Orange trees as were budded last July or August, should be headed down early in this month.

Auriculas, Polyanthus, and Daisies, should be separated into single tufts, and planted in a shady border for increase, as soon as they have done blossoming.

Such Carnations as may have been wintered in frames should now be exposed to the open air, in the flower borders.

Tulips, which will be in full perfection by the middle of this month, will require constant attention.

Such green-house plants as may have done blossoming may be pruned this month, and if the cuttings be planted at this time they will strike freely, 101.

Cuttings of *Salvia splendens* and *fulgens* will produce strong plants for blossoming in August, if planted early in this month. Chrysanthemum cuttings should now be put down, and the suckers divided, and planted singly in borders, or in pots, for flowering in the autumn, 102.

JUNE.

The blushing glory and the pride of June,
Blooms the red *Rose*—why should it fade so soon!
E'en the gay *Tulip* finds a rival here,
Though rich in tints, warm, delicate, and clear.

The principal sowing season may be considered as past; but if any failures should have happened of former sowings, seed may be sown the early part of this month, which, if kept watered occasionally, will grow quickly.

Green-house plants will need watering every evening, in dry warm weather; and in the absence of dews, some sorts may need a little in the morning at sunrise, 100; Hydrangeas, Daisies, Polyanthus, Primulas, &c., should be kept shaded from the noonday sun, or they will droop, and some may die. Carnations and Pinks will need frequent waterings at the roots, and the branches should be tied neatly to rods

Such flowering shrubs as may have been planted late in the spring season, should be regularly watered in dry weather. Give frequent waterings to the flower beds, in general; cut down dead flower stalks; remove decayed plants, and carefully replace them with vigorous ones from the nursery bed. Transplant annual flower plants into the regular beds with a small trowel, or neat dibble, 27.

Plant Colchicums, 70; finish planting Dahlias, and provide poles for their support, 78 and 79; water them occasionally in dry weather.

Many sorts of bulbous roots will be ripe by the end of this month; these should be taken up and dried as directed, page 65. Those cultivated in pots should not be watered after the foliage is decayed, until the period of re-germination takes place, 66 and 94.

Numerous beautiful flowers exhibit themselves this month, some of which are noticed in an article, entitled 'The Beauties of April and May,' page 54 to 62. There are, however, several others worthy of notice, which are omitted in that article. The several species of Phlox are remarkably showy plants, and very desirable to cultivate, as they blossom in their several varieties the whole season. Beside these, are the splendid varieties of Roses, Pinks, Lychnises, Sweet Williams, Fox Gloves, Snap-dragons, Perennial Lupins, Verbenas, Veronicas, Valerians, &c. These should all be attended to, and their branches tied to neat stakes, so as to enable them to exhibit their flowers to the greatest possible advantage.

Dahlias that are intended for blossoming this year should be planted by the middle of this month, if not done before, 78.

JULY.

Pinks and Carnations, ye are fair to view,
Creative wisdom shines in every hue;
Ye raise the mind, improve the human heart,
And goodly precepts gracefully impart.

Green-house plants will need daily care at this season; let them be watered every evening in dry weather. Such Geraniums as may have grown large and unwieldly, should now be pruned, in order that their size and appearance may be improved, 101.

Garden Roses, having done flowering for the season, should also be pruned. Cut out all old exhausted wood, and where it is too thick and crowded, shorten such shoots as have flowered, to a good fresh strong eye, or bud, accompanied with a healthy leaf. All wood that grows after this pruning will ripen perfectly, and produce large flowers the ensuing year.

If dry warm weather, it may be necessary to water such flowering shrubs and Roses as were planted in the spring; and if Dahlia plants could be watered two or three times a week, it would be beneficial to their growth. Give regular sprinklings from the rose of a watering-pot, or syringe, to shrubby plants in general, but particularly Camellias, Orange and Lemon trees, &c., in order to keep them in a healthy state.

Such bulbous roots in pots, whose foliage have withered, should be kept dry until the period of re-germination, 66 and 94; others may be taken up as soon as ripe, after which the offsets may be parted off, and both these and the parent bulbs dried for planting in autumn, 65.

The flower garden should be kept weeded and watered, and the seed gathered as they ripen; apply neat rods to tall-growing and running kinds of plants. Nip off curled and dead leaves, and destroy insects, 15.

Orange and Lemon trees may be budded at any time this month, and those which were headed down in the spring

should be examined, and all superfluous shoots must be pruned off with a sharp knife, leaving only the strongest; the tops of which should be pruned off to promote their branching. Myrtles, Oleanders, and such other plants as may have been headed down in May, will need similar treatment.

Carnations, Pinks, Pansies, Running Verbenas, &c., may be layed this month for propagation, 33 and 34; many kinds of cuttings, as Geraniums, Roses, and exotic shrubs, may still be planted with success, 50.

AUGUST.

Brief is the mission of the fragile Flowers;
Some droop and die e'er close the sunny hours;
Just as a maiden, in life's opening bloom,
Lamented sinks into an early tomb.

Green-house plants will need particular attention this month. They should be watered every evening in dry weather, and as soon as the extreme heat of the summer is past, which is generally by the latter end of this month, or early in the next, preparation must be made for replenishing with fresh compost, and re-potting such plants as are intended to be cultivated through the winter in a green-house, light room, or garden frames. Previous to the commencement of this business, let such compost as is suited to the various kinds of plants be provided, 101.

Those who may have a number of plants in various sized pots, should provide a few new pots a size larger than the largest in use; the largest plants being shifted into the new pots, leaves the next sized pots for the second-sized plants, and by pursuing this plan of shifting until the whole are done, the smallest pots will be left for such plants as have been propagated in the course of the summer.

The shifting of plants requires considerable attention and judgment, as some plants, if kept in too large pots, will sustain considerable injury: therefore, in such cases, where the

fibrous roots have not spread around the pot, nothing more is necessary than to rub off a little of the outside mould, and then to substitute fresh compost for the roots to run in.

Such plants as may have become pot-bound, and whose roots are matted around the pot; will, in many cases, bear reducing. If the matted roots are carefully pared off, and the plants shifted into good fresh compost, they will soon take root, and grow freely; but it will be necessary to prune off all surplus branches of the plants previous to re-potting them, and to shade them for a week or ten days.

Pieces of tile, or broken pots, should be laid over the aperture at the bottom of the pots, to enable the surplus moisture to drain off, or the roots will sustain injury.

The flower beds will need attention this month. Water Dahlias and other choice plants in dry weather; cut down all decayed flower stalks, as soon as the seed is gathered, and pull up annuals as they cease to flower.

Plant Oxalises in small pots, 86, and prepare compost for other tender bulbs to be planted in pots next month.

Rose shrubs, Orange, and Lemon trees, &c., &c., should be budded early in this month, if not done before.

SEPTEMBER.

Still some with vigour lift their lordly heads,
Imparting splendour to their cultured beds,
In lustrous colours decked, they proudly shine,
And look enchanting to their last decline.

Such green-house plants as may have been re-potted and pruned in the course of the last month, should be looked over, and if they have taken root, they should be exposed gradually to the sun, and watered moderately in dry weather.

If any of the green-house plants were plunged in the flower beds, they should be taken up and pruned early in this month, and then put into suitable sized pots, 35.

Half-hardy perennials, such as Carnations, Daisies, Primulas, Lilies, Hydrangeas, &c., should be taken up, divided carefully at the roots, and then put into moderate sized pots, and attended to as before directed for green-house plants.

Many hardy kinds of flower seed may be sown this month, 24 and 34. This is a good season to propagate all kinds of hardy perennial plants, by parting the roots; and those that were raised from seed in the spring, may be transplanted into regular flower beds, in cloudy or wet weather, 27 and 35. Plant Crown Imperials, 69; Persian Cyclamens, 70; Ixias, 82; Lachenalias, 83; Lilies, 84; Ornithogalums, 86; Oxalses, 86.

Such Chrysanthemums as are intended to be protected while in blossom, should now be taken up and planted in moderate sized pots, 102.

Seeds of Schizanthus, Ten-week Stock, Mignonette, and such other species as may be desired to decorate the parlor or green-house, should be sown this month, 103.

OCTOBER.

Ling'ring and lonely on their trembling stems,
Surviving yet, are Flora's latest gems;
Their hour arrives, brown Autumn's parting breath
Sighs o'er the *Dahlias* and proclaims their death!

In the early part of this month, preparation must be made for the housing of green-house plants. Previous to this being done, let the room or green-house be whitewashed with lime, which will prove pernicious to insects, and prevent their generating among the plants.

Begin the first week in this month to place all the shrubby plants, such as Orange and Lemon trees, on the back shelves; others should be so placed that they can be cultivated to advantage, and they should all be arranged in regular gradation, so as to have the low-growing or dwarf plants on the front shelves.

Stock Gillies and Wall Fowers should be taken up, potted, and kept in a shady situation until they have taken root.

Such Dahlia plants as have been cultivated in pots should be sheltered from the chilling air, and those in the ground will need attention, 65 and 66.

Prepare the ground for all the hardy kinds of bulbous flower roots, 64 and 65. Toward the end of the month plant Anemones and Ranunculuses, 68; Crocuses, 69; Crown Imperials, 69; Gladioluses, 80; Hyacinths, 81; Irises, 82; Ixias, 82; Jonquils, 83; Lilies, 84; Narcissus, 85; Ornithogalums, 86; Pæonies, 87; Tulips, 92. For the management of bulbous roots in pots and glasses, see pages 94 to 96. Prune flowering shrubs, and make new plantations of them, 53.

Chrysanthemums should be neatly tied up to small sticks, and watered occasionally with liquid manure, to promote their blossoming in full perfection. Those in pots intended to be protected for late flowering, should be watched and taken in, on the appearance of a frosty night; they may, however, be exposed to the air as much as possible when it is soft and salubrious, as should all other half-hardy plants, 101 and 102.

NOVEMBER.

As the sweet flowers—men flourish and decay;
Howe'er they shine they quickly pass away;
If Virtue bless'd them in their mortal lot,
Each has an epitaph, "*Forget me not.*"

During the continuance of mild weather, green-house plants should have air at all opportunities, and water in proportion as heat and air are attainable, 99 and 100. Bulbous roots in pots and glasses will also need attention, 94 to 96.

Half-hardy plants, such as Stock Gillies, Wall Flowers, Carnations, Primulas, Hydrangeas, Daisies, &c., must either be placed in frames or in a green-house early in this month.

If Dahlia, Tuberose, and other tender roots were not taken up last month, let it be done in due time this month, 65 and 66.

Cover up flower beds with leaves, straw, or light litter, 37; finish planting bulbous roots before the frost sets in. Plant Anemones and Ranunculuses, 68; Crocuses, 69; Hyacinths, 81; Irises, 82; Ixias, 82; Jonquils, 83; Lilies, 84; Narcissus, 85; Pæonies, 87; Tulip, 88 to 92. These, and all other kinds of plants, will need protection before the setting in of the winter, 65 and 66. Flowering and ornamental shrubs may be planted in mild weather, 53; lay long litter round the roots of them, and also of the Grape vines and other tender plants, shrubs, &c.

Before the winter sets in severely, let such Chrysanthemums as may have been cultivated in pots be planted in the garden, or as soon as they have done blossoming, 102.

Plant Gladioluses in pots, 80; also such other bulbous roots as may be required to be kept in rooms, page 95.

Mignonette, and other tender seedling plants under protection, will require attention at this season; they should not be over-watered, or the plants will perish with mildew.

Camellias should be frequently syringed while in bud, or watered over the foliage with a rose attached to the watering pot, as should all other shrubby plants.

DECEMBER.

Descending snow, the yellow leaf and sear,
Are indications of old Time's career;
The careful florist tends his sheltered plants,
Studies their nature, and supplies their wants.

If all was not done as directed last month, there is now no time to be lost. All kinds of tender plants in pots should be set into frames or pits, and plunged in old tan or light mould; and in the event of severe frosts, coverings of mats, straw, &c., must be laid over them.

Green-house plants will need constant care and attention. When water is necessary, let it be given in mild weather, 99. In case of accidents happening from frost, I would remark, that the sudden transition from cold to heat is often more destructive to plants than frost itself. If plants get frozen, and cannot be screened from the rays of the sun, they should be watered as the air gets warm, and before they begin to thaw. If sufficient attention be paid, so as to have the temperature of the house rise gradually as the water is sprinkled over the leaves, it may be a means of preserving plants that would otherwise be destroyed.

See that the green-house, or room, in which plants are kept, is so secure as to prevent the intrusion of cold air, or the departure of warm air in the night season.

Collect from heaths and rocks such kinds of earth as are suited to the different species of exotic plants, and gather up leaves of trees. If you intend to make hot-beds of them, they should be put together dry; but if you intend them for compost, they may be laid together as wet as possible, in order that they may rot, for use in succeeding years.

THE Author has appended the following article, entitled 'THE MATRIMONIAL GARDEN,' under the impression that it was appropriate to the subject treated of in this work, and would prove acceptable to most of his readers, especially to the fair sex.

THE

MATRIMONIAL GARDEN.

MAN is formed for social enjoyment, and if it be allowed that "It is not good for man to be alone," it may be justly inferred that it is not good for woman to be alone; hence a union of interests indicates a union of persons for their mutual benefit. By this union, a sort of seclusion from the rest of our species takes place; and as a garden is a retired apartment, appropriated to culture and improvement, the married state may not inaptly be compared with it in many respects.

It is good and honourable for the human species, prudently and cautiously to approach this delightful enclosure. Its entrance is usually extremely gay and glittering, being strewed with flowers of every hue and every fragrance calculated to charm the eye and please the taste; but they are not all so; and as there are many persons who may wish to enter this garden at some time or other, who are yet strangers to its various productions, their attention should be directed to the cultivation of those plants which are beneficial, and to the avoiding or rooting up of those which are injurious.

And first, let me caution adventurers in this garden not to dream of *permanent* happiness; if you should so dream, experience will soon make you wiser, as such happiness never existed but in the heads of visionaries. If you are desirous that this garden shall yield you all the bliss of which it is capable, you must take with you that excellent flower called GOOD HUMOUR, which, of all the flowers of nature, is the most delicious and delicate; do not drop it or lose it, as many do, soon after they enter the garden; it is a treasure the loss of which nothing can supply. When you get to the end of the first walk, which contains about thirty steps,† commonly called "The Honey Moon Path," you will find the garden open into a vast variety of views, and it is necessary to caution you to avoid many productions here which are noxious, nauseous, and even fatal in their nature and tendency, especially to the ignorant and unwary. There is a low, small plant, which may be seen in almost every path, called INDIFFERENCE. Though this is not perceived on entering, you will always know where it grows, by a certain coldness in the air which surrounds it. Contrary to the nature of plants in general, this grows by cold and dies by warmth; whenever you perceive this change in the air, avoid the place as soon as you can. In the same path is often found that baneful flower called JEALOUSY, which I advise you never to look at, for it has the strange quality of smiting the eye that beholds it with a pain that is seldom or never got rid of. Jealousy is a deadly flower; it is the aconite of the garden, and has marred the happiness of thousands.

As you proceed, you will meet with many little crooked paths. I advise you, as a friend, never to go into them; for although, at the entrance of each, it is written in large letters, I AM RIGHT, if you do enter, and get to the end of them, you will find the true name to be PERVERSENESS. These crooked paths occasion endless disputes; and as it is difficult to make the crooked straight, it is better to avoid

† Thirty days.

them altogether, lest, as sometimes happens, a total separation be the consequence, and you take different paths the rest of your lives. Near this spot you will meet with a rough, sturdy plant, called Obstinacy, which bears a hard knotty fruit that never digests, and of course must injure the constitution; it even becomes fatal, when taken in large quantities. Turn from it; avoid it as you would the cholera.

Just opposite to this grows that lovely and lively shrub called Compliance, which, though not always pleasant to the palate, is very salutary, and leaves a sweetness in the mouth; it is a most excellent shrub, and produces the most delicious fruit. Never be without a very large sprig in your hand; it will often be wanted as you go along, for you cannot be happy without it in any part of the garden.

In one of the principal compartments stands a very important plant, called Economy; it is of a thriving quality; cultivate this fine plant with all your care, for it adorns and enriches at the same time. Many overlook it, some despise it, and others think that they may never want it; it is generally overlooked in the gayety and levity with which people enter this place, but the want of it is generally deplored with bitter repentance. There are two other plants of the same species, which are very closely connected, called Industry and Frugality, and I must take leave to tell you, that unless both the male and the female partake largely of their branches, very little success can be expected; in this they must both unite. Take care that you provide yourself and partner with a supply of each as soon as possible after you enter the garden.

There are two or three paths which run much into one another; in them you will find growing interspersed three plants, which deserve the closest attention of the softer sex; these are called Regularity, Exactness, and Simplicity.† Do not think, as some do, that when you have once got into the garden, you may be neglectful of these plants. Remem

† In deportment as well as in dress.

ber that your companion will see your neglect, which will affect his eye, and may alienate his heart. Bestow a large share of attention on these plants, then, as soon as you enter the garden, for when you are once fairly in, you are in for life; the danger is, that if you neglect them at an early period, you will not find them afterward.

Near these walks is to be found that modest plant, called HUMILITY:

> It is the Violet, "born to blush unseen,
> And waste its sweetness on the desert air."

It appears of little worth in itself, but when joined to other virtues, it adds a charm to life, and spreads a fragrance around its wearer. Cultivate, then, with all your care, this sweet little plant, and you will find it prevent the growth of all poisonous and noxious weeds.

Allow me also to drop a hint on the subject of CULTIVATION, as connected with PROPAGATION, as that most probably will be your employment in this garden, sooner or later. Should you have the rearing of a young plant, remember that it is frail in its nature, and liable to be destroyed by every blast, and will demand all your care and attention. Should you witness a blast on its dawning beauties, O! how your fond heart will bleed with tenderness, affection, and sympathy! The young shoot will naturally twine around all the fibres of your frame. Should it live and thrive, spare no pains to "train it up in the way it should go." Weed it, water it, prune it; it will need all your skill. Without this, many weeds and baneful plants will grow up with it, and blast your fondest hopes. Be ever mindful that this is a TRUST for which both parties are accountable.

Without careful cultivation, what can you expect but the most luxuriant growth of unruly appetites, which, in time, will break forth in all manner of disgraceful irregularities? What, but that ANGER, like a prickly thorn, will arm the temper with an untractable moroseness? That PEEVISHNESS, like a stinging nettle, will render the conversation irksome

and forbidding? That AVARICE, like some choaking weed, will teach the fingers to gripe, and the hands to oppress? That REVENGE, like some poisonous plant, replete with baneful juices, will rankle in the breast, and meditate mischief to its neighbour? While unbridled LUST, like swarms of noisome insects, taint each rising thought, and render "every imagination of the heart only evil continually." Such are the usual products of unrestrained nature! such the furniture of the uncultivated mind!

By all means, then, pay due attention to culture. By suitable discipline, clear the soil; by careful instruction, implant the seed of virtue. By skill and vigilance, prune the unprofitable and over-luxuriant branches: "direct the young idea how to shoot," the wayward passions how to move. The mature man will then become the chief ornament of the garden. Around him CHARITY will breathe her sweets, and in his branches HOPE expand her blossoms. In him the personal virtues will display their graces, and the social ones their fruit; the sentiments become generous, the carriage endearing, the life useful, and the end happy and peaceful.

TO THE PEOPLE

OF THE

UNITED STATES OF AMERICA.

FELLOW-CITIZENS :

AN application having been made to your Representatives in Congress to vote a sum equal to five cents from each individual in the United States, OR ABOUT A MILLION DOLLARS OF YOUR RESOURCES, to the promotion of an improved system of "*Terra-culture*," as described in Senate, Document No. 23, of the third session of the 25th Congress, I hereby direct your attention to a few extracts taken from the applicant's preamble; copies of which were forwarded to each member of the 26th Congress, in session, November 30, 1839, *by Russell Comstock*.

From the Poughkeepsie Eagle, of January 25, 1840.

PRESERVATION OF FRUIT TREES, PLANTS, &c. GREAT DISCOVERY.

"*To the Hon. Perry Smith, Chairman of the United States Senate Committee on Agriculture of the 25th Congress.* "With the consent and by the advice on the 23d inst., of the chairman of the United States Senate Committee on Agriculture of the 25th Congress, I forward to each member of the 26th Congress the accompanying document dated the 14th inst.; the object is *to show you some of the proof* that a discovery of vital importance to civilized man has been made, which in several letters from different members of the present and last Congress is valued at HUNDREDS OF MILLIONS OF DAYS' LABOUR, AND WORTH MORE THAN ALL THE DISCOVERIES OF THE PRESENT AGE COMBINED—THE APPLICATION OF STEAM NOT EXCEPTED.

"For what purpose would all the owners of the public lands more freely or gratefully consent to give one hundreth part of those lands, or the proceeds thereof? Would they not be grateful to those members of Congress, who assist in giving the owners of the public domain the desired information, and reverence them as benefactors of human kind.

"For the honour of the Republic, for the honour of the age, and for the interest and comfort of the living, as well as the unborn, let not that discovery which may cause two seeds to ripen where one now does, which prevents the premature death of all cultivated trees, which has been searched for in vain during the history of all civilized society, die with the discoverer for want of the action of the United States Congress."

Our patriotic discoverer "claims the following five discoveries as his, besides other discoveries which are stated in his memorial to the 25th Congress :

1st. "That various diseases, universally supposed to be destructive to plants are only symptoms that a particular error in cultivation has been committed; and that many other injurious effects have been produced by the same error, which are attributed to other causes.

2d. "That the error is UNIVERSALLY COMMITTED, to a greater or less extent, throughout the States, and that he has seen an excess of it whereever he has been, which is in the Atlantic States, from Georgia to Massachusetts, inclusive.

3d. "That the PEACH and NECTARINE are more easily injured by the error than most other Fruit trees, and the *cause* of their being more easily injured by it; and that this error causes them to be barren, or short-lived.

4th. "That the application of two known laws in nature demonstrate the reality of his discovery and its application to the whole vegetable kingdom; and that by them, his discovery, (if publicly known,) must be perpetuated, and his practice more easily introduced: and that by these two laws the occasional success of common remedies is explained.

5th. "That the said error is the obstacle which has discouraged experimenters, and lamentably retarded improvements in the science and practice of agriculture; and that he has discovered facts and made himself acquainted with knowledge sufficient to reduce them to practice."

We are farther informed, "that it is neither climate, nor soil, nor insects, nor worms, that are the cause of many of the disastrous effects that have been attributed to them, but that those effects are produced by error in cultivation, which diseases the smallest plant or largest tree."

Our modest and patriotic fellow-citizen admits, in the course of his preamble, "that the practical part of his discovery IS SO EXTREMELY SIMPLE and economical, that it costs no more to prevent the diseases than it does to produce them; and that it is so different from the established theories and habits of the people, THAT UNLESS A LARGE AMOUNT BE APPROPRIATED, many will be unwilling to try it, and therefore the PUBLIC GOOD seems to require that a large amount should be appropriated." He moreover asserts, that "there are two known laws in nature, by which the reality of his discovery, and its application to the *whole* vegetable kingdom, are demonstrable in *less* than thirty words."

That this invaluable *secret*, whatever it may be, is not strictly speaking a new discovery, is demonstrable by numerous living witnesses which have inhabited the fields of the old world for over a thousand years; and our discoverer freely admits, and in very emphatic language, that there are thousands of trees in our own country on which, what he terms "the common error" has never been committed; and also, that several of the fifteen gentlemen to whom he communicated his secret, "*confidently for ever*," have some such trees on their own domains.

Hear him—"The Senator from Missouri, (Mr. Linn,) said, that the most flourishing and healthy Peach tree in his possession had never had what I call the common error in cultivation committed upon it."

"The Senator from Pennsylvania, (Mr. McKean,) said, that he had long supposed that what I call the common error, was an error, but that he had no idea of such extensive evils arising from it."

"The Senator from Maryland, (Mr, Spence,) said, that in his district it was a universal custom to commit what I call the common error in cultivation, on the fruit trees, and that it was common to have no Plums perfect

and free from worms, excepting on a few of his, on which the error had not been committed for twenty years, if ever; and those few (four) continued to bear abundantly annually; that he had no recollection of ever seeing an imperfect wormy Plum on either of these four trees, but that he had never supposed that to have been the cause of their perfection."

The Senator from South Carolina, (Mr. Calhoun,) to whom I am indebted for pointing out one symptom of the error, and for a valuable suggestion in the culture of plants, said, "while examining the defective trees around the Capitol, that the principle when exhibited was very plain and simple, that it was philosophical, and in his opinion it could not be neglected without injury to the health and growth of trees and plants, and deserving of public patronage."

"The Vice President of the United States, (Mr. Johnson,) said, that my discovery was perfectly consistent with the laws of nature; and (when observing a few trees near the Capitol, which had been injured by the error, and were recovering,) farther remarked, that my theory was essentially correct and obvious to the most superficial observer."

"The member from New-York, (Mr. Jackson,) said, that he had reared an orchard on which he had carefully avoided an excess of what I call the common error, and that it had been admired as the most flourishing and fruitful orchard in the neighbourhood; and that he had recently seen a field of Indian corn, which yielded more than one hundred bushels of shelled grain to the acre, in which an excess of the error had been avoided, while the success was attributed to quite a different cause."

From the preceding extracts, it is evident that this *inestimable treasure* lays near the surface; and from the disclosure having been communicated to rational and intelligent minds, it is preposterous to expect that those gentleman *can*, in the pursuit of their rural avocations, act directly contrary to knowledge and sound judgment; they must, therefore necessarily and unavoidably communicate the *secret* by their example, which will eventually disseminate in proportion as mankind take an interest in the merits of the alleged discovery.

But lest the full benefits of this invaluable remedy should be withheld from the community for want of the action of the United States Congress, I have submitted an exposition *of my views* of the particular points adverted to in the preamble, which may be found under the heads, Nectarine, Peach, and Plum, pages 91, 98 and 124 of the third part of the present edition of the Young Gardener's Assistant; and I would furthermore remind my readers that the directions heretofore given in this and previous editions of the work are in strict accordance with the same doctrine; and that although the error alluded to is admitted to have been very generally committed, I am not aware that any writer has ever taught or encouraged the error, either direct or indirect; I confess, however, that I have been induced to expatiate on this *malpractice* in horticulture from the subject having elicited the grave consideration of enlightened legislators of these United States.

And lest these my voluntary disclosures should prove to have no bearing on the alleged discovery, I would prepare the public mind for its reception by an exhortation to TEMPERANCE AND MODERATION, as the *only safe course* that can be considered applicable to the cultivation *of all the varied* species of plants, which comprise "the whole vegetable kingdom." In

articles page 26 of the first part, and pages 16, 28 and 97 of the second part, I have shown that the various species of plants which occupy our greenhouses, gardens, and fields, *require each their peculiar aliment*—they having been collected from all the diversified regions, climates, and soils through earth's remotest bounds; they consequently comprise natives of mountains and rocks, as well as of plains, valleys, and water courses. The most essential aliment for natives of warm climates and dry soils being HEAT, artificial means are used in cool seasons, and unpropitious climates to produce it. Natives of temperate climates require salubrious AIR, hence they are cultivated to the greatest perfection in our Northern States in spring and autumn; and in our Southern States in the winter; see page 147 of the first part; and natives of humid climates, as also amphibious plants in general, require a more than ordinary share of MOISTURE, and grow best in wet soil; but these THREE ELEMENTS collectively constitute the food of plants in general, and should be judiciously imparted to the various species, in due proportions, according to circumstances. See pages 49, 64 and 67 of the first part, for a more concise view of this subject. I have also shown that the roots of various species of plants require each their peculiar aliment, which is not to be found in all descriptions of land; this is demonstrated by roots of trees being frequently discovered spreading beyond their ordinary bounds in quest of salutary food.

Although it has been admitted that excessive deep planting of trees and plants is injurious, and in many cases fatal to their very existence, it does not follow that *all* annuals and biennials are injured by the same means; on the contrary, the earthing up of particular species of plants in a late stage of growth is calculated to promote early maturity, which constitutes the most essential art in gardening for the market; because the earliest crops are always the most profitable. It is moreover a necessary practice in climates where the seasons for gardening are short—as without such practice, many kinds of vegetables could not possibly be matured in due season for gathering before winter.

I would here take the opportunity of proving this last position, by reminding the reader that the effects of deep planting, the Peach tree for instance, is discoverable soon after the error is committed, by its fruit ripening prematurely, and this is often the case for a year or two prior to its final decease, and should operate as a salutary lesson against planting *perennial* plants and trees too deep.

In conclusion of this article, which is intended as an appendage to my works on gardening, I would urge gardeners and cultivators to consult the operations of nature in all their rural pursuits; and with a view to aid them, I subjoin the following rules, which are farther illustrated under the different heads:

1. In transplantiug fruit trees, let the collar, or that part from which emanate the main roots, be near the surface. A medium sized tree may be planted an inch deeper than it was in the nursery bed; and the largest should not exceed two or three inches. See pages 93, 101 and 125 of the third part of the present edition of the Young Gardener's Assistant.

2. In the cultivation of such plants as are transplanted, or grown in hills or clusters, as Indian Corn, &c., keep the earth loose but level around them in their early stages of growth, by frequent hoeing, ploughing, or culti-

vating; and to promote early maturity, throw a moderate portion of earth about the roots and stems at the last or final dressing.

3. In the sowing of seed, remember that IN UNITY THERE IS STRENGTH, and that from the germinative parts of a seed being weak and diminutive, it cannot be expected to perforate through the soil, solitary and alone. To insure a fair chance plant your seed moderately thick, and thin out the surplus plants while young. In planting seed in drills, which is the most eligible plan, the size of the seed and strength of its germ should be considered; large seed, producing vigorous roots, require deeper planting than diminutive seed, producing delicate roots and slender stalks.

4. In the choice of compost for exotic or greenhouse plants, imitate the native soil of each peculiar species as nearly as possible, by a judicious mixture of *maiden earth*, loam, sand, leaf, swamp, and rock mould, decomposed manures, and such other composts as are recommended under the different heads. Remember, that although strong manure is essential to the growth of some plants, it is poisonous to others. PURSUE, THEN, A MEDIUM COURSE. From your soil not being too stiff or too light, too rich or too poor, too cool or too warm, too close or too porous, if not positively salutary and congenial to all, it must render the situation of each endurable. I again repeat, that temperance in the use of aliment, is as essential to the welfare of the vegetable family as it is to the health, happiness, and longevity of mankind.

T. BRIDGEMAN.

New-York, March 4, 1840.

☞ Since this address has been in press, I have seen another article in the *Poughkeepsie Eagle*, dated February 29, 1840, wherein *our modest and patriotic discoverer* gratuitously pronounces *his knowledge* as superior to that of "*all Botanical and Agricultural known writers!*" As I have anticipated the merits of this second *valuable* discovery in my books, I have nothing more to say than to remind the reader that this uncalled for attack on the brethren of my fraternity, fully justifies not merely the publication, but the most general circulation of these my voluntary disclosures.

RETROSPECTIVE VIEW.

THIS summary view of estimates is annexed, in order to aid the Seedsman and Gardener in making out a bill of seed for the purpose of planting any given quantity of ground, under the regulations suggested in the Vegetable Department of the Young Gardener's Assistant, to which the reader is referred for a more concise view of the subject.

QUANTITY OF GRASS SEED SUITABLE TO THE ACRE.

Clover, sown alone,	12 pounds.	Orchard Grass,	2 bushels.
Timothy,	1 peck.	Rye Grass,	2 bushels.
Herds Grass,	1 bushel.	Lucerne,	8 pounds.

For a pasture for grazing, the following mixtures of seed would be found excellent, viz: 6 pounds of clover seed, 1 peck of herds grass, and half a bushel of Orchard grass seed—or 6 pounds clover, half a bushel of rye grass, and half a bushel of tall meadow oat seed.

COMMENDATORY NOTICES.

"The first edition of "The Young Gardener's Assistant" has been favourably noticed in France :—"One of the leading articles of the *Annales de l'Institute Royal Horticole de Fromont*, is a long notice of "The Young Gardener's Assistant," by Mr. Thomas Bridgeman, of this city. The editor, Le Chevalier Soulange Bodin, speaks of the little work in very commendable terms."—*New York Farmer.*

Extract of a review of this work in the Magazine of Horticulture, Botany, &c., published by Hovey & Co., Boston :

"The work is written in plain language, easily to be understood by the young beginner in gardening, who will find it a great help ; and its value, even to the experienced person, is by no means of an ordinary character. IT IS ADAPTED TO OUR CLIMATE, and unlike compilations from English works, the novice is not led into disappointment by following the rules there laid down, as he generally is, when following the advice of the latter. We repeat, that as far as the book pretends, IT IS WORTH ALL OTHERS OF A SIMILAR CHARACTER THAT HAVE EVER BEEN PUBLISHED IN THIS COUNTRY ; and its cheapness should place it in the hands of all new beginners."

"No work ever published has been so studiously written to give plain useful information. By being arranged in the form of a catalogue, you can turn in a moment to any name you desire, where the time of sowing, depth, soil, after treatment, &c. &c., is clearly defined. The Calendarial Index, giving a summary of work for every month, is itself worth the whole price of the book, and must have cost the author much research and laborious thought. Mr. Bridgeman is not a theorist, but is in the daily practice of what he writes, and of course well qualified to direct all beginners in the profitable and delightful employment of cultivating a garden, 'a profession and an employment for which no man is too high or too low.' "—*Genessee Farmer.*

"It will, we are persuaded, be found, what the writer intends it shall be, 'generally useful to such as may wish to superintend, or take the management of their own gardens.' Mr. Bridgeman is a gardener himself, in the Bowery road, and his directions are therefore applicable to our climate—an advantage of no little moment."—*American.*

"Among the plants for the cultivation of which 'The Young Gardener's Assistant' contains directions, are a number of culinary vegetables not generally introduced in the United States. The introduction and successful cultivation of useful foreign vegetables add to the resources of our country. We recently saw, for instance, in Mr. Bridgeman's garden, several varieties of Broad Beans, *Vicia faba*, in a most vigorous and thrifty growth. They occupied a clayey spot of ground that was not suitable so early in the season for any other vegetable. They put forth a beautiful blossom, and would serve as an ornament for the flower garden."—*New York Farmer.*

"BRIDGEMAN'S GARDENER'S ASSISTANT.—The fourth edition of this useful little manual is published, and is rendered of increased value by the addition of several matters not contained in either of the former editions. Among these is a short and convenient calendar to assist the gardener's memory."—*Evening Post.*

"No work on the subject of Kitchen Gardening ever published in this country has met with so very general approbation and extensive sale. Mr. Bridgeman is well known as one of our best gardeners, and writes from his own experience."—*Daily Express.*

"That work which teaches us how to create and to improve this most innocent and useful source of pleasure, is surely worthy of applause and patronage; and such we consider 'The Young Gardener's Assistant.'"—*Morning Herald.*

"The work is calculated to be of immense service to those engaged in Agriculture, 'far from the busy haunts of men,' and to the disciples of Flora, in the city. Mr. Bridgeman is a practical gardener and seedsman, and has lived many years on both sides of the Atlantic."—*Old Countryman.*

"From what we gather from the tenor of Mr. Bridgeman's book, we should suppose that he paid but little attention to the mere *on dits* or *dictums* of any, but that he pursued that course which his judgment pointed out; and in this particular, we value his book—leading the young gardener to depend more on his own judgment than on the rules of custom." *American Farmer.*

"All those who are desirous of a work on the subject of Gardening, and one which will convey the best information on the management of Hotbeds, Asparagus beds, best mode of raising all sorts of Esculent Vegetables, Pruning, Grafting and Budding Fruit Trees, Training the Vine, Preserving the Fruit from Mildew, &c., should procure this. No work on the subject ever published in this country has met with half as extensive a sale, or decided public approbation, as this valuable compendium. Mr. Bridgeman fully understands the subject on which he treats. The very rapid sale of the eight former editions is quite a sufficient recommendation."—*G. C. Thorburn, in the Evening Star.*

"We can assure gardeners and farmers that they will in times and ways almost without number, be amply compensated by purchasing the book. Mr. Bridgeman bestows great labour on his productions of the pen, not only as to practical matter of fact, but to the various excellences of style particularly to clearness, and the avoiding a redundancy of words. The amount of useful information in the book constitutes its value; and all this information is adapted to this country, and its climate and its soil."—*American Gardener's Magazine.*

"From the cursory examination we have been enabled to give 'The Young Gardener's Assistant,' we should judge that it embraces a greater amount of practical information, applicable to our climate, than can be found in any similar work. The list of fruit trees has been selected from the best authorities, both foreign and American, and is sufficiently extensive for any cultivator in this country."—*Newark Daily Advertiser*

"The author is an experienced practical gardener and seedsman, and his book is an excellent manual and guide for the *beginner*, whether old or young, in horticultural pursuits."—*Gazette.*

"From the systematic arrangement of the parts, under appropriate heads, and the plain and practical nature of the instructions, it must be an invaluable manual for those who may wish to superintend the management of their own gardens.—*Albany Argus.*

Extract of a letter from Alex'r Walsh, Esq., Lansinburg:

Dear Sir:—You will see by the next month's New-York Farmer, if you have not already seen by the Albany papers, that several copies of the Young Gardener's Assistant have been given as premiums, by the State Agricultural Society. Mr. D. B. Slingerland and myself were on the committee for awarding premiums, and thought your work was deserving encouragement; and that even in this small way we might be of service in bringing it before the public as worthy of being given as premiums."*

"Written with a good deal of practical knowledge of the subject on which it treats. The directions given, the author says, are the result of twenty years' experience, and we dare to say, that though submitted in an unpretending form, they will be found as useful, if not more so, than those in more costly and expensive works."—*Courier & Enquirer.*

"We have undoubted authority for pronouncing this work as worth all others of a similar character that have ever been published in this country, from its adaptation to all the climates in the United States."—*N. Y. Sun.*

"That this is a useful work is evident from the number of editions through which it has passed. There is scarcely any employment in life more pleasing than the cultivation of a Garden with Fruits and Flowers. Those who have the opportunity to indulge themselves in this gratification, we have no doubt will derive much assistance from this publication."—*N. Y. Tribune.*

"Every one that cultivates a garden should possess the work, as it is a complete dictionary for young beginners in the delightful field of Horticulture."—*Working Man's Advocate.*

"No work on the subject ever published in this country has met with half as extensive a sale or decided approbation, as this valuable compendium. Mr. Bridgeman fully understands, from *practical experience*, the subject on which he treats. The Calendarial Index arranges the work for every month, and refers to the various parts of the book how to proceed. This of itself is worth the price of the whole work, and cost the author immense labour. The rapid sale of the former editions, together with the commendation of every Agricultural and Horticultural Journal in America, and several in England, is quite sufficient recommendation. The present edition both explains and fully makes known what was thought to be a great discovery (as great as steam) on the preservation of Fruit Trees, Plants, &c., and which, to make known to the people of these United States, an application was made to the 25th Congress to vote the supposed

* The American Institute has also awarded several copies of this work as premiums for superior specimens of garden products.

author of the discovery a sum equal to five cents from each individual in the United States—or about a million of dollars. Mr. Bridgeman has clearly proved this discovery from his long observation of the course of nature and treatment of Trees and Plants, and which only occupies some four or five pages of the work."—*N. Y. Commercial, by G. C. Thorburn.*

"The Florist's Guide.—A delightful little book, which we advise every body to purchase—at least every body that has the least liking for the pleasing occupation on which it treats."—*Courier & Enquirer.*

"The Florist's Guide," like its companion, "The Young Gardener's Assistant," is a useful work, which every Gardener and Florist may consult to advantage. It gives minute directions concerning plants of various species; the names and characters of each being alphabetically arranged, makes it an invaluable manual for those who may wish to superintend the management of their own gardens."—*Newark Daily Advertiser.*

"This is one of the best works on the subject ever published in any country: it contains Practical Directions for the Cultivation of Annual, Biennial, and Perennial Flowering Plants, of different classes, Herbaceous and Shrubby, Bulbous, Fibrous, and Tuberous-rooted, including the Double Dahlia, Greenhouse Plants in Rooms, &c. &c.

"A work of the above kind has been long wanted; hitherto, it required an expenditure of some three or four dollars to get any kind of readable directions for small gardens, window gardening, plants in rooms, &c., which, when procured, were so full of botanical foppery, that plain, honest people, after wading through some three or four hundred pages, were as wise as to knowing how to set about their gardening, as when they commenced their book. The present little work obviates all these difficulties. The author is well known as one of our practical gardeners, and it may be truly said he has rendered the ladies in particular (for whom the work was projected) an essential service; the directions for the care of the Camellia Japonica, the Double Dahlia, the sowing and treatment of Annual Flower Seed, &c., are alone worth double the price of the book; so is the Calendarial Index, which, by the untiring industry of Mr. Bridgeman, is made to include in some half dozen pages, more valuable information than is to be found in some ponderous octavos on the same subject."—*G. C. Thorburn, from the N. Y. Commercial.*

"The style is free, and the language appropriate; the plan is judicious, and the contents embrace much well arranged practical information, unencumbered with disquisitions foreign to the object of the work. We very cheerfully recommend it to our readers as a cheap and useful book." *Gardener's Magazine.*

The Florist's Guide has also been very favourably noticed by the editors of many other very respectable periodicals, as a work eminently calculated to promote a love for the cultivation and correct management of flowers—the study of which, remarks one of these writers, "refines the taste, and imparts just and ennobling views of the wise provisions of nature."

LINES

SUGGESTED BY THE AWARD OF A GOLD MEDAL TO THE AUTHOR OF 'THE YOUNG GARDENER'S ASSISTANT,' AT THE FOURTEENTH ANNUAL FAIR OF THE AMERICAN INSTITUTE, 1841, FOR ITS GREAT PRACTICAL UTILITY.

BY D. MITCHELL.

As VALOR's meed, and Honor's brightest test,
I've seen a MEDAL on a Warrior's breast;
But to my mind it brought sad scenes to view—
The sweeping carnage of red *Waterloo*—
The orphan's tear—the widow's drooping head,
For slaughter'd heroes on false glory's bed—
The earth made desolate, its fruits despoil'd,
By mad Ambition, fearless and unfoil'd!
Not so the *Token* thou hast gained from Peace,
Thou lov'st to see fair Nature's wide increase,
And the "Young Gard'ner," in thy fertile book,
Finds an "Assistant" not to be mistook!
Thine is the pleasing art to cultivate,
Fill Plenty's horn, and better man's estate;
Thine is the wish the Cotter's life to mend,
And teach him that a garden is his friend:
That Virtue smiles—sheds blessings on his head,
And makes him happy in his humble shed,
Who tends his "little patch" in well spent hours,
Amid his kitchen treasures and his flowers;
That Vice ne'er mars a lovely scene like this—
The consummation of the poor man's bliss!
Health, my firm friend, long life and health to thee,
Health to the scions from the parent tree;
Well may thy trophy be a source of pride,
May they preserve it, whatsoe'r betide:
'Tis a memento for imparting good,
More nobly won than that for shedding blood!