HARDY PERENNIALS

A. J. MACSELF

THE HOME GARDEN BOOKS

HARDY PERENNIALS

TERRACE-BORDER AND WALLS EFFECTIVELY PLANTED
WITH HARDY PERENNIALS

HARDY PERENNIALS

BY

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CONTENTS

LIST OF ILLUSTRATIONS

DRAWINGS IN COLOUR

LINE DRAWINGS

DEDICATED

TO

WHOMSOEVER LOVES A GARDEN AND
DESIRES TO GROW BEAUTIFUL FLOWERS

HARDY PERENNIALS

INTRODUCTORY

OUR subject is no new one, and indeed, the books of both scientific and popular character that have been published to meet the demand for information on Hardy plants are so plentiful that some may ask if there is need or room for more.

We have studied this question, and have decided that there is both room and need for a comprehensive book, that shall deal with the whole extensive and varied range of plants that are embraced by the term 'Hardy Perennials,' describing their characteristics, purposes, and treatment, in such a manner that those who do not know may learn, whilst at the same time the more advanced and experienced plantsman may read without boredom but with enjoyment and profit.

The task we have thus self-imposed is admittedly not easy, but of material with which to deal there is no lack, for the introduction and production of new species, garden varieties and hybrids among the many genera to be dealt with has proceeded of late years at a rapid pace, whilst in regard to cultural

matters there are many points we call to mind as having been anxious to learn in our novitiate days, and which it seems authors frequently presume their readers already know, and therefore do not dwell upon in clear plain words of instruction.

The advanced student who honours this work with his attention, and finds that which he deems too simple and elementary, will, we trust, bear patiently with us, remembering our desire to guide the first steps of the newest recruit to the ranks of gardeners, whilst should there be among the latter those who find difficulty among the inevitable technicalities, botanical names, and problems that must find a place in a book of this character, let us assure him that patience and perseverance will in due time suffice to enable him to secure a firmer grasp and clearer insight, and to achieve success that will abundantly repay him for the study and effort involved.

The subject throughout will be treated from the general, practical gardening standpoint, rather than from the Scientific or Botanical point of view ; thus, whilst we in the main interpret our title as applying to hardy herbaceous plants, we shall not exclude a desirable and serviceable subject for the flower border simply because its stems do not die down annually in the manner that characterizes true herbaceous perennials and distinguishes them from shrubby or sub-shrubby plants on the one hand and from biennials on the other.

There will also be found references to Wall and Water gardens, stone-paved pathways in the interstices of which plants which are usually spoken of as Alpines may be quite appropriately used.

In a word, our concern is not to be precise and invulnerable to the attacks of sticklers for accuracy of classification who will argue as to whether a plant should be admitted to a list of Herbaceous, Alpine or Shrubby plants, but to provide a work that will assist all who love gardening to attain the greatest possible pleasure and success in its pursuit.

PART I

CONCERNING THE PREPARATORY AND CULTURAL DETAILS OF HARDY FLOWER GARDENING

CHAPTER I

THE HARDY FLOWER GARDEN

THE usual custom is to commence a book with directions for the planning and construction of a garden for the accommodation of the plants one is advised to grow.

The ideal site is described, the soil of which we are told should be a deep rich loam of medium texture. The method of making good paths is dealt with, and the provision of suitable boundary fences, shelters from winds, etc., recommended.

This is all sound and good, provided one has ample means at one's disposal to carry out these recommendations, and is in the happy position of being at liberty to choose to live just where soil and natural environment happen to be in complete accordance with the requirements of the perfect Eden or the ideal garden. But what percentage of us can conform to these conditions in order to possess the garden of our ideals? Is it not far more generally the case that force of circumstances places us in possession of a garden already made, and which with all its faults and shortcomings we have to make the best of, and be content with?

Then let us view the matter from another standpoint, and see what can be done in the way of selecting plants that will revel in, or at the least accommodate themselves to the conditions that prevail.

The range of Hardy Perennials is so wide, and their likes and dislikes are so varied, that scarcely a garden exists that cannot be made the comfortable home of some of them, the great thing being to select the right plants for the site and soil, rather than to be for ever striving to convert the site and soil into an entirely artificial home for some exacting subjects.

Fortunate, of course, is he who possesses a garden of deep rich loam, providing sunny borders, shady nooks, well-drained slopes and moist hollows; with shelter from rough winds but suffering no disadvantage from overhanging and ravenous-rooted trees. In such a place the whole glorious wealth of hardy perennials may be planted at will, to provide a delightful ever-changing picture throughout all seasons.

In the making and furnishing of such a garden one may find full scope for artistic and æsthetic taste. The arrangement of colour schemes, Spring garden, evening garden, the garden of fragrance, and of course the Rock and Water gardens will be within the range of possibilities such as every garden lover yearns for; but were a book written solely for those who are thus favourably placed, its utility

to the majority would be extremely small, and instead of affording encouragement and guidance to the owner of a confined town garden, a wind-swept slope of hungry gravelly soil, a patch of cold stiff clay, or of shallow earth over chalk, it would but disappoint, discourage and foster the idea that all effort to make such places into gardens would be vain and futile.

Let us bear in mind that however favoured and well appointed a garden may be, there will be some plants that refuse to thrive, baffling sometimes even the utmost care of expert cultivators. On the other hand, let us look around at our own Native Flora, and we shall find that even in the bleakest of places, in the hungriest of soils, even to the refuse heaps surrounding the mines and works of the unlovely Black Country there are some plants that survive and even thrive, although left to battle for themselves amidst hardships and privations.

From this we may gather that the great essential is to select plants according to environment, and whilst we rejoice that very many of our hardy perennials are capable of adapting themselves to local conditions, and may be said to thrive in any garden with ordinary care, we shall do well to keep foremost in our minds the thought of a judicious choice of plants according to their natural preferences.

It does not follow that because this is the policy we advocate we wish to disparage every effort to

make suitable provision for some particular plant one desires to grow.

It is in some instances a part of ordinary practical gardening to lighten a heavy soil, to make it more porous by the aid of lime rubble, grit, or burnt earth; or to make a dry patch more retentive of moisture by the addition of peat, or other material that shall act as a sponge.

To correct sourness and acidity by the use of lime or charcoal is simply to practise sound cultural methods, but elaborate and expensive excavations of natural soil for the purpose of making special beds for particular plants is in the main extravagance that is seldom justified by the results obtained, especially when compared with the outcome of the alternative plan of choosing one's plants to suit prevailing conditions.

Perhaps the greatest aid to a judicious selection of suitable plants is to study the natural flora of the surrounding countryside, and one has only to commence the study of our British Wildflowers to discover a fascinating and increasingly enjoyable pursuit. It is a surprising fact that very many gardeners and garden lovers have a very inadequate knowledge of the numbers of good plants grown in our gardens which are really British Wildflowers, whilst the garden varieties and selected forms are very many of them closely related to wild types and species that we are disposed to consider mere useless weeds.

The townsman is certainly at a disadvantage as regards his opportunities for studying the natural flora of his neighbourhood. The builder and the road-maker have eradicated the Wildflowers, and the dweller amidst paved streets and brick buildings may be unaware that a few years ago Centranthus ruber might have been gathered on the chalk banks, Verbascum blattaria in the meadows, and the rosy coloured Achillea millefolia on the slopes of neighbouring fields. But even in towns there are often places where one gets a glimpse of some native plant that would be worth including in our garden collection, and at any rate would serve as a guide to the subjects that will best thrive with us.

At the very least, the townsman can read of our native plants and learn of the situations, soils and particular conditions in which they grow, and such study will help him much in the choice of plants for his own garden.

CHAPTER II

THE PRACTICAL MANAGEMENT AND IMPROVEMENT OF SOILS

LET it not for a moment be supposed that we ignore or belittle the importance of sensible endeavours to make the soil of any garden as good as it can be made. Nothing we have written is intended to convey the impression that the garden maker should just take things as he finds them and make no effort to increase the fertility of his soil. On the contrary no satisfaction or success may be expected unless intelligent and thoughtful labour is put into the cultivation of the soil.

We will not waste our space over scientific jargon as to the chemical and organic constituents of various kinds of soil. To skim the surface of such a subject is worse than useless. To deal thoroughly and in detail with the science of soils, their origin, composition, and peculiarities requires a volume. Our present purpose is to make a few plain practical remarks that may help the reader to correct defects in the soil available, thus improving the possibilities of successful gardening.

The two extremes in garden soils are harsh, stony

FRITILLARIA IMPERIALIS LUTEA
(Crown Imperial)

gravel and a stiff heavy clay. Neither of these soils can in their natural condition yield satisfactory results, but both are capable of being transformed into fertile gardens. Stones, gravel, and sand, which is stone in minute particles, possess no nourishment upon which plants can thrive. Moreover, they have no power of absorbing moisture, and consequently plants growing in such a soil will suffer badly during even short periods of drought. The obvious necessity is to incorporate into the soil something of an absorbent nature, and something that will yield readily soluble plant food.

Decayed vegetable matter, which we call humus, is the material which will supply this need. The best treatment of stony and sandy soil is therefore to bury liberal quantities of leaves, weeds, decayed garden refuse, and manure. Cow manure is better than horse manure because it is more retentive of moisture, and helps to keep the soil cool.

The largest stones may with advantage be removed, but it is not invariably wise to take the smaller stones from the soil. The finer gravel tends to bind too closely if no stones are left to keep it open, and close binding means exclusion of air which is essential to the healthy growth of plants. Another point is that although stones help to drain the soil of moisture they also check evaporation, in proof of which assertion we may point out that the soil immediately under a stone is always moist even when the surrounding soil is parched.

Green Manuring

is very beneficial to sandy and stony soils. Green manuring is accomplished by sowing a plot of ground with white mustard, rape, or some other quick-growing crop that makes plenty of leaf, and digging the whole in when growth has well advanced. If an ounce each of Kainit and superphosphate per square yard are sown and raked in with the seed growth will be very rapid, and as the green crop grows plant food is absorbed by the leaves from the atmosphere and by the roots from the soil, all of which will be eventually buried in the soil to become available to the next occupants of the ground.

A frequent mistake when adding humus to a hungry soil is to destroy it again by the application of quicklime, which burns up the humus since it cannot burn the stones and sand. If lime is needed on such soils, and it very probably will be, it should be provided in the form of chalk which does not burn. Stiff clay is unfertile because its particles adhere so closely together that air is excluded. The exclusion of air renders the natural salts that may be present in the soil insoluble, and therefore although chemicals required by plants may be present in abundance they are locked up and useless. Clay also holds water to such an extent that it is too cold for the roots of many plants.

If clay soil is roughly dug and left in clods in

autumn the air and frosts of winter will mellow and pulverize the solid masses so that in spring they will crumble down to a fine tilth. Quicklime, applied at the rate of a quarter hundredweight to the square rod, will break down stubborn clay, correct its acidity and liberate much of the chemical nourishment hitherto locked up in the soil.

Coarse sand, ground mortar rubble, wood ashes, burnt earth, oyster-shell grit, and even a limited quantity of coal ashes will benefit clay soil by making it more porous and lighter in texture. A supply of humus will again be necessary, and a few weeks after liming vegetable refuse, spent brewers' hops or stable manure should be dug in and well buried.

The ideal soil for a new garden is the fibrous turfy loam of an old pasture, the only real trouble where such has been freshly broken up being that wireworm will in all probability abound. Birds will account for many of these if the ground is roughly dug and left fallow for a while. Other measures for dealing with these destructive pests are dealt with in the chapter on the ills and ailments of hardy plants.

There is a vast difference between a broken-up pasture and the undersoil from which the surface turf has been removed. The turf itself, full of fibrous roots, rich in humus and nourishment, is often removed for sale, but it must be remembered that the soil underneath has lain undisturbed perhaps for many years, shut off from the influence

of sun and air and the sweetening effects of winter's frosts. It is therefore poor, inert, lifeless, and sour, and requires a thorough course of treatment to fit it for the growing of hardy plants.

The first step should be to throw up the soil roughly in ridges, to expose the greatest possible surface to the atmosphere. It is most probable the soil will be deficient in lime, in which case a dressing of either quicklime or slaked lime should be applied at the time of ridging.

After a few weeks' exposure the ground should be forked over, and if this takes place at any time previous to the end of September the whole surface may immediately be sown broadcast with seeds of some quick-growing crop for green manuring.

In regard to the liming it may be advisable to remark that although necessary to correct acidity and perform certain other functions in the soil, lime cannot enrich a starved and poor soil, indeed it would tend to still further impoverish it, and it will be necessary soon after the ground is covered with the green crop to dig in that crop together with something in the way of animal manure. All this preparatory work may be done during the winter, and thus the ground will be well prepared for spring planting.

Sour and Manure-sick Soil

There is still another kind of soil that calls for careful treatment, viz. that of an old garden that

has been cultivated and manured for so many years that it has become a blackened mass overcharged with humus, and probably also teems with ground insects and fungoid diseases. No soil, as we have already said, can without humus grow plants satisfactorily, but when humus is continually added to the soil year after year the inevitable result will be that the soil becomes sour. Here we find perhaps the greatest of all the useful functions of lime, for a good dressing of quicklime will sweeten a sour soil, burn up the excess of vegetable matter, and by combining with acids which in themselves are harmful to plant life will render them harmless and even convert a portion of the acids into useful plant food. If the soil of an old garden was originally heavy the excess of humus is likely to make it sluggish and stagnant, whereas a light soil overcharged with humus will always be spongy and lack the degree of firmness necessary to promote sturdy and vigorous growth. The incorporation of sand, burnt earth, wood ashes, etc., in the former case will be more beneficial than the further application of manure, at any rate for a year or two.

In the case of the light spongy soil it is well if possible to work in some clay, which, however, should be spread over the surface for two or three months to become 'weathered' before digging in.

There are one or two further points that must be touched upon in connexion with soil treatment, one of the most important being that no digging

should proceed when the ground is excessively wet. This applies to all soils but more especially to those that are heavy and close in texture. Never dig in the frosted crust of soil, and certainly snow must never be buried. If a garden is on water-logged ground something must be done to improve drainage. The laying of an elaborate system of pipe drains will not be dealt with here, its costliness preventing the average flower gardener adopting it; but even extremely wet gardens may generally be vastly improved by excavating a deep pit, or cutting a ditch at the lowest end and running a rough drain toward it by burying a seam of brick rubble and stones two or three feet below the surface.

CHAPTER III

PLANNING AND PREPARATION OF THE HARDY FLOWER GARDEN

THE reader who happens to secure a new garden, or takes over one that has been so long neglected as to necessitate practically re-making, has the opportunity to make the best possible start, the only limitations to his opportunities being environment and the character of the soil.

It is not proposed in this book to furnish numerous plans showing the arrangement of beds, borders, paths, etc., for with even a lengthy series of such diagrams it would still be necessary to urge that the proper modelling of the garden must be a matter of individual effort, wherein personal taste and desire must compromise with unalterable circumstance. It is, however, quite proper, and let us hope will be useful to indicate certain matters in connexion with the arrangement of the garden, and to suggest the observance of certain principles, and the adoption of certain methods that are calculated to ensure the happiness and success of the plants to be grown.

For the most part, hardy perennials love the

unrestricted sunlight and open air, though some delight in cool, moist shady nooks, and many will thrive where only a moderate amount of either morning or afternoon sun reaches them. It is obviously unwise to deliberately shut out air and sunshine by surrounding a garden with coarse-growing evergreen shrubs. The favourite plan of the average jobbing gardener who undertakes to lay out a new garden is to surround it on all sides with Privet hedges, and plant clumps of common Laurel, Aucuba japonica, common Thuya or Cupressus, to 'afford shelter,' as they say. It is sadly uneducated taste that finds enjoyment in the daily contemplation of these dull features of the usual run of suburban gardens, and it should be remembered that every yard of space occupied by these hungry, moisture-absorbing and air-excluding shrubs spoils two or three adjoining yards for the proper growth of choicer flowering plants. A wind-swept site will certainly be improved by the provision of wind-breaks, but a neat wooden fence, which can be covered with interesting climbing plants, will afford better shelter and occupy less space than any of these common shrubs. It is, of course, quite permissible to plant a few trees, but at any rate where space is limited, it is far better from every point of view to plant deciduous flowering trees, such as Almonds, double Cherries, the finer Crab Apples, the purple-leaved Prunus pissardii, golden-flowered Laburnum or double May, than to overwhelm the

place with such trees as are only befitting in copses or broad woodland areas. In cases that really demand a continuous hedge or screen, Tamarix, Escallonia, Laurustinus, or the beautiful and fragrant Penzance Briers, which will make a grand hedge if given the support of a few posts and wires, are quite capable of fulfilling the requirements of a hedge, and will delight us with gay blossoms instead of the eternal and monotonous green of Privet and Laurel.

The Small Town Garden

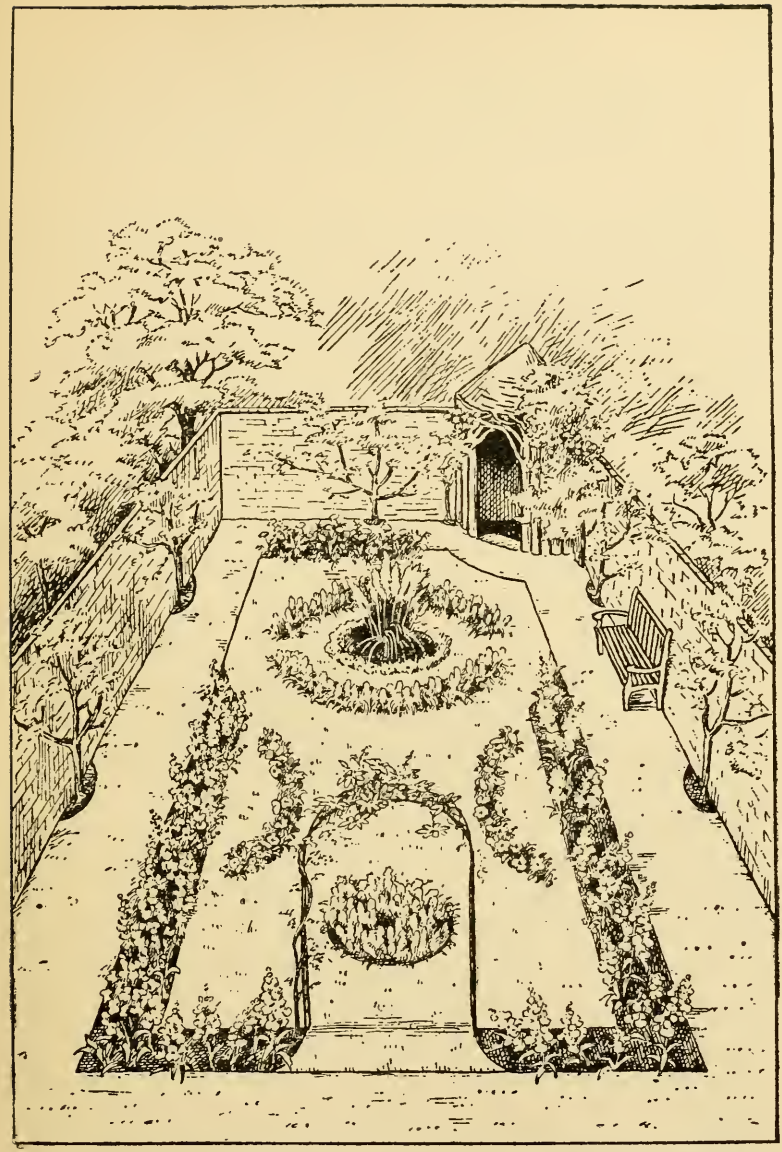
Where the garden is the orthodox oblong of limited area hemmed in by a wall or wooden fence, some thought should be given to the arrangement of paths in relation to the situation of borders and beds. The common error is to make a narrow border at the foot of each fence with a pathway to separate the border from the central bed. By this arrangement we get borders in which half the soil misses the benefit of rain and gets a minimum of light and air; whereas the paths where nothing grows get the full benefit of both. It must be agreed that it would be very much better to utilize the space where sunlight and air are at the minimum for pathways, thus leaving the more open area at the disposal of beds. Objection may be raised to this plan on the ground that by running the borders up to the fences the bareness and ugliness of the latter may be hidden by tall-growing plants. This, however, can be rectified by nourishing the ground before the

paths are made and then planting climbers close to the fence, for their roots will ramify under the pathway.

With a broad unbroken sweep covering all the central part of the garden, one may give play to personal taste in regard to arrangement. A good deal may be said in favour of marking out a number of small beds, the spaces between them being converted into grass paths. It is then possible to utilize each bed for a different class of plant, thus ensuring that one or other will be in full display at any particular period. Another plan is simply to make a series of groups of plants with irregular paving or stepping-stones rambling between them to facilitate easy access to any spot. These are, to our mind, better methods than the ordinary herbaceous border idea, although we hasten to remark this is solely a matter of taste.

Beds of Hardy Perennials

It has been so persistently reiterated for many years that the herbaceous border is always gay, that it is almost counted heresy to remark that the statement may be slightly inaccurate, but ardently as one may love hardy perennials, it must be admitted that with the average mixed border only parts are gay at any one time, and there are apt to be bare or untidy patches where some late blooming plant has not developed or an early flowering subject has finished its season's display, and it is this gappiness



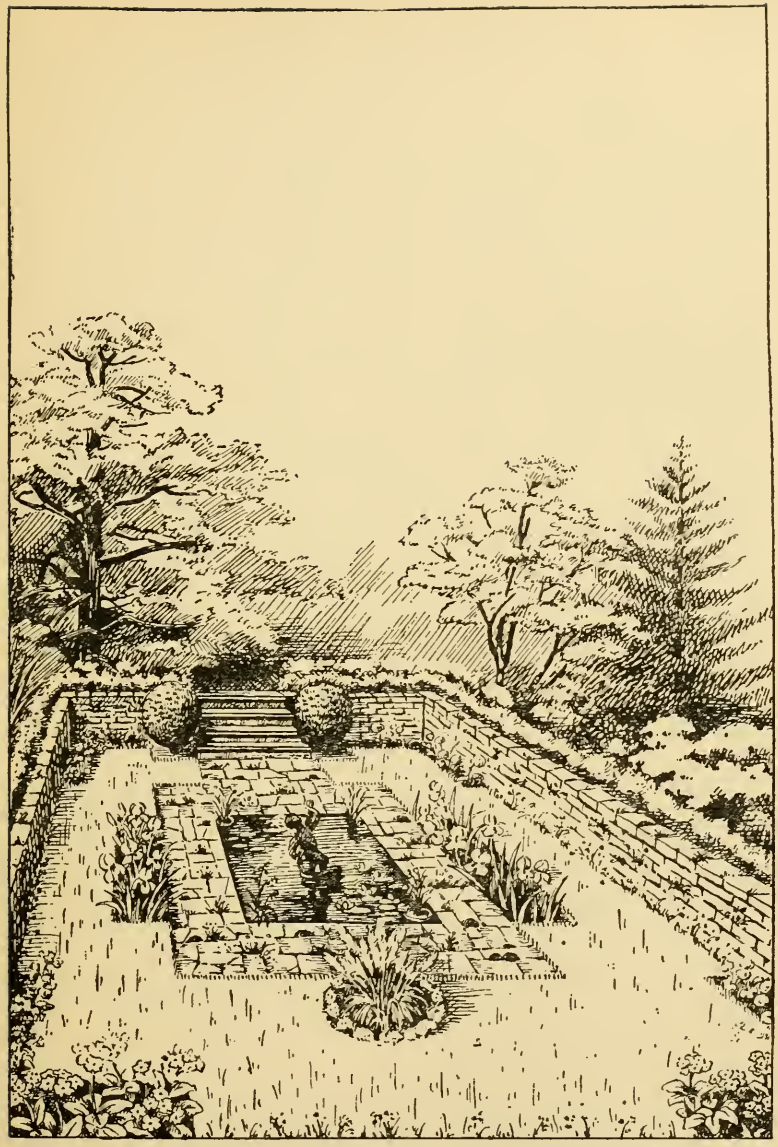
A Small Oblong Garden with Beds of Hardy Flowers on Grass

that sometimes makes the herbaceous border contrast very unfavourably with the summer bedding which it has so long been urged it should entirely replace.

There are few but not many herbaceous plants capable of maintaining a continuous display of brightness and colour for the greater part of summer, but even against these a bed of geraniums may often score in regard to mere display of colour.

The possibilities of hardy perennials are by no means confined to massing in mixed borders, and before one proceeds to lay out a new garden it is worth while considering whether some other method shall be adopted.

Suppose the whole area is covered with grass in which a series of beds can be cut. Each of these beds could be edged with a different kind of dwarf plant, the selection of suitable subjects for this purpose being well-nigh unlimited. We may have fragrant Thymes with golden or variegated foliage, dainty grasses such as Dactylis glomerata elegantissima, golden-flowered Alyssum or rosy Saponaria ocymoides, dwarf Campanulas with blue or white flowers like dangling thimbles, purple- or white-edged Ajugas, Tom Thumb Antirrhinums with brilliant-hued flowers, Violas, and hosts of other diminutive plants which will give character and distinction to the beds, whether in or out of bloom, and serve as a setting for the main occupants of the beds.



A Small Wall and Water Garden with Beds of Irises, Primulas, etc.

For the more prominently placed beds tall erect-growing subjects might be thinly planted over the surface of the bed, allowing space for some carpeting plant to cover the whole area inside the edging.

If each of the subjects chosen for a bed flowers at a different season, the bed will be attractive over the whole season from Spring to Autumn, and with a varied series of such beds one will have a garden of ever-changing beauty and interest.

Corners of the grass where there is little treading may be planted with Colchicums, Autumn- or Spring-flowering Crocuses and other bulbs, and even in Winter we may secure a measure of brightness with berried shrubs, silvery or variegated edging plants, and patches of the Winter Aconite, Hellebores, and the Chionodoxas, Snowdrops and other gems of the dull, dark season.

Seasonal Borders

Where space is ample there is a good deal to be said in favour of making seasonal borders, grouping in each the flowers that bloom at a particular season of the year. Thus we may have the early Spring border, borders for the separate months of May, June, July, August and September, and late Autumn, each of which will give us a glorious feature in its own particular season.

Some excellent examples of such borders are to be met with in gardens of well-known enthusiasts, and so long as each border can be of reasonably

large extent the seasonal border scheme is highly to be commended.

Then, of course, there are subjects that may be quite well used after the fashion of isolated specimens standing conspicuously in the foreground with an appropriate backing of shrubs, trees or creeper-clothed walls.

The noble grandeur of a strong, well-established clump of Pampas Grass, with its waving silvery plumes swaying in the Autumn sunshine against a background of Cedar of Lebanon, is a fine sight. The taller and larger of the Tritomas may also be used to fine effect as isolated clumps. The giants among the Verbascums with their huge woolly leaves and Candelabra-like inflorescences make capital upstanding objects which by attracting attention from a distance seem to convey an impression that the garden is large. The Yuccas with their tropical appearance, and the finest of the rapid-growing Polygoniums have their uses, big specimens serving as corner plants or breakers of the level where beds are filled with medium-sized plants.

Much interest may be found in taking up some particular family of plants and gathering together as many species and varieties of that family as possible. In some cases such a collection may well be massed in one bed, as for instance Eryngiums, a large block of which, comprising all the types and garden varieties, makes a very striking and unique display. With some families, however, there is

such a divergence of stature, form, manner of growth and time of flowering, that a representative collection will occupy a respectably large garden with a variety of situation exposure, or elevation, and requiring sometimes special preparations of soil to meet the varying requirements of the different kinds.

Liliums may be instanced as such a class of plants, and years of engrossing interest and enjoyable work may be occupied in establishing a representative collection.

The Iris family with its many sections provides us with cheap, easily grown but very beautiful types and varieties that are quite within the scope of the humblest cottager, the veriest novice or the most handicapped town gardener. There are likewise choice rarities that scarcely conform to the description of 'the Poor Man's Orchids' in the matter of cost, but which can certainly vie with the aristocrats of Flora's kingdom so far as loveliness is concerned, whilst they will engage the most leisured enthusiast who would seek to provide for all classes and varieties the environment that will ensure complete success and longevity.

The available material and possibilities offered by hardy plants will be found adequate to meet all tastes and aspirations, and as the descriptive and cultural details of the many families are pondered and studied, the reader will judge what lines and methods and what plants will best meet his requirements and facilities.

TYPES OF IRISES

Top : Spanish Right : Germanica Striped : English

CHAPTER IV

PRELIMINARY AND GENERAL PREPARATIONS FOR THE CULTIVATION OF HARDY PLANTS

WHATEVER the soil or situation of the garden, it is essential that it shall be well dug. Nothing less than bastard trenching should be considered good enough. For the majority of things it will be found adequate.

How to dig is a matter that has been dealt with so persistently by writers that maybe the majority of readers require no instruction on the subject; but beginners who it is hoped will form a good proportion of students of this work will do well to give first consideration to digging. Here then are instructions for bastard trenching.

First measure off a strip of ground, two feet in width, across one end of the plot, and remove the whole of the soil from that strip to a depth of a foot, making a heap of it at the end where the digging is to finish. Next get into the trench and, starting at one end, turn over and break up the soil with a strong fork, working backwards until the full length and breadth of the trench bottom is

broken up. Another two-foot strip is then measured off and the top-soil is turned into the open trench. The loose soil that falls from the spade is to be shovelled up and used for levelling the surface of the completed part, thus clearing the second trench ready for forking. The work proceeds in this manner until the last trench is forked and filled in with the soil taken from the first. Our ground is now completely dug to a depth of a couple of feet, but the top-soil, which is most fertile, remains on top, the subsoil, which is probably acid and lacking in humus, remains below. If manure is plentiful, a dressing may be evenly distributed through bottom and top spits, but if only a moderate quantity is available, it should be worked into the top spit alone. Some of its virtue will eventually be washed down to the subsoil.

The chief benefits of deep digging are improved drainage and conservation of moisture available for the roots of the plants in time of drought.

Manuring

we can only treat in a general and superficial manner. The ordinary run of herbaceous plants are not fastidious but require a reasonably rich soil, and must have a tolerable amount of humus, which is decayed vegetable matter. Some subjects prefer a heavy soil, whilst there are plenty that will even thrive in the harsh gravelly and chalk soils that seem to baffle many a would-be gardener.

It is a good plan to use light stable manure, vegetable refuse, road sweepings, burnt clay and ashes on a heavy soil which is inclined to be cold and retentive, whilst cow and pig manure will be most useful on very light and dry soil.

Lime is very useful and essential to most things except Ericas, Azaleas, Rhododendrons and other peat-loving plants, but before dressing with lime it is advisable to submit the soil to a simple test to ascertain whether there is actual deficiency. The best method of testing is to place a small quantity of the soil in a glass jar half filled with water—say about an ounce of soil in a gill of rain-water. Shake the jar until the soil is well mixed, then pour in half an ounce of hydrochloric acid (spirit of salt). If the soil contains ample lime a strong effervescence will follow the addition of the acid, and the weaker the effervescence the greater the need for the application of lime.

If the soil is infested with grubs and insects an autumn dressing of gas-lime will do much good. One pound to the square yard, strewn over the surface and then dug in before Spring planting commences, is a satisfactory dressing.

On Planting Seasons

Where planting is to proceed immediately or where one's object is to sweeten and improve established borders a good ground lime or the finely powdered Limbux may be used with greater safety.

It is well to allow time for the soil to settle after digging and before planting, otherwise there is danger of fine particles being washed from around the roots into the crevices between larger clods, and this renders it difficult and sometimes impossible for the plants to gain a fresh roothold in their new quarters.

A question frequently asked by novices is: 'When is the proper time for transplanting herbaceous plants?' Too often the answers are given in general terms, suggesting that Autumn and Spring are suitable seasons for all such operations.

It is perfectly true that planting of most things in most places may be successfully done in Autumn or in Spring, but whereas on light dry soils Autumn planting is better than Spring, because the latter involves risk of injury to the plants through drought setting in before they have made good root, a great many losses may be involved by planting in late Autumn where the soil is stiff, heavy and liable to be excessively wet during the Winter.

That should be the first consideration, and obviously is a point that the individual should best be able to decide for himself.

Another very good rule is that early flowering plants move best in Autumn simply because disturbance of the roots in Spring inflicts a check from which the plant has not time to recover before it should be in bloom. Autumn-flowering plants are so full of growth and sap until the advent of sharp

frosts that, except where force of circumstances necessitates, they should not be disturbed until February or March.

It may be readily admitted that very many herbaceous plants are so hardy and vigorous that they will endure a great deal of punishment with impunity, and even if hauled up and replanted whilst in bloom will survive; but it must be quite obvious that even the sturdiest subjects are not given a fair chance when so handled. It is only by adopting an intelligent and reasonable system of treatment that the best possible results can be obtained even from the most accommodating of plants.

Too often when orders are given for an assortment of plants the customer makes some such remark as 'I should be glad if you will send these along early,' or 'I suppose the plants will come along in Autumn.' The Nurseryman, in order to save his customer the little extra expense of making two consignments, sends the whole order at one time, and most likely this means a poor chance for one or two items.

There are few gardens, for instance, where it is wise to transplant Delphiniums in late Autumn. To plant Tritomas in October and November is to half murder them, and the same may be said of Incarvilleas, and a number of other plants with thick, fleshy roots.

When a buyer knows the character of the plants ordered he should definitely instruct the Nurseryman

when to deliver, and in other cases it is up to the Nurseryman to point out to his clients the advisability of sending some of the plants in Autumn, and holding others over until Spring.

Neither of the two general planting seasons is really suitable for Pyrethrums. Autumn planting generally results in rotting of the crowns in Winter. Spring planting spoils the season's flowering. The best and proper time is immediately after flowering is over. If the clumps are lifted and divided, then they make fresh growth immediately, the only necessity being to give them a thorough soaking if the weather happens to be very hot and dry. Alternate rains and frosts frequently cause roots in freshly dug soil to be heaved out, and it is well to look round occasionally and press back firmly any that have thus lost their grip. In early Spring one may notice a plant with its crown and young growth looking withered and unhappy, and closer examination will generally reveal that the soil has so fallen away that the roots are exposed to the cold, cutting winds. When the cavity is filled with soil, trodden firmly, quick recovery generally takes place.

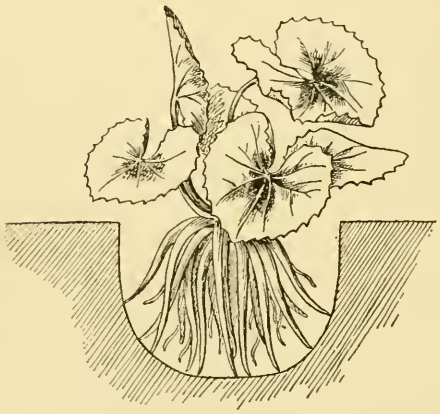
CHAPTER V

PLANTING

THE actual task of planting may profitably engage careful attention, for there is a good deal more in it than just making a hole and sticking the roots of a plant in it. Some things seem capable of growing if they are only thrown on the ground with a spadeful of soil over them, but that is not the right way to treat plants from which we want first-class results. One method which is commonly practised but may be condemned without qualification is that of pressing the roots of a big plant into the smallest possible compass and cramming them into a hole of inadequate size. Only the outer fringe of such a congested mass of roots will come into direct contact with fresh soil, and consequently half of those in the centre will

AN EXAMPLE OF BAD PLANTING, WITH ROOTS CRAMPED IN TOO SMALL A HOLE.

languish, and probably die, especially if, as is very likely to be the case, their ends are doubled up and twisted in pressing them into the hole. All holes should be made sufficiently broad to enable the roots to be spread out to their full extent. A good plan is to take out soil to a good depth, and then make a mound in the centre so that the plant resting upon it will just have its crown—the point from which young growth starts—level with the ground line. Lay out the roots on every side so that they spread down the sides of the mound without being bent against the sides of the hole. Fill in with well-broken soil until the whole is filled slightly above the normal level. The pressure then required to restore proper level will suffice to properly firm the roots. It is a mistake to plant very large clumps. Such things as Heleniums, Erigerons, Perennial Asters and other plants the crowns of which can be separated with a fair share of roots to each, will do infinitely better if thus separated and spread



RATIONAL PLANTING, ALLOWING SPACE FOR NATURAL DISTRIBUTION OF ROOTS.
THE CROWN OF PLANT LEVEL WITH SURFACE OF SOIL.

thinly over a few feet of space than if merely planted in one solid block. Those plants that have rhizomatous or stoloniferous stems, that is stems that run over the surface of the ground and root into it, should be spread out in their natural position, not thrust in perpendicularly and buried deeply. Irises of the Germanica section are good examples of rhizomatous plants, and the Acaenas, Teucrium and Nepeta glechoma are of stoloniferous character.

Many plants have underground stems that ramify just below the surface, instances being found in Physalis, Helianthus rigidus, Baptisia Australis, and Polygonums of various sorts. These also should be planted in such a manner that they start in their natural position instead of having to struggle to regain it.

A few subjects, chiefly among tuberous and bulbous plants, require very deep planting. Fritillarias, Alstroemerias, Asphodelus, and a few of the Anemones never thrive when covered with only a shallow coating of earth, but when planting deeply one must see that the situation is well drained, and that nourishment is provided well under the roots. Mention of nourishment prompts us to urge that manure should never be placed in the holes to come into immediate contact with the roots. It is not until well established that plants can benefit, but even then roots do not absorb from solid masses of manure, but are nourished by the soluble chemicals

of both the soil and manure which each help by combination to form real plant food.

Labelling

It is always a pity to neglect to label plants, and it should be done at planting time lest it should be delayed until names are forgotten or the exact situation of a particular plant becomes mere guesswork. If no labels are used there is danger of disturbing roots which are completely dormant, and although at first one may be disposed to argue that names do not matter very much when the plants are just grown to make the garden gay, there is sure to come a time when a friend will ask the name of some plant, and the absence of a label will be regretted.

As to whether plants should be watered at time of planting must depend upon the condition of the soil and the state of activity or inactivity of the plants.

In the first place, it is never wise to transplant, nor even to dig when soil is in a sodden state, nor can a plant make fresh root if the soil about it is made too wet and pasty by watering. There must be access for a certain amount of air into the soil otherwise no root action can take place, and whether plants be newly potted or put into the open ground they always make fresh root quicker in a moderately dry soil than that which is excessively wet. When it is necessary for planting to be done in very dry

soil it is certainly advisable to give an amount of water that will well moisten without puddling it, and when planting is done so late in Spring that growth has reached an advanced state the watering must be repeated and continued until the plants are seen to be making satisfactory growth; but during the dormant period or during showery weather no watering is requisite.

CHAPTER VI

PROPAGATING HARDY PLANTS

1. By Seed

HERE we have a subject that opens up a wide field for study and experiment, and one that is of fascinating interest, for every plant-lover must find much gratification in producing young plants, whether it be by raising them from purchased seeds or by the various methods of propagating from stock plants.

The natural method by which plants reproduce themselves is, of course, from seed, and we may very well deal first with seed sowing. A large proportion of the seeds of Hardy Perennials may be quite successfuly germinated and grown in the open ground.

The first essential is a fairly sheltered position not too fully exposed to the full heat of the sun, but certainly not in the shade and drip of overhanging trees.

A seed bed should be well and deeply dug, but not heavily manured, and the surface soil must be brought to a fine tilth. A light, friable soil is

the ideal. If inclined to be gravelly, setting hard when dry, it is advisable to work in a good dressing of loose leaf-mould. If heavy clay, the surface should be lightened by raking in burnt earth, wood ashes, and sharp sand, and the soil should be roughly dug in Autumn so that the Winter's frosts may pulverize it and facilitate the fining down of the surface early in Spring. Where home-saved seeds are to be used no better advice can be given than to sow them immediately they are thoroughly ripened. Even until mid-Autumn it is in the main more profitable to sow than to store until Spring.

With purchased seeds Spring sowing is generally best, because one rarely procures seeds newer than those of the previous year's harvest, and although many seeds will germinate even when two or three years old, all but a small minority lose a considerable amount of germinating vigour after a few months' storing, especially when kept in paper packets.

It must not be imagined that these remarks imply that it is wise if one procures seeds in January or February to sow them immediately in the open ground. The soil at that time will be too cold and generally too wet to render satisfactory germination possible.

The latter end of March and the month of April may be considered early enough for sowing, and in a normal season the soil has by that time become sufficiently warmed to foster germination and development of the fragile young seedlings.

Seeds may be either sprinkled broadcast over a space of ground or sown in regular rows, but in either case thick sowing should be avoided. An advantage of sowing in rows is that the soil in the spaces between the rows may be loosened with a small Dutch hoe, thus destroying weeds and admitting air to the soil which is essential to healthy root action. The commonest mistake of all is to bury seeds too deeply in the soil.

Seeds that are of measurable diameter should not have much greater depth of soil over them than that diameter, and quite small seeds need no more than a sprinkling of fine soil to hide them from absolute exposure.

Minute seeds, and those of particularly choice varieties, are best sown in pots, pans, or boxes, or they may be sown in a prepared bed under a frame or hand-light.

It seems to be quite the general practice to press the soil down smooth and even after the seeds are covered, but there can be little justification for that operation which must tend to exclude air, and very frequently causes the surface to form a crust through which the seedlings break with difficulty. The soil under the seeds should be pressed moderately firm, but all that is necessary for the covering soil is to water it with a fine-rosed can, which will settle the surface quite as closely as is good for the seeds.

During ordinary seasons there will be enough

moisture in the soil without further watering, but if it does happen that wind or direct Spring sunshine dries the seed bed, water must be carefully applied, not only in regard to force, but the temperature of the water and hour of application. Hard tap-water straight from the main is not good for any plant, but where rain-water cannot be had it is of distinct advantage to keep a tub or tank filled in a position exposed to the sun, for in a day or two such water will nearly approach the temperature of the soil and that is more suitable for the delicate roots and tender growth of the seedlings.

In Spring or late Autumn early morning is the proper time for watering, but in the hot summer months evening is the best time, not only because cold water applied to heated plants may cause a chill, and globules of water resting on young leaves during strong sunshine may often concentrate the sun's rays and scorch the leaf, but because the roots will have the benefit of moistened soil throughout the night, whereas if watered earlier in the day the heat of the sun quickly dries up the moisture.

Transplanting Seedlings

Before growth has advanced sufficiently to overcrowd seedlings, those sown in pans, boxes, or frames must be pricked out about an inch apart in other pans or boxes, while the stronger growers sown in the open should be transferred to nursery beds, where they may pass through their first Winter,

to be again transplanted to flowering quarters as soon as growth commences in Spring.

In pricking out, never bury the crown or centre of leaf growth of a seedling below the soil. If, through overcrowding or dense shade, the plants have become drawn, with a foot-stalk below the first leaves, the bare stem may be submerged, but see that the stem and roots go straight down, for bending or doubling up will check or maybe wholly prevent further growth. The soil must be gently and evenly, but firmly, pressed against the roots, until the young plant feels firm when gently pulled. If it can be easily drawn from the soil it may be taken for granted that it is too loosely planted. The soil should then be pressed down and pricking-out started afresh. Shade and light sprinklings of water must be afforded until the seedlings resume a fresh and active appearance, when they may gradually be inured to full light and air.

Throughout the seedling stage of a young plant's life great care must be exercised to ward off attacks of insects.

Slugs, woodlice, caterpillars, etc., are very partial to the tender young leaves and stems of seedlings, and various methods must be adopted to destroy the pests or prevent their access to the plants. In beds and frames the soil between and around the seedlings may be dusted with old soot or finely powdered lime. Wood ashes or powdered charcoal also serve as deterrents to crawling insects and

PRIMULAS, AURICULAS, AND POLYANTHUS

have the added virtue of checking the development of fungus such as blackleg, grey or white mould, and the damping-off disease. Pans or boxes of choice seedling Delphiniums, Primulas and other particularly succulent plants may be isolated by standing them on inverted flower-pots which themselves stand in trays or saucers filled with water. Slugs, etc., cannot crawl through the water to get at the plants.

2. Propagating by Cuttings

A great many of the named garden varieties of perennials cannot be reproduced from seed with an assurance that the progeny will maintain the distinctive features of their parents. For instance, if one has a named variety of Phlox, Delphinium, Gaillardia or Pentstemon, he may save seeds from it which will in all probability produce some quite pleasing seedlings, but a large proportion will vary considerably from the seed parent either in habit, form, or colour. To ensure the maintenance of the true character of such plants other methods of propagation must be adopted, and in the case of those plants that throw up a number of individual stems, and which have stem-joints, or 'eyes,' at the axils of the leaves from which new growths break out, the process of striking cuttings is a convenient and good method of propagation.

The number of plants that yield suitable cuttings for propagation is very large, but they are not all

of similar character. For instance, Perennial Asters, Phloxes, Pentstemons, Hypericums make both Autumn and Spring shoots that may be cut square beneath a leaf-joint when the shoot is about three inches long. Violas, Gaillardias, Anchusas, Carnations, and many other soft-wooded plants throw up young growths from the base of the plant which may be pulled or cut, trimmed, and inserted as cuttings. Delphiniums make thick, succulent shoots that must be deftly cut with a good 'heel' or portion of the crown before they have attained too great a size, and many trailing plants will strike if their long stems are cut up into lengths with one joint at the base, and one from which new growth is to be made.

Cutting of Delphinium Severed from Crown of Plant.

Autumn is the best time for propagating the last-named class of plants, examples of which are Vincas, Muhlenbeckias, Lithospermums, and various other plants with more or less woody or stoloniferous stems. Cold frames are the best accommodation for such cuttings, and also for the Autumn cuttings of Phloxes, etc., since their tissues are fairly well hardened, and many of our more vigorous perennials will strike quite well in a sheltered spot at the foot of a wall or fence. All cuttings root best in a

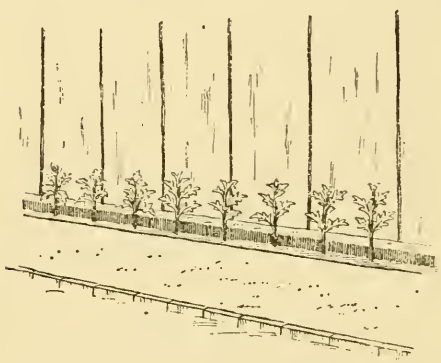
gritty or sandy compost, and should be firmly inserted close to the edge of a pot or pan. If pots of five inches diameter are used they should be half filled with small crocks, and about eight or

SUITABLE SHOOTS FOR CUTTINGS.

1. BADLY TRIMMED, THE CUT BEING TOO FAR BELOW JOINT. 2. CORRECT, SQUARE CUT AT BASE OF JOINT. 3. CUTTING WITH NEATLY TRIMMED "HEEL."

ten cuttings may be inserted round the edge of each pot. In order to avoid flagging and shrivelling of the foliage the frame containing the cuttings should be placed in a shady position, and be kept closed, except for brief spells to allow escape of

superfluous moisture which will otherwise condense on the under side of the glass. Under such conditions watering, after the first good soaking, will not be frequently needed. If an exceptionally warm day or two during Autumn causes the cuttings to show signs of limpness, a slight spraying with a fine-nozzled syringe or gentle application through a fine-rosed watering-can may be given early enough in the afternoon for the foliage to become fairly dry again before nightfall. Of course no young cuttings should ever be given anything in the way of manure-water or fertilizers. Such stimulants cannot help the formation of roots but would most probably destroy those that are forming.

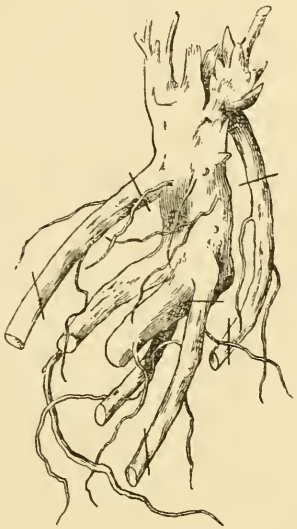


CUTTINGS OF STRONG GROWING PLANTS INSERTED IN A SHELTERED BORDER.

MANY THINGS MAY BE THUS PROPAGATED WITHOUT THE AID OF GLASS.

Basal growths of Violas and Pansies may often be stripped from old plants with a certain number of young roots attached. These may be inserted in a cutting bed without trimming, but any young shoots two to three inches long may be cut square at the base of a leaf-joint and inserted as ordinary cuttings, first removing the leaves from the lower

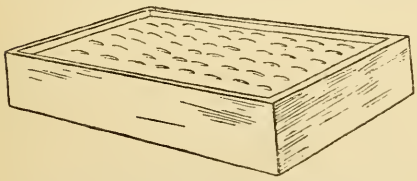
inch of the stem. Gaillardias, dwarf Campanulas, and many other plants will yield shoots with a few roots attached, and propagation thus becomes a simple matter.



ROOT OF CENTAUREA.
CROSS LINES SHOW WHERE TO CUT TO MAKE ROOT CUTTINGS.

3. ROOT CUTTINGS

There are many plants that yield no surface cuttings, but have thick thong-like fleshy roots with 'eyes' that are capable of breaking into growth. These may be readily propagated from root cuttings. Examples of such plants are Echinops, Eryngiums, Statices, Oriental Poppies, Romneyas, etc. In the first place good strong clumps must be carefully dug up, taking care not to break or injure the long thick roots.



ROOT CUTTINGS EMBEDDED IN SAND, TO BE COVERED WITH MORE SAND.

The roots may then be cut into lengths of about two inches, the cut ends of any that are prone to bleeding being dabbed in a saucer of dry, powdered

charcoal or lime. Boxes or pans half filled with light soil and covered with sharp silver sand will serve as a rooting medium, the cuttings being laid in rows with about an inch space between. Sprinkle more sand over the roots and cover with about half an inch of soil. Autumn root cuttings may be placed in frames, but in Spring greater success will be secured if given slight bottom heat.

4. Propagation by Division

The majority of hardy perennials may be increased by division.

Some which make many crowns and an abundance of fibrous roots may be divided into moderately small tufts or even single crowns. Heleniums, Perennial Asters, Lychnis chalcedonica, Penstemon barbatus are plants of this character. After shaking or washing the soil from the roots the crowns can be gently drawn asunder, and the separated crowns may be either planted in a nursery bed or potted into convenient-sized pots, the latter being the most satisfactory method with any but the coarsest and most vigorous growers.

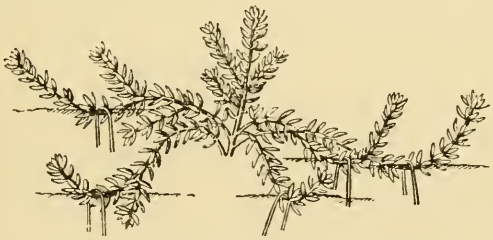
Where the root of a plant is of a solid fleshy character, with its growth buds or crowns emerging from a hard mass of woody or pithy substance, the careful use of a strong knife becomes necessary to divide the clump. The most prudent plan is first to wash away all the soil so that one may see exactly where to thrust the knife. Pæonies, Delphiniums,

Astilbes, Hellebores, are all plants of the class referred to, and the propagator's object should be to so divide his clumps that each cut portion has a share of the solid mass and the appended thong roots proportionate to the number of growth buds.

In dividing very old clumps it will generally be found that the best growths are those round the circumference or outside, and often the centre portion will be so exhausted and starved as to be valueless for replanting.

5. Propagation by Layering

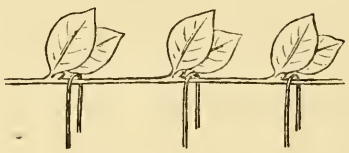
By layering is meant pegging down a shoot of a plant in the soil in order that it may make inde-



Layering Plants of Sub-Shrubby Habit.

pendent roots prior to being separated from the parent plant. It is the recognized method of propagating named varieties of Carnations, and is dealt with in detail in the cultural hints upon that plant. There are, however, a good many other subjects which may be propagated after the same manner. The hardy Ericas, Polygalas and Men-

ziesias, Nepetas, Hypericums and Phlox subulata may thus be treated, but instead of cutting a 'tongue' from one joint to another as in Carnations it is sufficient just to make a small notch or two in the bark on the underside of the shoot or layer. Many flowering climbers and flowering shrubs are also readily propagated by layering, and Vincas, Polygonums of the trailing types, and other plants with many-jointed stems may be pegged at intervals of every second or third joint, each section being disconnected when sufficiently rooted.



LAYERING TRAILERS AT EVERY JOINT.
THE VINCAS, NEPETA GLECHOMA, POLYGONUM VACCINIFOLIUM, ETC., MAY THUS BE PROPAGATED.

DAFFODILS EFFECTIVELY GROUPED IN GRASS

CHAPTER VII

THE CARE OF PLANTS IN THE GARDEN

The Use of the Knife among Hardy Plants

MUCH has been written about pruning Fruit Trees and Roses, but one seldom hears of pruning herbaceous plants, but as a matter of fact a great many of our perennials require considerable attention in this direction if the best results are to be obtained. The perennial Asters, the Heleniums, Phloxes, Solidagos, and many other plants that throw up a large number of individual stems from a 'clump,' should not be left in a crowded mass. The weaker stems, and especially those in the centre of the plant, should be cut clean away from the base before they become too far advanced. By this means the remaining stems will be afforded more light and air, as well as a larger proportion of the nourishment provided by the roots.

The thinning out will also facilitate staking and tying, and in this latter task the aim should always be to simply hold the stems in their natural position, not to draw them up into tightly tied bundles, for that will always spoil effect.

It is of considerable importance that when continuity of bloom is desired the faded blossoms shall be removed before the development of seeds. A plant has fulfilled its mission in the scheme of nature when it has produced the seeds which are the means of reproduction, consequently when seeds have been allowed to develop the incentive to go on blooming wanes. Moreover, there is a physical strain upon the plant in developing seeds to maturity which exhausts the vitality of the plant to such a degree that it cannot maintain a full display of later blossoms, but is bound to go to partial, even if not complete, rest. Therefore it is wise to cut away faded flowers.

A NEATLY AND SECURELY STAKED HOLLYHOCK.

At the same time it is necessary to exercise caution in regard to removal of too many stems and foliage. A true herbaceous perennial dies down to the root stock after the flowering and growing season, and as the stems and leaves wither the greater part of the sap that is in them returns to the roots to nourish and strengthen the 'eyes' or 'buds' from which next season's growth will proceed. Therefore the cutting away

of the main growths while still green and growing will materially weaken the plant.

The Ills and Ailments of Hardy Plants

By comparison with most other classes of plants the majority of Herbaceous plants are splendidly robust, healthy, and immune from devastating diseases. Insect pests do a certain amount of harm, slugs, snails, earwigs and caterpillars being chief offenders, and in the case of young seedlings, and plants with particularly succulent shoots, such as Delphiniums, great havoc may be done if reasonable precautions are not taken to keep the enemy at a distance.

It is of great importance when making a new garden, and perhaps even more so when renovating an old one to pay careful attention to the cleansing of the soil. It is in the soil, especially where weeds and rubbish abound, that hordes of insects, their larvæ and pupæ, breed or take lodgment. Rough digging in Autumn, leaving the greatest possible surface exposed to Winter's frost will dispose of vast numbers. Birds will demolish more, but a good dressing of gas lime will do an immense amount of good, except in the case of soils which are already heavily charged with lime.

Wireworm may be accounted one of the worst of soil insects, and one of the most troublesome to eradicate. Leather-jacket grubs, Woodlice, Millipedes, Slugs, and the grub of the Cockchafer beetle

are common enemies, all of which devour the fleshy roots or succulent crowns of such plants as Delphiniums, Pæonies, Campanulas, and other of our favourite plants. It is possible to catch some of these pests by putting down slices of carrot, beetroot, or potato, making an inspection of these after dark by the aid of a lantern, but this is a slow, tiresome, and at best only a partially successful task. A better plan is to mix one pound of Commercial Naphthalene with fourteen pounds of freshly slaked lime, and bury this in the soil by making holes with a trowel or dibber in every convenient space between the plants, dropping a spoonful of the mixture in the hole and covering immediately. As soon as the mixture comes in contact with the moisture of the soil it gives off a poisonous gas which will permeate through the surrounding soil, and will either asphyxiate the insects or drive them away. Many plants are subject to attacks from aphides and various kinds of caterpillars. These must not be allowed to go unchecked. As a general rule it is easier and wiser to ward off such pests than to destroy them when once they have secured a footing. A simple spray composed of Quassia extract and soft soap evenly distributed over the whole surface of the plant will render the foliage distasteful and largely prevent the parents of the insects laying their eggs upon these plants. When one finds that his plants are actually infested with gnawing or sucking insects the use of a stronger

spray must be resorted to. There are many proprietary insecticides on the market, manufactured by qualified chemists in well-equipped establishments, and generally speaking it is safer, just as economical and certainly less irksome to procure a ready-made insecticide than to attempt to make one's own. The great thing is to use the spray as soon as the need is discovered, to spray two or three times with a fluid at the strength prescribed by the manufacturers rather than try to make short work of it by increasing the strength, to see that every part of the plant, under the leaves as well as above, is sprayed, and to wash away dead insects and sediment by spraying with clear water within a day or two of the use of insecticide.

The Treatment of Fungoid Diseases

Hardy plants are not immune from diseases, some subjects being more liable to certain troublesome maladies than others. The Hollyhock disease was for years so rampant and destructive that many of its most ardent devotees gave up cultivation of the plant in despair. The fungus appears first on the underside of the leaf in the form of brownish pustules like little spots of snuff. Very soon the plant is smothered with these spots and the plant languishes and probably fails to flower. It is too late to grapple with the disease when the pustules appear because the filaments of the fungus have already penetrated the outer surface of the leaf

and cannot be reached by any spray that will not injure the tissues of the plant. The proper thing to do is to spray early in the season with Bordeaux Mixture, thus preventing the development of the spores of the fungus. Carnations are subject to a disease which produces purplish blotches on the leaves. Violets are sometimes attacked by smut, Pæonies contract leaf-spot disease, and Delphiniums are subject to mildew.

In practically all cases of rust or fungus on leaves and stems the safest and most effective remedy is a spray made by boiling a pound of Sulphide of Potassium in three pints of water. Use an enamelled pan, and after boiling add the whites of two eggs. The solution may be kept in a stone jar or strong bottle closely corked. Two ounces of this solution to a gallon of rain-water makes a useful fungicide. Be careful not to allow the spray to reach white painted woodwork as it stains this badly.

It needs scarcely be remarked that diseased leaves and stems should never be allowed to remain in the beds and borders to spread the disease, but should be carefully removed and burned.

PART II

CONCERNING THE CHARACTER, FORM, AND DISTINCTIVE FEATURES OF THE PRINCIPAL FAMILIES OF HARDY PERENNIALS

PLANTS WORTH GROWING

HAVING dealt with the general principles of propagation and culture of Hardy Perennials we propose not merely to give an alphabetical list of the names of plants—such may be found at any time in the catalogues of hardy plant specialists—but to describe the characteristics of those that are worth growing, indicating the purposes for which they may be particularly suitable, and mentioning any special points that have a bearing upon their successful management.

Alphabetical arrangement is adopted for convenience of reference, the space devoted to various plants being governed by their relative merits and importance.

Acæna.—Generally speaking the members of this quaintly pretty and interesting genus are classed as Rock plants, but their creeping or trailing habit, and their prettily tinted evergreen foliage together with the bright-hued, spiny seed heads that ornament some of the sorts make them admirable carpeting plants for beds containing bulbous plants or tall erect-growing subjects that show to best advantage over a carpet of foliage. For the most

part their stature may be measured in fractions of an inch, but an established plant will cover an area of two or three square feet, completely hiding the soil beneath elegant fern-like foliage. Over a dozen varieties are in cultivation, some having metallic and others glaucous or silky foliage against which red or purple 'Burrs,' as the seed-heads are termed, display themselves to good effect. The Acænas are simple in their requirements, and are among the best of plants for the crevices of stone pathways and similar situations.

Acanthus.—It is somewhat strange that one may visit many gardens where Hardy Perennials are quite a feature and find none of the species or varieties of Acanthus, for in regard to foliage alone, which is evergreen, they are plants of striking beauty, whilst their flower spikes are uncommonly curious and extremely handsome. Students of Grecian and Roman architecture will recall the fact that Acanthus leaves are largely represented in the finest of the ornamental work in world-famous buildings. We surely should find room in our gardens for a few plants of Acanthus mollis latifolius, if only for the sake of the fine Winter effect its foliage produces. The flowers bear resemblance to dragon-heads closely set on erect spikes. They are purple and white, whilst A. longifolius is of a more rosy tint. A. spinosus has strap-shaped leaves densely clothed with white spines, and A. Candelabrum is another desirable plant. A well-drained

soil is essential, for stagnant moisture is apt to rot the crowns in Winter.

Achillea.—We have wellnigh half a hundred species and varieties of Achillea, most of which have remarkably pretty foliage as well as flowers. A good proportion are suitable only for the Rock-garden, but the double forms of our native Achillea ptarmica stand in the front rank of flowers for cutting and as such are grown in vast quantities for market. 'The Pearl' has been a favourite for many years, but Perry's White is a more recent variety producing larger, broader-petalled flowers.

Achillea Siberica is a beautiful and free-flowering plant, its single blossoms being perhaps more elegant than the double flowers of ptarmica varieties. This variety is frequently met with under the name of A. mongolica. A. millefolia is our common native Yarrow, the fern-like foliage and umbels of white flowers of which are so frequently seen amidst the grasses of our meadows, but the rose-coloured and cerise varieties of which there are now several are very ornamental and desirable garden plants. There are also the tall greyish-leaved A. filipendulina and its varieties bearing flat or convex corymbs of bright yellow flowers. This type may be grown to fine effect in the foreground of shrubberies or in soils that are too dry for many more fastidious plants. Division of the root clumps is an easy method of propagation of all the varieties except the miniature alpines.

Aconitum.—Popularly known as Monkshood, this genus embraces a number of purple- and violet-coloured varieties which produce tall upstanding spikes of bloom. There are also pale yellow and amber-tinted varieties, one or two whites, a variegated or bicoloured variety with blue shaded margins to its white-ground blossoms, and one or two of delicate lilac shades. All are handsome plants with luxuriant, prettily cut foliage. They are by no means difficult to cultivate, but make by far the best growth when planted in partial shade, and in a fairly moist situation. A. napellus, from which the Tincture of Aconite used in medicine is obtained, is a native plant. Its flowers are almost indigo blue in tint, and as a plant for massing either in the garden border or in the broader expanse of woodlands or wild garden it has few equals in point of rich colour and bold outline. Its variety bicolor is the so-called variegated Aconite, and there is also a white form. A. japonicum and A. Fischeri autumnale are later flowering kinds, whilst lycoctonum and orientale are yellows. Division of the roots is easy because the abundant masses of fibrous roots emanate from rhizomatous crowns that may be pulled asunder, each making a strong flowering plant the summer after transplanting.

Actæa.—This is a small genus of very elegant and interesting plants with fine foliage and long racemes of white flowers, followed by berries which remain attractive for a long period. A. alba has

white berries; those of A. spicata are black, and spicata rubra, red. The plant likes moisture, and when once established should be left undisturbed for several years. When it is desired to increase stock a clump may be lifted and carefully divided in early Spring.

Adonis.—'The Flower of Adonis' or Flower of the Gods ranks among the earliest of our Spring flowers. Yellow as the Buttercup, the large open flowers are backed by green bracts and supported on graceful stems clothed with foliage as dainty and elegant as fern fronds. The Adonis likes a rather sandy soil, and blooming as it does in early Spring, should be planted in a position where it will be protected from rough winds and storms. A. vernalis, A. amuriensis and its double variety are the earliest and best, but there are several other varieties well worth growing. They may be raised from seed sown in pans, and given the protection of a frame during the early stages of development.

Alstrœmeria.—Like miniature lilies, individually, the flowers of Alstrœmeria are borne in umbels of a size that makes them conspicuous objects in the garden, but not too cumbersome to be decorative in a cut state. Their beauty is akin to that of the brightest of the Liliums, but their remarkable and almost indescribable combinations of bright and contrasting colours make them distinct from any other plant. The roots of Alstrœmeria are fleshy white tubers, several of which are suspended from a

small crown by rather slender roots. The tubers are extremely brittle, and require careful lifting, especially as they grow at considerable depth from the surface.

From this deep-rooting habit we get an inkling of the plants' fondness of moisture and dread of scorching heat, but at the same time there must be free drainage and life in the soil. It would be fatal to dig holes into inert subsoil and bury the roots in these. The whole bed must be deeply dug and well cultivated. One of the best beds of Alstrœmeria we have seen was planted in what had been a deep ditch. A drain-pipe was laid along the bottom, and the whole depth filled in with loam, rough leaf-mould, burnt ashes and sand. Here the Alstrœmerias flourished for many years, and great sheaves of bloom could be cut without being missed.

Some of the best Alstrœmerias are A. Aurantiaca, orange-red with dark spots, like miniature Tiger lilies; A. pelegrina, a striking combination of lilac, red, and purple; A. pulchella, red and brown with bright green markings, and A. versicolor, purple, maroon, and green.

Althæa.—This is the botanical name of the Hollyhock, both double and single varieties of which have long ranked among the special favourites of that class of growers and exhibitors whom we call the old school of florists. But the genus Althæa also includes several other species which are not so widely known, but are nevertheless hardy perennials of noble proportions and great decorative value.

Wherever a bold, striking group of plants is required to stand out in conspicuous relief against some dark background a mass of one of the species of Althæa may be planted with confidence, and should the troublesome fungoid disease that attacks the florist's Hollyhock make their cultivation difficult, the stronger species may well be utilized in their stead, for they seem to be practically immune from disease. Althæa cannabina is a tall-growing plant producing an abundance of single rose-pink flowers. A. ficifolia has handsome seven-lobed leaves which gave it the name of the fig-leaved Hollyhock. Its flowers are clear sulphur yellow, and an established plant throws up many stems well clothed with bloom. Another yellow-flowered species is A. sulphurea, with almost round leaves. This is not so tall, generally attaining a height of four feet or thereabouts. A. taurinensis is an Italian species with rosy-red flowers. It makes a fine specimen plant. The specific name of the florist's Hollyhock is A. rosea. Of this species many choice garden varieties exist, named varieties being carefully kept true by florists who propagate from cuttings. It is probable that this method of propagation, together with rich feeding to produce fine blooms for exhibition, had a good deal to do with the weakening of the plant's constitution, and subsequent susceptibility to the disease which at one time threatened wholesale destruction of choice Hollyhocks.

Probably the finest collection of Hollyhocks in

the whole of Europe was that of the late Mr. Chater of Saffron Walden. The strain still exists in the hands of Messrs. Vert & Son, the present occupants of the Saffron Walden Nurseries. Of late years, however, the purity of stocks has been so well fixed that plants raised from seed may be depended upon to come practically true, and as seedlings always grow with greater vigour and health than those struck from cuttings the majority of young plants sent out from nurseries are seedlings.

Whether one desires double Hollyhocks or one or other of the single species mentioned, seed may be sown under glass in March or April or out of doors in May or June.

If the seedlings can be transferred to flowering quarters as soon as three or four leaves are formed, well and good, but otherwise the young plants should be potted and grown on until they can be planted out. Plants left in the seed-bed until they become large are apt to suffer a severe check when eventually planted out. A deeply dug soil, fairly well but not too richly nourished, will suit the plants, the object being to keep them hard and sturdy rather than coarse and sappy through their first Winter. When flower-spikes begin to rise in early Summer the plants will benefit immensely by frequent soakings with liquid manure.

Strong stakes, which can be well hidden among the ample foliage, will be necessary to secure the tall stems from damage by wind.

Alyssum.—Several species and varieties of Alyssum, mostly bearing panicles of bright yellow flowers, are very useful for margins of beds, or for the groundwork of beds planted with Phlox, Gladioli, etc. One of the best known is A. saxatile compactum, which may be easily raised from seed or propagated from cuttings.

Anchusa.—There are fewer plants of a true blue than any other colour, and on this account alone the Anchusas commend themselves to every garden owner. With tall, much-branching stems, the plants are freely besprinkled with starry bright blue flowers, every plant continuing to bloom for a period of many weeks during Summer. The Anchusas are among the best drought resisters we have, and are consequently well suited for high, dry banks, for light, gravelly soils, or for positions exposed to full heat of Summer's sunshine. A. italica is an excellent plant of rich sky blue, but the ' Dropmore ' variety is of more vigorous growth and produces larger flowers. Opal is another fine variety of dwarfer growth with large flowers of a pleasing pale blue shade. They may be propagated from seed or by division of the root stock.

Anemone.—So extensive, so varied, and so perfectly charming are all the members of the Anemone family that several pages might well be devoted to their description and recommendation for purposes innumerable. Certainly we may say no garden should be without some of the many types and

varieties of the Windflower as the Anemone is popularly called, whilst a perpetual and never-waning interest may be found in a thoroughly representative collection of all its classes. We may have Anemones that flower amidst the snows of a prolonged Winter, Anemones of many kinds throughout the Summer, and some that will linger in bloom to keep company with the latest of the Michaelmas Daisies. There are dwarf miniatures that only reach a matter of two or three inches from the soil, with small nodding bells or starry flowers of blue, purple, or white. Such are A. acutiloba, and A. blanda which opens its deep blue flowers in February, to be closely followed by the taller A. angulosa and its white and other varieties. This plant resembles the well-known Hepatica, but is larger in all its parts. The tuberous-rooted A. coronaria may be had in a range of bright colours, but the most brilliant of all Anemones is A. fulgens grandiflora, really a variety of the species A. hortensis. This fine variety is of intense vermilion scarlet, but the gayest of the family are the St. Brigids, which range from dark crimson to flesh pink, and from deep plum purple to pale mauve and lilac, pure whites being available and proving useful as contrast to the vivid colours. By planting the corms or tubers at various seasons the St. Brigid Anemones may be had in bloom throughout the greater part of the year, and whether for garden decoration or for cutting they are of unique value. Anemone ranun-

culoides is one of the few yellow-flowered Windflowers, but the grand flowers of A. sulphurea, which are of large size and clear sulphur yellow, are among the very choicest of hardy flowers. The large silky-petalled blossoms of A. pulsatilla are violet, with a conspicuous cluster of golden stamens in the centre of each blossom. This Anemone likes a loamy soil with a certain amount of lime, and it enjoys the sunshine of an open position. For the most part, however, the Anemones prefer shade and a light sandy soil that can endure abundant moisture without its becoming stagnant. One of the best Anemones for the ordinary herbaceous border is A. japonica and its several varieties, which embrace various shades of rosy red and delicate pink as well as several white varieties of distinct form. This type is best propagated from root cuttings which may be started in shallow pans of sandy soil placed on a gentle bottom heat in early Spring.

Whilst it may be readily admitted that any of the Anemones are admirable subjects for beds and borders it is in the woodland, under the shade of trees, and on grassy banks, provided the growth is not too rank and weed-choked, that most of the smaller and earlier varieties are seen to greatest advantage. Our brief survey does not touch upon a quarter of the charming Windflowers that deserve widespread cultivation. Catalogues of hardy plant specialists provide descriptions of scores of varieties,

and if one aims at making a speciality of a collection he may pursue his ambition until the number of varieties gathered together closely approaches a hundred, all being delightfully pretty plants.

Anthemis.—A genus of composite or daisy-like flowers, several of which have silvery, finely-cut foliage. The dwarfer kinds such as A. canescens, A. styriaca, and A. Macedonica are useful rock plants, whilst A. tinctoria and its several garden varieties are capable of producing a good show of yellow flowers in the border, and have excellent lasting qualities when cut.

Anthericum.—' St. Bernard's Lily ' is the popular or English name of the Anthericum. There is justification for calling this flower a lily, for although small by comparison, the blossoms are lily-like in form and possess a daintiness and charm that is reminiscent of the Madonna Lily. The foliage of Anthericums is narrow, grassy, and of a fresh green tone. The slender but rigid flower-stems are branched, and the blossoms are lightly distributed along the stems, making first-rate decorative material for vases, and they retain their beauty for quite a considerable time. The plant makes abundant, fleshy roots, and on that account it is not wise to frequently transplant them, although big clumps may occasionally be lifted and divided when it is desired to increase stock. A cool soil with some body and tenacity suits Anthericums, and the best time to plant is in Spring just as new growth

commences. Seeds are freely produced, and germinate well if sown as soon as ripe. It is best to pot off seedlings while small, planting out from pots in partially shaded positions where the plants will not suffer from drought during the flowering season.

A. Liliago is one of the best known. Its flower spikes rise to a height of about two feet, the blossoms being of shining satiny white, a bunch of bright yellow anthers lighting up the centre of each.

Another good plant is A. ramosum, which has a distinctive method of growth, spreading itself by means of ramifying underground stems from which rise tufts of foliage and spikes of white flowers.

A plant frequently met with under the name of Anthericum Liliastrum is more correctly named Paradisea Liliastrum. There are two or three fine varieties of this excellent subject which in general character must be described as very similar to the true Anthericum.

So near akin in fact are the Anthericums and Paradiseas that an intermediate variety exists under the name of Anthericum hybridum Arethusa. This is a plant of extremely graceful character, its flowers being dainty in form, yet substantial and serviceable for cutting.

Antirrhinum.—Worthy of a chapter to themselves by reason of their many sterling qualities, exceptional serviceability, and wide range of most delightful colours, the Antirrhinum has of late years made

most remarkable strides in public favour, and equally rapid progress in improvement of type and quality.

It is no longer necessary to direct attention to the capabilities and usefulness of Antirrhinums, for these have become matters of common knowledge, and few gardens indeed are to be found where none are grown. It is difficult to name a subject to equal the Antirrhinum for its gorgeous and prolonged dispaly at so small a cost and absolutely simple requirements. Let the garden be in town or country, on the open sun-burnt and wind-swept hillside, or enclosed within walls or fences, and whether the soil be stiff, stubborn clay, light porous sand, or harsh gravel and chalk, Antirrhinums will make themselves at home and adapt themselves to conditions under which many other plants would languish and fail. The modern race of tall, intermediate, and dwarf or Tom Thumb types and varieties, rich in colour, compact and robust in habit, have been evolved by patient selection until stocks have attained a degree of purity and fixity that enables propagation to be carried on from seed with but little risk of any serious variation from the true character of a variety. To this fact may be attributed the freedom of Antirrhinums from devastating diseases, for there is no doubt the natural method of increase by seed is better calculated to preserve vigour of constitution than persistent propagation from cuttings.

For the sake of obtaining early flowering plants

seed may be sown in Autumn, the best place for raising seedlings at this season being a cold frame. As soon as the second pair of characteristic leaves are formed the seedlings should be pricked out, and when the plants are about three inches high the central shoot should be pinched in order to encourage the production of side-growths. Where the soil is fairly light and well drained, and the atmosphere clean and free from smoke, the young plants may be planted out during October, but on cold wet soils and in large towns where Winter's rains and fogs bring down poisonous soot deposits which settle upon the leaves it is better to winter the plants in frames, and plant out in Spring. Grimy atmosphere and excessive dampness are more fatal to Antirrhinums than quite severe frost. Autumn-sown plants will begin to bloom by the beginning of June, and if the early flower spikes are cut before seed forms the plants will break into second growth and continue to bloom throughout Summer and Autumn.

Another batch of seed may be sown in a moderately warm greenhouse in January or February, and if the young plants are kept growing without a check, and gradually hardened off until the latter end of April, they will begin to bloom by the end of June, and from July onwards will make a glorious display.

Although it is recommended that for ordinary stock seedlings should be relied upon, it may be

desirable in order to work up stock of a distinct and specially admired variety to strike a few cuttings. To obtain suitable growths for this purpose merely remove the main flower spikes to encourage the formation of axillary growths from the leaf-joints. When these are from one and a half to two inches long, strip them with a heel from the main stem by gentle downward pressure, remove a few lower leaves, and insert firmly round the edge of pots filled with light sandy soil. Keep in a closed frame in a sheltered, shady position until rooted, afterwards giving plenty of ventilation and similar treatment to that afforded to seedlings.

BRANCH OF ANTIRRHINUM, THE LOWER SHOOTS BEING SUITABLE FOR CUTTINGS.

THE CROSS-CUTS INDICATE THE MANNER OF TRIMMING THE CUTTINGS IF THEY ARE TOO LONG TO STRIP OFF WITH A "HEEL."

One point that makes for success with Antirrhinums is to tread the soil about the roots as firmly as possible. Do not be too lavish in manuring the soil before planting, but when flower spikes show themselves the plants may be fed with liquid manure, giving a good drenching with weak liquid rather than a stronger solution.

A BORDER OF GLORIOUS ANTIRRHINUMS

There are in addition to the garden varieties of Antirrhinum majus two or three choice species that are very interesting and worthy plants. A. asarina has trailing stems, clothed with circular leaves with scalloped edges set in pairs at intervals of an inch or so. From each leaf-joint a pair of pale primrose-yellow flowers appear on short footstalks, and against the bronze-green foliage these delicately-tinted flowers show to capital advantage. Another species is A. glutinosa, a plant of almost shrubby although small and slender growth. The numerous wiry stems are clothed with small pilose or downy foliage, and small white flowers with rosy lilac shading are freely produced. Both of these are charming subjects for wall gardens.

Aquilegia.—Only lest we should appear to belittle the charms of other delightful plants do we restrain ourselves from indulging in superlatives in describing the elegant loveliness of the long-spurred Aquilegias. Several of the species are of brilliant colouring, such as A. Californica, A. canadensis, and A. Skinneri, all of which have yellow corolla petals with red spurs. A. Chrysantha is golden-yellow throughout, and there are others of blue and white.

The most fascinating and delicate shades and combinations of colour are to be found in the race known as caerulea hybrida. These are large flowered, long spurred, and free blooming, and they embrace an infinite variety of mingled shades of mauve, rosy lilac, fawn, lavender and pale yellow. To see them

in their full glory they should be massed in a bed, or in a bold group in the foreground of the herbaceous border. They enjoy a deeply dug, fairly rich soil, which although well drained should not be dry. The plants enjoy sunshine so long as they do not suffer from lack of water, but will do better in a shady position than in a spot that suffers greatly from summer's drought. Propagation may be effected by division of roots, but seedlings make much the best plants. We will not weary our readers with a list of names, for such can be found in any good hardy plant catalogue, and all the species and varieties are well worth growing.

THE LONG-SPURRED AQUILEGIA,
SHOWING THE DAINTY ELEGANCE AND CHARM OF THE FLOWERS. THEIR ARTISTIC VALUE FOR CUT-FLOWER DECORATIONS IS WELL DEMONSTRATED.

Arabis.—Easily grown, prodigiously free flowering, and hardy as the commonest weed, Arabis albida, and especially its double form, with its spikes of stock-like flowers, may be described as one of our most serviceable edging plants. The Arabis may also be recommended as eminently suitable for carpeting graves, being capable of looking after itself and enduring great hardships. It certainly has a propensity for outgrowing its allotted bounds, but may be cut back at will.

Armeria.—Commonly known as Thrift or Sea Pink, Armeria maritima and its rich rose-coloured variety, Laucheana, are extremely useful evergreen edging plants. As the name Sea Pink indicates, the Armerias are particularly suited to cultivation in seaside gardens, a qualification that many plants cannot share. In addition to the dwarf varieties of A. maritima there are several taller growers with large globular heads of bright pink or rose-coloured flowers. One of the best is A. latifolia Ruby, its size and colour being of exceptional attractiveness. There are white forms of the Armerias, but somehow these never seem to make an attractive display, the rosy pink varieties making a far more cheery show.

Artemisia.—Everybody knows the old-fashioned, fragrant-leaved, shrubby Artemisias which bear such homely names as Southern Wood, Wormwood, Old Man, and have played an important part in the composition of fragrant herbs and petals which made the pot-pourri beloved of our grandparents. There

are Artemisia abrotanum and absinthium, both with cut leaves and aromatic odour. There is also A. stelleriana, a plant with silvery foliage, which thrives best when its roots can ramify amidst limestone rubble and sandy soil. The commoner species which were first named require no particular cultural care. In fact, almost any piece broken off an old plant and firmly embedded in the soil will grow, and shed its fragrance around, and A. abrotanum is an admirable plant for a corner by a summer-house or garden seat where one seeks repose at the end of a summer's day.

A plant of quite different character to the foregoing is Artemisia lactiflora, which throws up woody stems to a height of four or five feet, surmounted in Autumn by spiræa-like plumes of milky white flowers. The foliage of the plant is large, deeply lacerated, and amply clothes the full length of the substantial stems. This is a grand plant to grow in positions where its creamy flowers may stand out against vines and shrubs that assume brilliant Autumn tints. Spring is the best time to transplant, and at this season stock may be increased by division of the clumps.

Asclepias.—There are two species of Asclepias worthy of note. A. tuberosa is an extremely beautiful plant which throws up leafy stems to a height of fifteen or eighteen inches, each bearing an umbel of vivid orange flowers. There is nothing quite like Asclepias tuberosa, its appearance being rather that of an exotic bulbous plant than a hardy border

perennial. As its name tuberosa implies, its roots are fleshy, but planted in well-drained soil in a fairly sunny spot it will thrive and yield an increasing quantity of flowers each year. Seeds sown as soon as ripe germinate freely, but the young plants require about three years to develop into flowering crowns. A. incarnata is quite a different plant with rather sombre purplish flowers in tufts or loose umbels. Its chief merit is that it has great attraction for bees, and may with advantage be planted in the vicinity of hives.

Asperula.—Several of the Asperulas, commonly known as Woodruff, are of low growth or spreading habit, and are useful for carpeting the ground between bulbs, pentstemons, or other erect-growing subjects as well as for rock-work. One species of distinct character which should be far more generally cultivated than it is, on account of its extremely decorative character, is A. hexaphylla. The stems of this plant are slender and wiry, clothed with narrow pointed leaves, which nestle in whorls to the stem. The flowers are tiny and pure white, arranged in flattish umbels or panicles. The flower heads are small by comparison with Gypsophila, but in grace and elegance the Asperula is quite its equal, and its lasting powers are great. A cool moist root-run in an open, rather spongy soil, suits the Asperula, and it is a good subject for growing under the partial shade of trees. When increase of stock is required a clump may be lifted and its hard, rambling under-

ground stems carefully separated, but it is not wise to transplant too frequently.

Asphodelus.—Over a carpet of scarlet Geum, dark purple Veronica, or golden-yellow Œnotheras of dwarf habit, a few spikes of the stately white-flowered Asphodelus ramosus produce a very striking and handsome effect. Like wide-open lilies close-set on erect leafy stems, with fresh-looking tufts of grassy foliage at the base the flowers possess a stateliness that befits them for prominent positions in beds on the lawn, or at approaches to lily pools, fountains, etc. Asphodeline lutea is closely akin to the true Ashhodel, but its flowers are bright yellow, and its stems leafless. A rich purple carpet of Campanula, or the vivid scarlet of Potentilla atrosanguinea make a fine setting for the golden spikes. Give a deeply dug fairly rich soil, allow at least a square yard per plant, support the flower spikes with neat stakes, and disturb only when necessary to divide the crowns.

Aster.—It is a somewhat difficult matter to decide what to write about the Perennial Asters, or Michaelmas Daisies. The humblest cottage garden has its Michaelmas Daisies, and their cultural requirements are so simple that they may be said to be capable of looking after themselves, needing only restraining measures when they break out of bounds, as they will do within a matter of two or three years. Were we, however, thus lightly to pass over this family of hardy Autumn-blooming plants, the uninitiated

might feel disposed also to pass them by, for in all probability he recalls Michaelmas Daisies in some old-fashioned garden which were somewhat rough, gaunt-looking plants carrying in Autumn a show of small starry flowers of an insipid mauve or lavender shade, but presenting an unkempt and unruly appearance through the greater part of the year, scarcely counterbalanced or compensated by the ultimate display of bloom. Such, indeed, were the old-fashioned types and varieties, but thanks to the foresight and the skill of some of our hardy plant specialists about the end of last century, the whole family has been classified, and a wonderful range of new varieties evolved which are so vastly superior to the old race that no garden which claims to be a Herbaceous garden can ignore the finest of the Aster family. Of the sections the more important are Amellus, which are dwarf and compact, with branching heads of large flowers. Ericoides, with slender branching stems clothed with minute pointed leaves and studded with tiny white stars. The many varieties of this section provide us with some of our most serviceable decorative material during the waning Autumn. In the Novi Belgii section we find many tall, branching and extremely free-flowering varieties, and for the most part blues and lavenders of clear and pleasing shades characterize their colours. Several double and semi-double varieties are now in cultivation, and some are available which are of decided pink and rose tints. The

richest red shades are found in the Novæ Angliæ section, but these are of heavier and less artistic habit than either of the others. All are of simplest cultural requirements and easily propagated from cuttings or division, and by judicious selection even a dozen varieties may ensure a supply of flowers for cutting from August to November, the latest being A. grandiflorus, with large rich violet flowers, and A. tradescantii, with white flowers on slender wiry stems.

Astilbe. — Persistently miscalled herbaceous Spiræas, the Astilbes are a family of extremely handsome plants that delight in the moisture or water-margins and bog gardens. Feathery plumes of flowers rise over spreading masses of elegantly cut and fringed foliage. There are pure white, cream, flesh coloured, salmon, and rose pink, and a few deeper red varieties. In addition to their charm in the garden they are invaluable for forcing or for the adornment of an unheated greenhouse or conservatory.

Astrantia.—This is a small genus of peculiar but quaintly pretty plants that will thrive in shady positions under trees, or in the confinement of small enclosed town gardens. The fresh glossy foliage is similar to that of some of the Ranunculus tribe, whilst its flower heads are umbelliferous, the individual blooms being like little pin-cushions surrounded by a frill of green and white guard petals. A. Carniolica and A. Major come with varying tinges of

delicate pink in otherwise green and white flowers, the rosy flush depending upon the warmth and dryness of the summer. Division of the root-clumps is the best method of propagation.

Aubrietia.—The close-growing Spring-flowering Aubrietias are generally classed as Rock-plants, but must be briefly referred to as being among the best of our hardy edging plants. Mauve, lavender, violet, purple, red, and even white varieties may be had. Cuttings of young growth inserted in pans of sandy soil root readily. Old plants may be divided and replanted, and seed will produce vigorous young plants which, however, cannot be relied upon to maintain uniformity of colour, which is often desirable in the matter of edgings to flower beds although of less importance for the front of a mixed herbaceous border.

Baptisia.—The Indigo plant is strikingly handsome and very distinct in character. It produces stiff, erect spikes of large pea-shaped flowers which are of a very pleasing shade of clear blue. The foliage spreads horizontally under the flower spikes, and a well-established clump is a feature worthy of prominence among our choicest perennials. The plant throws up new branches from the ends of spreading underground stems, and ample room should therefore be allowed in a position where frequent disturbance will be unnecessary.

There are white- and yellow-flowered Baptisias, but B. Australis, the blue one, is undoubtedly the best.

Belamcanda punctata.—Though Iris-like in foliage the flowers of this plant are more lily-like in form. They are borne in loose branching umbels, a few only opening at a time. The colour is deep orange spotted with reddish brown. The plant likes a warm position but a moist root-run. It is a curiosity rather than a plant of great utility.

Bocconia.—Except in very confined space, where we perforce restrict our selection to those plants that occupy the smallest amount of room, we may take it as a general necessity or at any rate desirable that a few individual plants shall rise boldly and conspicuously above the general mass. In some cases massive form is required as well as height, but often elegance, and airiness or lightness are preferable characteristics, and under these conditions Bocconia cordata and B. microcarpa are plants that worthily command our attention.

The stems of these plants rise erect to a height of anything from six to eight or nine feet. They are loosely furnished with handsome leaves with deeply scalloped edges, the upper surface being rather dark green, whilst the under surface of the leaves and the whole of the stems are covered with a thick white tomentum. High above the foliage a waving mass of flowers in loose, shimmering panicles strikes the eye from a distance with an appearance of creamy vapour. A grand effect is produced if a big clump can be viewed against a background of Cedar trees. The roots are of peculiar appearance,

brown woody stems with pink growth buds starting irregularly from their sides, looking as though partially decayed. These, however, planted perpendicularly at a distance of a couple of feet apart, will quickly form a flourishing colony. B. microcarpa has flowers of a darker shade, akin to the tints of clouded amber.

Bupthalmum.—This is one of the composites to which the common name ' Ox Eye ' is given. The flowers have small daisy centres surrounded by a fringe of thread-like golden petals. B. salicifolium has small willow-like foliage, and grows in dense clumps to a height of two feet. B. speciosum is a larger and stronger plant of about double the proportions of the former. Both are very hardy, free flowering and effective.

Calystegia.—The perennial Convolvulus is useful as a rapid climber to cover dead tree stumps, screens, or rough fences for which a curtain of foliage is desired in a short space of time. C. hederaceæ flore pleno is the finest variety, producing double flowers of a clear pale pink. The one point that must not be overlooked is that the rampant roots of the plant are prone to trespass beyond their allotted space, and if allowed unrestricted freedom the Calystegia will oust neighbouring plants and monopolize an inordinate amount of space.

Campanula.—To accommodate a complete collection of campanulas one would require quite a large garden, and to name and describe all the species

and varieties in a manner that would be serviceable would occupy a volume. It would be practically true to say that Campanulas produce bell- or cup-shaped flowers of blue or white, but such a statement would convey no idea of the infinite variety of form, height, or habit, nor of the marvellous range of tones and shades ranging from the palest lavender to the bright azure or deep plum purple and almost indigo blue which are to be found among the tall stately border Campanulas or the dwarf or trailing gems of the rock-garden. It may without hesitation be said that wherever soil and situation make gardening a possibility some kinds of Campanulas may be grown. The majority will thrive in any good garden soil, and will flower in positions where lack of sunshine prevents many things thriving. Among the miniatures are some of our most delightful rock plants, and we have also varieties that are admirably adapted for edging the herbaceous border or beds of hardy perennials. C. carpatica in several named varieties is serviceable in either of these capacities, and it may also be utilized as the sole occupant of small beds, and with a little attention in the way of removal of faded blossoms and seed pods it will continue in bloom for a long period. The flowers of carpatica are shallow cup-shaped and hold themselves up to view. Those of the pusilla species, which are among the smallest of the family, are nodding bells, dangling like tiny fairies' thimbles. C. van Houtteii has pendant bells of exceptionally

large size, the colour being a rich shining purple-blue. This is generally claimed to be a hybrid, although no definite information regarding its actual parentage seems to be forthcoming. We may, however, content ourselves with the fact that it is a remarkably fine plant, and worthy of a prominent position where its handsome bells may be seen to full advantage. C. persicifolia and its several varieties are general favourites. Rising to two or sometimes over three feet in height, the spikes of large cup-shaped flowers, whether dark or light blue, or pure white, are very showy, and they make excellent decorative material when cut. The variety Moerheimi is a fine pure white, with semi-double flowers, Newry Giant being of similar character but even larger and more effective. A recent introduction named Telham Beauty is the finest of all the persicifolia type yet brought into cultivation, not only in size of bloom, but pleasing shade of blue. We cannot name all the varieties of Campanula, the list in some specialists' catalogues far exceed a hundred names, but for a choice selection the reader may well note in addition to those already named any of the following:—C. lactiflora, a bushy-growing plant with loose panicles of small flowers, creamy in ground colour, with an overwash of delicate blue. C. sarmatica, with pale blue nodding flowers. C. Alliariæfolia, with racemes of elongated white flowers. This species may be easily raised from seed. C. glomerata dahurica, of close-growing habit

with large tufted heads of bright violet blossoms, and C. latifolia, in blue or white varieties. Most varieties of Campanulas produce young shoots that may be taken off as cuttings in Spring. Division of the roots is another ready method of increasing stock. Seeds are abundantly produced and grow freely, but in many instances, especially with garden varieties, seedlings will vary considerably both in regard to height and colour. The Canterbury Bells, which are of biennial character and very popular for both beds and borders, are varieties of Campanula Medium. The section named calycanthema varieties are the Cup and Saucer Bells, and both may be had in shades of blue, rose-pink and white. Seeds sown in May or June, and transplanted before they become drawn and weak from overcrowding, will make strong plants for flowering the following year. The soil in which they are first transplanted should not be over rich, lest the growth become too sappy and soft to stand through the Winter. In Spring, however, it is well to dig in between the rows, or the groups in the border, a supply of short, well-rotted manure, and particularly fine specimens may be secured by feeding with liquid manure in frequent weak doses from the time the first sign of rising flower stems is observed.

Catananche.—The starry flowers of the cornflower-blue C. cærulea, and the blue and white C. bicolour are of peculiar character. The calyces are scaly, after the style of the old-fashioned everlasting flower.

They are borne on long straight stems, and are very decorative. Both varieties come practically true from seed, and wherever one has a sloping bank, or a particularly dry spot that is difficult to furnish the Catanauche should be given a trial. It is necessary to plant a good number of plants fairly close together to produce a pleasing effect.

Cedronella.—'Balm of Gilead' is the name given to Cedronella cana, and it conjures up sensations of grateful fragrance, at once soothing and invigorating. Nor is one's fancy doomed to shattering disappointment, for fragrance, fresh and strong, is the great attribute of an otherwise modest plant. Forming a bush of twiggy, rather brittle branches, densely clothed with small grey-green leaves, the plant throws up a number of stems to a height of two feet or over, nestling to which are brownish or chestnut-crimson flowers, by no means gorgeous in display but specially enjoyable in the twilight of a summer's evening when their fragrance is most pronounced. Seeds will germinate freely, and almost any side-shoot stripped off with a 'heel' will root in a compost of sand, leaf-soil and loam in equal proportions.

Centaurea.—The name Perennial Cornflower may appropriately be applied to some species of Centaurea, but there are some that would more aptly be described as Golden Thistles. Of the Cornflower tribe C. montana and its varieties are the best known. There are blue, pink, red, and white

varieties and one that claims to be sulphur yellow, but is often more of a greenish white. They are plants of easy culture, and as such are useful for filling up spaces that would otherwise be difficult to cope with; but they do not favourably compare with many plants that may be used in well-situated borders or gardens of restricted area. C. dealbata is a Cornflower in form, but of a lively rose-pink colour, and its blossoms are produced with freedom over a fine mass of handsomely cut silvery foliage. This is quite a useful plant, but the real treasures of the family are found in the majestic C. macrocephala, a noble plant with huge foliage and strong upstanding stems surmounted by large golden thistle heads, and the equally handsome C. pulchra major, with rosy heliotrope thistle heads with globular calyces coated over with straw-coloured scales. C. glastifolia has smaller yellow flower heads on branching stems, and C. ruthenica is an elegant tall-growing plant with lemon yellow flowers like a large Sweet Sultan. All the Centaureas may best be propagated from root cuttings, but both seed and division are other methods.

Centranthus.—Comparatively speaking a neglected plant, probably because it is known to be a British wildling, Centranthus ruber, in its coral pink, brick-red, and pure white varieties is a plant that should be welcomed with open arms by all whose gardens are on chalk, gravel, hungry sand, or are situated on sun-scorched, over-drained hill-sides.

One only needs to see the hard, impregnable-looking face of a gaunt steep chalk cliff clothed with the red Valerian, as Centranthus ruber is called, to realize that this is a plant of marvellous vitality, and neither its sleek, glaucous foliage, nor its closely packed heads of small red tubular flowers are lacking in beauty. When once young plants are established new stock may always be obtained by simply allowing seeds to scatter themselves around.

Cephalaria.—The giant yellow Scabious is very useful where one requires a screen for an ugly corner or a big tall plant to stand boldly over its neighbours' heads.

C. alpina and C. tartarica have both pale yellow flowers, while those of C. leucantha are cream. They are of Scabiosa form and, being borne on long stems, make pretty cut-flower decorations. There is no difficulty in their culture, but it is advisable to divide and replant about every third year.

Cerastium.—White-leaved plants with trailing stems and marvellously free growth, Cerastium Biebersteinii and C. tomentosum are capital plants for covering earthenware edging tiles, for carpeting beds of Phloxes, Delphiniums, etc., or for planting on graves. During Spring and Summer the white flowers are produced with such riotous freedom that they might well be called Snow Carpet, and when the plants overrun bounds all that is necessary is to cut them back with the shears.

Ceratostigma plumbaginioides.—Here we have a ponderous name, but a plant of unique and valuable character. Blue of clear decisive shade is never over-common among flowers. In Spring we have several good blue flowers, the Forget-me-nots, the Gentians, the Bluebells. In Summer Delphiniums, Aconites, Campanulas, and Lupins serve us in good stead, but it is in Autumn, when most flowers seem to adopt red and gold and true blues become very scarce, that Ceratostigma plumbaginioides throws up from among its red stems and shining green leaves its clusters of plumbago-like flowers of a clean bright cobalt shade of blue.

The plant delights in a spongy or peaty soil, where during Summer moisture is well held, and during Winter the surplus runs away from a sloping surface. Rocky slopes or warm banks afford congenial quarters, and if young growths are thinned out during Spring and Summer and used as cuttings the old plants will grow more vigorously and young stock will be easily produced. A former name for this plant was Plumbago larpentæ, but botanists decree that the more formidable name should be used.

Cheiranthus.—The Wallflower of our childhood's gardens requires neither introduction nor description, but the genus contains a few interesting species which are worthy of note, and which would be more freely planted if they were more widely known. C. Allionii is a remarkably showy little plant of biennial character, but easily maintained by sowing

home-saved seeds as soon as ripe. Its colour is brilliant orange, and the small flowers are produced in close heads over a compact little bush of foliage. C. alpinus is as its name implies an Alpine Wallflower, and its clear yellow flowers are very showy. C. Marshallii, a hybrid, is another orange-coloured flower of excellent character, and C. mutabilis is a very interesting plant, its flowers changing colour as they approach maturity, being almost white at first, changing to yellow and turning to a rosy purple before they fade. All except Allionii are best propagated from cuttings, which root without difficulty during early Autumn. C. Allionii may be depended upon to come true from seed provided a good stock is used, and of course the varieties of C. Cheirii, the ordinary Wallflower, are also raised from seed.

Chelone.—There are three or four species of Chelone which make quite useful subjects for grouping in the herbaceous border where their flower heads will produce a show of rosy, purplish, or white flowers for two or three months. The stems grow erect and are furnished with ample foliage, the blossoms being closely packed in a crown, the individual flowers somewhat resembling a half-opened Antirrhinum, the popular name of 'Turtle's Head' being not inapt.

C. obliqua is of a pleasing porcelain pink, and there is a white variety of this species, whilst C. Lyoni is of a rosy purple.

Chrysanthemum.—We used to speak of herbaceous Chrysanthemums and indoor Chrysanthemums, the former being taken to designate the marguerite-flowered maximum, leucanthemum, uliginosum, etc., and the latter the various types and groups of C. indicum, the double shaggy-petalled or neatly incurved Japanese forms that have for years been the special care of the National Chrysanthemum Society. Latterly, however, we have evolved an early-flowering section of this latter group, and so rich and varied are its many varieties that they have become quite indispensable, and are among our very finest of hardy garden flowers. It would therefore be misleading and practically speaking inaccurate simply to write that the common names of the Chrysanthemum are Ox-Eye Daisy, Shasta Daisy, and Marguerite, for these are names applied only to the one section which we will first pass briefly in review.

The most popular of the purely herbaceous perennial Ox-Eye or Moon Daisies is C. maximum, of which we have a number of large-flowered named varieties grown in immense quantities for cutting as well as for garden decoration in beds and herbaceous borders.

Until quite recent years the original type was usually grown, but its natural grace, long straight stems, and remarkable lasting qualities led raisers to devote attention to the production of new varieties, and so vastly has the plant been improved that the

old type is quite outclassed, and both for pleasure or profit modern up-to-date varieties are planted.

Mayfield Giant is one of the finest at present in cultivation, its flowers being easily produced at a diameter of six or seven inches. Rentpayer is an early and continuous bloomer that is being very largely grown for market. Robinsoni has deep lacerations in its petals, giving the flower a distinct fringed appearance that is very pleasing. So many varieties are being introduced that even a complete list up to date would doubtless be incomplete within a season or two. C. atratum is a species similar in character to C. maximum, and C. lacustre is another but stronger-growing and very free-flowering species, which, however, requires a moist position to ensure best results, and does splendidly when planted near the water's edge. C. uliginosum is of quite distinct character, and is a plant of considerable importance blooming late in Autumn, associating with the Michaelmas Daisies and providing most useful decorative material for church work during the season of harvest thanksgiving services.

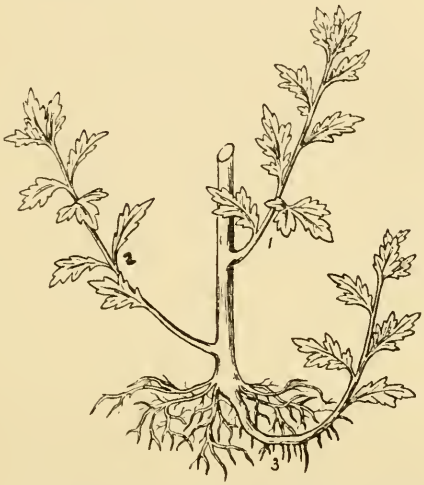
This plant grows perfectly erect to a height of five or six feet, each stem bearing a number of white-rayed, greenish-centred blossoms. All of the foregoing may be propagated with the greatest ease by lifting the clumps in Autumn or Spring and pulling the crowns apart with roots attached. Passing mention must be made of the dwarf and

miniature species of Chrysanthemum such as the silvery-leaved C. argenteum and C. cinerariæfolium, and also Alpinum and Arcticum, Bornmulleri and Caucasicum, all of which make capital edging plants as well as Rock plants. These are best propagated from cuttings in cold frames.

Chrysanthemum indicum (early-flowering section). —From August to October the early-flowering Chrysanthemum plays a most important part in the maintenance of colour in the garden and provision of flowers for cutting. Of late years the early-flowering section has been so rapidly and greatly improved that in beauty of form, variety and richness of colour, and in all-round serviceability there is no vital disparity between these and the late-flowering section. We do not, admittedly, see giant blooms such as we are accustomed to see at the November exhibitions of the National Chrysanthemum Society, nor would such blooms be serviceable in the open garden, where the gorgeous colour effects are admirably secured by means of the liberal masses of moderately-sized flowers grown in a perfectly natural manner, whilst by a judicious reduction of growths during Summer and a moderate amount of disbudding combined with liberal watering and feeding, quite good individual blooms are obtainable. So far as varieties are concerned we may have all the colours obtainable among those of the later bloomers, and the chestnut-reds, the bronze, orange, and yellow shades so

appropriate in Autumn are even finer in the early than in the late section.

To grow outdoor Chrysanthemums really well cuttings should be rooted during December and January, under glass, but not in strong heat. Choose sturdy young growths from the base of stock plants which have been potted as soon as flowering ceased. Insert these in sandy compost, and when rooted pot off singly into small pots. Grow on steadily in moderate warmth, giving plenty of light and ventilation, and if possible re-pot into five-inch pots as soon as the small pots are moderately well filled with roots. Stop the points of the shoots when about six inches high, harden the plants off gradually, and plant out when genial Spring weather warrants. The ground should be prepared in Autumn by deep digging, liberal manuring, and



AN EARLY FLOWERING CHRYSANTHEMUM "STOOL" SHOWING YOUNG SHOOTS.

NO. 1 WILL NOT MAKE A SATISFACTORY CUTTING, BEING AN OUTGROWTH OF THE OLD STEM. NO. 2 IS BETTER, AND MAY BE USED WHERE STOCK IS LIMITED; BUT NO. 3, GROWING DIRECT FROM THE BASE, MAKES THE IDEAL CUTTING. THESE BASAL SHOOTS MAY OFTEN BE SECURED WITH YOUNG ROOTS ATTACHED.

an application of lime if such is deficient. Afford all the room possible, and attend early to staking, looping each branch loosely to the stake in preference to tying all the stems in a close bundle. Mulch the ground before hot weather sets in either with loose stable litter or spent hops, and never allow the plants to suffer from lack of water. Combat insect and fungoid pests by frequent spraying, and feed judiciously, by frequent weak applications of a good fertilizer in liquid form, commencing as soon as buds become visible, and continuing until the flowers are nearing the fully-expanded stage.

In regard to disbudding it is not usual to reduce to one bud per stem when the plants are to bloom in the open garden. Large blooms do not stand the Autumn dews, fogs and rains as well as the smaller flowers, and the greater quantity of small blooms creates a more effective display in the garden than a few big blooms will do. Nevertheless there is no reason why a few small side-buds should not be removed from crowded heads, and the correct time to do this is as soon as the buds are large enough to be separately detached by gentle pressure of the thumb-nail.

Chrysogonum Virginianum.—Dwarf, and of semi-procumbent habit, with leafy stems and freely produced starry flowers of a bright yellow, this plant makes an admirable carpet between taller-growing plants with spiked flowers. The Chrysogonum will continue to bloom from early Spring

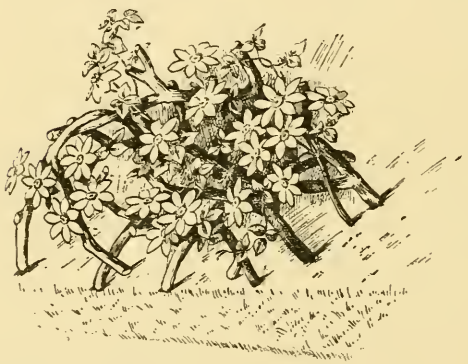
to late Autumn, and over its yellow and green setting the rosy purple spikes of Liatris, or the white racemes of Cimicifugas are thrown into fine relief.

Many such combinations will suggest themselves to artistic tastes, and as the Chrysogonum is a good-tempered plant that will thrive almost anywhere it should be freely used to cover otherwise bare intervals of space.

Cichorium Intybus.—This is the Wild Chicory that grows so freely on chalk cliffs, and because it grows wild is so little used in gardens, but its clear sky-blue flowers are of a shade we can never have too much of, and a good colony of a dozen or more plants, given perhaps only an awkward corner of the garden, on a bank, or by a dry wall, will form a fine and distinctive feature. The plant has rigid stems that break out in angular fashion, and the blue starry blossoms nestle in the joints of the stems. Some lime in the soil is all the plant asks for to make it happy.

Cimicifuga.—There is something quite uncommon and extremely graceful in the whole appearance of a well-developed and flourishing clump of Cimicifuga. The foliage is elegant and beautiful, and the feathery racemes, like long fluffy tassels, are pure white in some, ivory or cream in others, but always charming. The plant loves a cool moist root-run, and does best when the soil is rather light, either peat or leaf-mould being beneficial to

help ameliorate a naturally stiff cold soil. Spring is the best time to transplant or propagate by division, for Autumn is the flowering period, and sometimes if disturbed too soon after flowering the crowns are disposed to rot during Winter. If Cimicifugas can be so placed that they have a background of Rhododendrons, or such shrubs as Laurustinus, Escallonia, or even a Yew hedge, their waving racemes are thrown up more conspicuously.



A Rustic Support for Clematis in the Open Garden.

There are seven or eight species and varieties, all being interesting and well worth growing.

Clematis.—The orthodox method of planting Clematis to be nailed to a wall may be a good means of partially toning down the ugliness of plain bricks, but it is not the best method of showing the Clematis in its full glory.

Often the roots are in a constant state of starvation through the overhanging eaves preventing rain from reaching them. Sometimes the richness of their colours is deadened by the red-brick background, and the neglect of necessary pruning and

training spoils many a plant that should present a fine appearance.

Why do we not more often plant Clematis in the open border with a few rough boughs or an old tree stump for them to ramble over? Once seen growing in this fashion, the real glory of a well-developed Clematis is indelibly impressed upon the mind, and whenever a herbaceous border is contemplated, space for a Clematis should be insisted upon.

Nor do we need to confine ourselves to the general run of Jackmannii, Lanuginosa, Viticella and other of the types listed as climbing plants, for there are a number of charming hardy and easily-grown species and varieties that belong specially to border perennials.

C. alpina in its violet and white forms, Coccinea with its vermilion blossoms, integrifolia with purple-violet bell-shaped flowers, and the two forms of heraclæfolia, one of which is better known as C. Davidiana, are among the most showy and useful kinds, but we must not neglect the single and double forms of C. recta with trusses of glistening white sweetly-fragrant flowers. Orientalis, often named Graveolens, is noteworthy because it has yellow blossoms, an unusual colour for a genus where blues and purples are predominant. It is best to be satisfied to put out small young plants but allow plenty of space, arranging branches or other foundation material so that the plants may

spread well out toward the chief point of view.

Cnicus.—Here we have a genus of biennial thistles of majestic proportions and handsome outline. C. arachnoideus is known as the Cobweb Thistle by reason of the thread-like filaments that grow from point to point of its spiny bracts.

C. conspicuus has flower heads of orange scarlet and there are three or four others that have distinctive beauty in foliage bracts and flowers.

Choose an open, dry position where big plants may show to advantage, their height ranging from five to seven feet or so. A big isolated bed on grass filled with these plants makes a feature of tropical luxuriance. All are easily raised from seed.

Codonopsis.—Akin to Campanulas but of a trailing habit, Codonopsis ovata is a lovely flower that best reveals its charms when tumbling over the edge of a wall garden well above the adjoining walk. In such position the interior of the bell-shaped flowers are brought to view, and as this is spotted and veined with yellow and white on a porcelain-blue ground, the beauty of a well-grown plant may be imagined. Rotundifolia is another with blue and yellow flowers. The plants like plenty of sand in their root-run and delight in full exposure to the sun.

Colchicum.—There is always a peculiar interest in a plant that produces flowers before leaves, but whilst several shrubs and trees follow this plan

they have their stems to give them some semblance of normal character. In the case of the Colchicum, known as the Autumn-flowering Crocus, there is no other sign of life than that of a cluster of clean fresh-looking flowers emerging direct from the ground during the month of September, the big broad leaves not putting forth until some time after the flowers have died away.

There is a striking beauty about these flowers that when closed look like little Indian clubs of white, lavender, or rosy purple, and when fully expanded are shimmering stars with a luminous sheen against which rich red-orange anthers show up like miniature shafts of flame. To make the best of Colchicums they should be planted in small isolated clumps in places where no other bright-coloured flowers stand at the time, but where the dark foliage of evergreen shrubs forms a background. A light soil, rich in humus and with plenty of sand, suits them, and they should remain undisturbed for several years. When transplanting is necessary it should be done directly the foliage dies down, probably toward the end of July.

Convallaria majalis.—Many readers may fail to recognize the dainty little Lily of the Valley, which is every one's favourite, under its strange Botanical name, but every one will admit that a bed of Lily of the Valley is one thing to have in the garden. One often hears complaint that there is a bed of leaves in the garden, but never many flowers.

Another complaint is that Lily of the Valley will never behave itself but is always breaking out of bounds and choking other little plants around. When these complaints are made the reason of the trouble is obvious. The lily bed has been left to take care of itself too long in the first instance, and is in the wrong place in the second. The proper place is not in the general flower border, but in a small plot either at the foot of a wall, in the foreground of shrubs or even under trees, and bounded by a hard pathway that will tend to check the tendency of the rambling root-stems to spread beyond their allotted space. A cool moist spot too heavily shaded for many plants will suit Lily of the Valley, and if leaves from overhanging trees fall upon the bed every Autumn, so much the better. In making a new bed the first thing is to dig the ground to a depth of at least two feet, working in a good dressing of cow manure or well-rotted stable manure, leaf-mould, and burnt ash. Draw drills about three inches deep and nine inches apart. The next thing is not to place tangled masses of roots and crowns in patches at intervals along the drills, but to carefully separate the roots, selecting those with round, plump crowns and laying them evenly in the drills so that the crowns are three to four inches apart. Cover with soil free from stones, and if the soil is dry, as it may be at the best time for planting, which is during September, give the whole bed a thorough watering.

In January or February of each year mulch the bed with an inch or two of short manure rubbed through a coarse sieve, and whenever the bed is dry during Summer give a good soaking, occasionally using liquid manure. After three years' growth measure the bed off into nine-inch strips, and after cutting down the sides carefully with a sharp spade remove both soil and roots from alternate strips, filling in with well-enriched soil. The portions left untouched on the first occasion will be cleared and refilled with soil three years later, and by continuing on these lines an excellent and prolific bed may be maintained on the same site for a period indefinite.

Convolvulus.—Whilst the Annual Convolvulus is quite commonly seen in gardens, and is familiar in both its climbing and dwarf or Tom Thumb varieties, the Perennial Convolvulus of which there are several species is but seldom met with. As trailing plants the purple- and red-flowered kinds are beautiful and effective, and one named incanus has pretty silvery foliage which shows up finely against a dark background of soil. C. Mauritanieus is one of the nicest of the perennial species, the vine-like growths being studded with rich violet-purple flowers. A fairly rich soil and a steep slope down which the trailing growths can ramble suits the plant well, and there is no difficulty in their culture.

Coreopsis.—Market growers and the florists' shops

have made the golden flowers of Coreopsis grandiflora so familiar that there is no need to describe their rich colour, elegant form, or artistic charm. It is almost as unnecessary to discuss cultural detail, for if seed is sown in May or June on a patch of ground that gets some sun, and the seedlings are transplanted before they become overcrowded, and again removed to flowering quarters either in Autumn or Spring, the plants will thrive in heavy soil or light and will produce an incredible quantity of useful flowers from June to October, provided they are not allowed to carry a large quantity of seed. It is best to raise a fresh stock every season, as the species is more biennial than perennial in many districts, and is never so fine after the first season even where its life is prolonged.

There are, however, real perennial kinds, C. lanceolata being very similar to grandiflora but smaller, so far as individual flowers are concerned.

C. verticillata is a totally different plant. It produces slender but strong wiry stems clothed with finely-cut foliage giving the plant somewhat the resemblance of the well-known Annual Nigella or ' Love in the Mist.' Its flowers are small, starry, narrow petalled, but of a bright, conspicuous yellow, and are clustered in loose heads that have great decorative value.

Both the last-named and previous species are easily propagated by division of the roots.

Coronilla.—If one has a stretch of rough ground

exposed to sun and wind which he desires to cover with herbage, Coronilla varia is a plant that may commend itself to his attention. Semi-prostrate stems, densely clothed with vetch-like foliage, are thrown out in all directions, and at close intervals along every stem flowers are produced in close clusters, the colour varying from deep rose to pale pink and almost white. Seed or division of clumps will provide ready means of increase when desired.

Corydalis.—Were there no flowers at all to give brightness and colour to Corydalis, or Fumitory as we have it in English nomenclature every one of them would still be decidedly worth growing for the sake of their foliage, which is as elegant and dainty in form and as restful and pleasing in colour as the fronds of the most popular ferns. Given shade, moisture with drainage, and just a little protection from the rigours of Winter, such as may be afforded by a wall, flight of steps, or a clump of evergreen shrubs, the fumitories will form flourishing colonies in the space of two or three years, and their clusters of blossoms are borne with profusion over a long period of Spring and Summer. It is difficult to understand why so many herbaceous collections seem to omit entirely the whole of so pretty a genus. Maybe the fact that our wild red fumitory is at times troublesome because of its free seeding and rapid germination propensities, and that the common yellow C. lutea is almost as prolific, has brought the two of them into disfavour

and fostered the impression that the whole family may well be shunned, but it is a great pity this should be so, as the white-flowered angustifolia, the cream, green-tipped Capnoides, the large yellow-flowered thalictrifolia are delightful plants, while there are still several others that may well find a place in the shady corners of the garden. Seeds scattered in Spring in the places where the plants may grow undisturbed will quickly establish a stock.

Crambe. — Resembling nothing so much as Gypsophila on a giant scale, Crambe cordifolia is a noble plant that will grow to a height of five or six feet, and as an isolated specimen makes a fine and conspicuous object. Orientalis has larger flowers but is still light and airy in appearance. Pinnatifida is the greatest of the giants, frequently attaining as much as eight feet in height.

The Crambes like a chalky or gravelly soil, and the best plan is to sow two or three seeds in a pot, thin to one plant as soon as large enough to handle, and plant in a position where disturbance of the root will be unnecessary.

Crinum.—The Cape Lily is an aristocrat among border plants, its stout stems surmounted by large trumpet-shaped flowers presenting a rich and noble appearance. The roots are bulbous, and should be planted several inches deep, for they are hardy so long as the crowns are well buried. A position at the foot of a south wall, where they have the benefit of sunshine, but are not exposed to rough

winds, is the most suitable place for Crinums.

Cyclamen.—Generally speaking the hardy Cyclamen are classed among Alpine and Rock plants, and certainly their dainty little blossoms and handsomely-marbled foliage befit them for the cosiest little pockets and ledges in the lower parts of the Rockery, but to reveal their full charm and win the fullest admiration their merits entitle them to, the very best situation for a colony of hardy Cyclamen is a cool, moist, leafy bed under the grateful shade of woodland trees. Here, with perhaps Snowdrops and Wood Anemones as companions in Spring, Cypripedium spectabile and Orchis in variety during Summer, and the rare but sweetly charming little Leucojum autumnale later on, we may have one or another species of hardy Cyclamen in bloom practically throughout the year, whilst their silver-and-green foliage is an endless delight. Seed raising is a means, but rather a slow one, of securing stock, but a quicker and not extravagant method is to obtain imported corms in a dormant state. The corms, when they arrive, are generally in a very dry condition, and it is inadvisable to commit them straightway to the ground.

The better plan is first to lay them in shallow trays of cocoa-nut fibre, covering with the material and keeping them tolerably moist and in a cold frame. As soon as growth has well commenced pot singly, using a soil made up of one-half sifted

leaf-soil, and the other half fibrous loam and sharp silver sand in equal proportions. When roots appear round the sides of the pot the plants may be bedded out, and when growth ripens off cover the crowns with an inch of good leaf-soil. C. coum and its varieties will begin to bloom in January, the ibericum class follow in February and March, repandum flowers from April to June, Neapolitanum is in full splendour from early August to late September, and latifolium and cilicicum carry on till toward Christmas.

Cypripedium.—The Lady's Slipper is one of the largest flowered and most effective of the several species of Orchids that may find a place among Hardy Perennials. One species of British nativity, although but seldom to be met with in a wild state, is C. calceolus, and as its name implies it likes a calcareous or limy soil. In this respect it differs from the rest of the genus, for a peaty soil and almost boggy conditions suit them best. Cypripediums are most frequently planted in the Rock garden, but they are well adapted for companionship with hardy ferns, and with primulas, the choicer Irises, Astilbes, and that daintily beautiful plant Gillenia trifoliata. C. spectabile is without doubt the finest and most striking of the hardy species, its large rose-coloured pouch or slipper contrasting finely with the white sepal and strap-like petals. There are, however, quite a number of other interesting kinds, some of which are veined and marked

with brown or green on yellow or white, and are no less beautiful than their hot-house relatives. To establish a colony pot plants should be used, or if roots from the open ground are obtained it is best to start them in pots of peaty soil rather than plant immediately in the open. When once the plants make themselves at home it is inadvisable to disturb them until they become really crowded.

Delphinium.—Few indeed are they who have a taste for flowers at all, and who yet do not admire Delphiniums. It may indeed be claimed that these stately plants are special favourites with the vast majority of garden lovers, and almost invariably when one's advice is sought about planning a garden or selecting subjects for a herbaceous border the question is asked with hopeful expectancy, 'Can we have some Delphiniums?' It is fortunate indeed that a genus of such irresistible attractiveness may be grown in most gardens with little difficulty, subject only to certain well-defined conditions that are not usually difficult to fulfil.

In the first place, Delphiniums ask for a sunny position away from the shade of trees. It is unwise to plant them in positions where they will be exposed to rough winds or cutting draughts, the former being likely to break down the tallest and most effective spikes, while the latter will frequently result in attacks of mildew, a disease to which Delphiniums are somewhat prone. In regard to soil the very best is a deep rich loam, well and

deeply dug, but Delphiniums may be made to flourish even on a harsh, gravelly, or hungry, sandy soil simply by incorporating a liberal quantity of rotted manure, leaves or well-decayed garden refuse, and by mulching in Summer with loose litter, spent hops, or peat litter. If soil is excessively heavy, cold, and wet, effort should be made to ameliorate it by incorporating sharp sand, lime, and ashes from the rubbish fire, and transplanting should be done in Spring just as growth commences, or in Summer immediately after the principal flowers have passed, but never in late Autumn just as the plants are going to rest. In fact the Delphinium is one of the plants that we would refrain from disturbing in Autumn even where soil is ideal, except for the purpose of cutting up the stools to single crowns for potting in order to increase stock of a particular variety, in which case they would be kept in a frame or a cold-house through Winter.

Delphiniums of strongest and freest growth are easily raised from seed, and although we can never be sure as to colour and form of the seedlings, it is tolerably certain if the seed is saved from a collection of good varieties that we shall get some plants at least that produce good spikes of pleasing flowers. Seed may be sown early in the year in pans under glass, the seedlings being pricked out as soon as characteristic leaves appear, and after hardening off the young plants may be put out to permanent quarters during the Summer, and will flower

the following year. Slugs are the greatest enemy of seedling Delphiniums, as also of the succulent young shoots of established plants.

The usual precautionary measures as detailed elsewhere must be adopted to combat these destructive pests.

Cutting up the roots to single crowns and potting the pieces in light sandy soil is, as already mentioned, a means of increasing stock of a particular variety, but where one is disinclined to disturb a whole plant a youngster or two may be obtained by removing a few young shoots from the base when about three to four inches long. Sever with a sharp knife, cutting just a 'heel' of the rootstock at the base of the shoot. Dab the end in a saucer of dry powdered charcoal and insert firmly in a small pot filled with silver sand. Keep just moist in a close frame or cloche in a sheltered and not too sunny spot. It will be some time before roots are formed, but when this happens pot on into larger pots of leaf-mould with a little loam and silver sand. From these pots the plants may in due time be transferred to flowering quarters.

Of florists' varieties of Delphinium the varieties are wellnigh innumerable, and it is these that are so immensely popular. In colour they run the whole gamut of blue shades and combinations of blue, mauve, lilac and purple, whilst there are white and almost white varieties, and double, semi-double, and single-flowered forms. To single out varieties

that are entitled to special mention would be very well at the time the comments were written, but the most up-to-date review of the Delphiniums of the day would be hopelessly out of date in a very few years, so rapid is the pace of development and improvement. Occasionally a break is made that seems to project some particular variety far beyond the front rank. As instances we may mention the Rev. Lascelles, which is notable for density of spike, size and symmetry of pip or individual flower, and for the startling contrast of its white centre against the deep rich blue of the guard petals. Statuaire Rudê is another totally distinct but equally remarkable flower. Its colour is a soft opalescent lavender with centre petals of an almost rosy pink shade. Moreover, the individual flowers are of wonderful size, and the spike is tall, robust, and branching. One might, however, proceed to name and describe a host of outstanding varieties, each possessed of striking colour or distinctive form in flower and spike, but after all it depends upon personal taste whether one type or another is most prized, some admiring the close, compact spike of symmetrical double flowers, others the massive much-branched stems loosely clothed with broad-petalled single flowers on long foot-stalks, each individual blossom standing out independently, and it is sufficient that either taste may be well gratified.

We have yet to mention a few distinct species of Delphiniums which introduce colours to the

genus that are not found in the garden varieties of the florist. D. cardinale gives us bright scarlet, as also does the early-flowering D. nudicaule, a quaint little plant of only about a foot in height. This may be readily raised from seed, when considerable variation of colour will probably be produced, but always with red, scarlet or flame predominating.

D. Sulphureum or Zalil brings pale yellow into the range of colours, and thus we have an exceptional instance of the three primary colours being represented in one genus. There are a few white Delphiniums, D. grandiflorum album being a fine counterpart of its blue type.

Dendromecon rigidum.—There are some plants which have been in cultivation for many years, and are of pronounced beauty and distinction, but still remain among what may be termed 'Rare and little-known Plants.' The Dendromecon is one such plant. It is of shrubby habit, and its blossoms are poppy-like in form and of a beautiful soft yellow colour. The plant hails from California, and its requirements are deep, well-drained soil, a sunny, sheltered position, ample water supplies in Summer, and some protection from excessive saturation in Winter. Probably one reason of its rarity is that propagation demands a little special care. It is not a plant that roots easily from cuttings, but if growths near the base of the ground are pegged down into a sandy compost, and kept moderately

moist they will in due time throw out roots, when the growths can be severed from the main plant and potted. By the following Spring, vigorous young plants will be ready for planting out.

Dianthus.—Under this generic name there are grouped a number of the most popular favourites among florists' flowers, and a great many lovely species that are highly prized as Rock-garden subjects.

The border carnation, botanically named D. caryophyllus, has been the subject of much literature, and naturally so for it has long occupied a foremost position among the exhibition flowers of the orthodox florist.

The flakes, bizarres, picotees, and yellow-ground fancies which grace the exhibition table are generally grown in pots and given the protection of a glass roof to preserve their blossoms from damage by rain or dust, this method of culture demanding much care and considerable skill; but treated as ordinary garden perennials the requirements of the Carnation are perfectly simple, and the plants are not only perfectly hardy, but are among the very best of subjects for the town garden, being exceptionally capable of withstanding the evil effects of a smoke-laden atmosphere. A loamy soil, with plenty of sand and lime, best meets their requirements, firm planting, judicious staking to support their weighty flower stems, and a moderate amount of feeding and disbudding constituting the main principles

of culture. Propagation is generally effected by layering, which should be done during July or August.

First remove the surface soil around a plant to form a shallow basin, about two inches in depth. Fill this with a mixture of sifted leaf-mould, loam, and a liberal addition of sharp sand. Take each well-developed growth individually, cutting away a few of the lower leaves, and with a small sharp knife make an incision immediately below the underside of a convenient joint. Turn the edge of the blade in an upward direction and cut through the centre of the stem as far as the next joint. Keep the cut open, and very gently—in order not to snap the weakened stem—press into the prepared soil, holding the growth in position by means of a layering pin or a hooked peg made from stiff birch twigs. When each shoot is layered cover over the pegged portions with more of the compost, pressing gently so that the whole is neatly finished off in a slightly raised mound. Water with a fine-rosed can, and repeat

LAYERING CARNATIONS.

THE STEMS WHEN PEGGED DOWN MUST BE COVERED WITH SOIL TO THE BASE OF THE FOLIAGE.

the watering as necessary during dry weather. By mid-September the layers should be well rooted, and can be severed from the parent plant. Draw the pegs, and carefully lift each layer with a small hand-fork.

The young plants may be either bedded out immediately or potted for keeping in a frame through Winter. It is possible to strike cuttings by cutting square immediately below a firm joint, making a slit upward from the base midway between the sides and up to the next joint. Insert the cuttings in a compost of half sand and half leaf-mould, and place in a close frame, watering sparingly.

The Garden Pink is a descendant of Dianthus plumarius. In general principles the culture of Pinks is akin to that of Carnations, but propagation is effected either by lifting old clumps and pulling them apart or by pipings, which are cuttings severed from the plant by a sharp upward pull.

The Sweet William, progeny of D. barbatus, is usually treated as a biennial, seed being sown one season, Spring or early Summer, for flowering the following year.

Several of the dwarf and trailing species, particularly D. deltoides, are useful edging and carpeting plants in addition to being superb rock plants.

Dicentra.—The most useful member of this family is the plant known as ' The Bleeding Heart,' Dicentra (or Dielytra) spectabilis. Its elegant fern-like foliage

and arching racemes of red and white heart-shaped flowers make the finest display when grown in peaty or leafy soil in cool, shady places. The plant does well among groups of shrubs.

Dictamnus. — Commonly labelled Dictamnus fraxinella and fraxinella alba, but more correctly named D. albus and Albus purpureus, this plant is also called the Burning Bush. The aptness of this name may be demonstrated on a still Summer's evening by placing a lighted match close to its flower spikes. The whole plant will be momentarily enveloped in flame, which, however, quickly disappears, leaving the flowers even of the white variety quite unharmed. The phenomenon is due to exudation of a volatile oil which lingers in vapour around the plant. The foliage is handsome, and the flower spikes of both the ruddy purple and the white varieties are pretty.

Stock may be raised from seed which is freely produced, and may be sown in the open as soon as ripe.

Digitalis.—The Foxglove (*Digitalis purpurea*), although a native Wildflower, is not to be despised. Its tall spikes of pendant bells shaded and spotted in varying and delightful manner are capable of producing fine effects in dry, hungry soils, whilst for naturalizing in the wild garden or woodland they have few superiors. Sow seeds and treat as biennials. There are one or two yellow-flowered species which are novel and interesting, D. ambigua, and D. lutea being both worthy of cultivation.

Dodecatheon.—Dwarf in stature, and of quaint appearance, the Dodecatheons are delightful little plants for the foreground of shady borders. Their flowers are not unlike Cyclamen, but are borne in loose umbels on erect stalks, their colours embracing various shades of violet, purple, and rose, as well as white. The roots are fleshy, and they like a light soil of good depth. Propagate by carefully dividing well-developed clumps.

Doronicum.—Among early and continuous flowering border plants, Doronicum plantagineum excelsum is one of the best yellow composites for cutting. As early as March it will bloom freely in an open sunny situation, and if well manured and watered during periods of drought no plant can be more easily grown. Increase of stock can be effected by dividing the clumps in Autumn. There are several other species, but that named has the largest, brightest flowers on long straight stems.

Dracocephalum. — A useful border plant is Dracocephalum speciosum, producing erect stems with rosy mauve flowers in close-set spikes; D. Ruyschiana is purplish-blue, both these and other species thriving in ordinary soil with no difficulty.

Echinacea.—Despite the customary catalogue description which tells the reader that Echinacea purpurea is a handsome tall-growing border plant with large rich purple flowers, useful for cutting, this is one of the plants that more often than not are disappointing rather than pleasing, and the

space a clump of Echinacea will occupy might better far be occupied by something else. The objections to this plant are that it is stiff and inelegant in growth, and the colour of its flowers is rusty, faded plum-purple rather than rich crimson as it is sometimes described. True, it flowers late in Autumn when many plants have gone to seed, but there is no real dearth of flowers in a well-ordered garden at the time the Echinacea blooms.

Echinops.—For the handsome steel-blue globular heads of the Globe Thistles we have naught but praise. Their glistening heads make a capital show in July and August, and if cut with long stems and hung in a cool airy shed to dry they will preserve their beauty to serve as Winter decorations.

The plants do best in soils of a sharp gritty nature, and are particularly suitable for cultivation where chalk, gravel, or stones are prevalent. Propagation is best effected by means of root cuttings. E. ritro is one of the most serviceable, E. bannaticus, or ruthenicus as it is often called, is larger and taller, whilst E. giganteus and E. sphærocephalus are huge white-flowered varieties. A very interesting hybrid quite recently introduced is a cross between bannaticus and giganteus.

It retains the steel blue of the former, and attains even more noble proportions than either of its parents. Plants in our own garden reach a height of over nine feet, the much-branched stems being abundantly furnished with globes as large as the

head of a drum-stick. It is indeed a giant and will become a great favourite.

Epigæa repens.—This may be classed as one of the plants that never outgrows the stage of rarity, although it has long been in cultivation. It is a lover of peat, shade, and moisture, and provided with such conditions it will carpet the ground with leafy stems, and produce charming little white flowers with tinges of red to brighten them up. The blossoms are pleasantly perfumed. It is a charming plant to grow in company with choice small-growing Rhododendrons, Azaleas, or hardy Ericas.

Epilobium.—A wilding of our British woodlands, Epilobium angustifolium, with rosy red flowers in long tapering spikes, and its pure white counterpart, the variety album, are two of the most charming and accommodating plants that we can select for planting under the shade and drip of tall trees. In such situations where the majority of plants would languish or die the Epilobiums will flourish and increase apace. In such spots it should be planted, for given a position in the open border the Epilobium will rapidly outrun its allotted space and overgrow smaller and less vigorous companions.

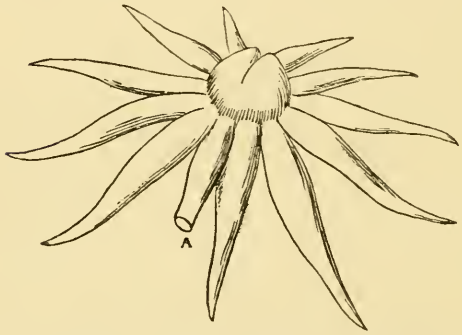
Epimedium.—For those who admire beautiful foliage as well as flowers the Epimediums are a family that should command special attention. Early in Spring the young foliage is marvellously pencilled and flushed with delicate rosy tints.

During early Summer slender fragile-looking racemes of flowers appear, some species bearing yellow, some white, and some red or rosy-tinted blossoms, and again in Autumn the ripening foliage takes on rich bronzy and chestnut tints. The plant is evergreen or practically so, and it is of easiest culture if given a fairly free soil with a good proportion of leaf-mould through which its creeping underground stems may penetrate with ease. Division is simple and affords an easy means of increasing stock.

Eranthis hyemalis.—The Winter Aconite, as it is frequently called, is the diminutive Buttercup-like flower that thrusts its short-stalked golden blossoms through even snow-covered ground to herald the dawn of another flowering season. The tuberous roots may be planted at the foot of shrubs, alongside shady walks, or even under the turf of the lawn, and once planted may be left undisturbed until it is desired to thin them out or increase stock.

Eremurus.—It would be difficult indeed to name a more noble, imposing, or aristocratic-looking flower than a fully developed spike of one of the larger Eremuri. It would be impossible to convey by written description an adequate idea to those who are unacquainted with the genus of the splendour and grandeur of a well-established group of Eremuri in full bloom. It is a sight the real lover of flowers would eagerly travel far to see. Imagine a broad-spreading mass of long, substantial, stalkless leaves arching around in all

directions from a stout central crown from which also rises erect and strong to a height of six or seven and even sometimes up to ten feet, a stout but gracefully swaying flower stem. The upper half or more is clothed completely with flatly-opened blossoms poised upon slender foot-stalks so that the tips of the petals just meet those of the surrounding blossoms. The colour is most delicate flesh pink, and in the centre of each flower a bunch of long stamens with bright pollen-heads enhances the loveliness of the whole. Such is a spike of Eremurus robustus. But there are others, some as tall and majestic, some smaller, but not lacking in attractiveness. There are yellow species, and of late years some very remarkable and lovely hybrids have been introduced, adding immensely to the richness of a remarkable family of plants.



THE FLESHY, TUBEROUS ROOT OF EREMURUS. NOTE THE BROKEN TUBER AT *A*. THIS WILL PROBABLY ROT.

The roots of an Eremurus are long fleshy thongs radiating from a central crown. Disturbance of these roots is fraught with danger, for they are brittle and easily broken. The best means of

establishing a group or colony is to plant quite young seedlings, allowing four to six feet between each. The soil should be deeply dug and well enriched so that once planted they may remain undisturbed. A little protection of the crowns in Winter is advisable, and precautions should be taken to keep slugs and snails at a distance or they may do damage by gnawing the succulent crowns just as they are breaking into new growth. Periodical mulchings with short manure will keep the plants well nourished.

Erigeron.—The daisy-like flowers of the Erigerons are possessed of the beauty of simplicity, and several of the species and garden varieties are useful to provide patches of colour and flowers for cutting. Quite ordinary care suffices to ensure the plant's comfort and success in almost any soil and situation except where sunlight is absolutely excluded.

Eryngium.—Here we have another extremely useful family of plants producing branching stems with Teazle-like flower-heads backed by elegantly cut leafy and spiny bracts, and which will either maintain an attractive display in the garden for a long period, or if cut in their prime and well dried will serve the purpose of Winter decorations in company with other 'everlastings.' Most of the Eryngiums are of the peculiarly lustrous blue that we term 'steel' blue, but E. maritimum is glaucous grey, almost white, and E. giganteum is silvery white on a sea-green ground.

These two are best raised from seed and treated as biennials, but the rest of the family may be propagated from root cuttings.

The Eryngiums are popularly known as Sea Holly, and are very suitable for seaside gardens and also for chalky soils.

Erythronium.—For quaint beauty and distinctive character the Erythroniums, otherwise known as the Dog's-tooth Violet, are bulbous plants that should receive more notice than is generally accorded them. The foliage of most of the species is mottled or spotted with brown, and the delicate-looking flowers are of dainty form and colouring. The bulbs should be planted in cool shady places where they can remain for several years without disturbance, an occasional top dressing with leaf-mould and sifted manure being of considerable benefit. Erythroniums are also eminently suited for cultivation in pans or bowls in an unheated greenhouse, early Spring being their season for flowering.

Fritillaria. — The Crown Imperial (*Fritillaria Imperialis*) in its golden-yellow, orange, and brick-red varieties is a useful plant for planting at intervals between low-growing shrubs or perennials where its Lilium-like stems surmounted by crowns of nodding bell flowers in May will break a monotonous level and give a dash of colour to relieve a mass of greenery. The Chequered Daffodil or Snakes-head Fritillary is interesting on account of the

mosaic chequering or pencilling of its pendant blossoms. The several varieties are useful in the Spring border or in clumps in the mixed border. They should be deeply planted and left undisturbed.

Fuchsia.—There are quite a number of small-flowered but extremely graceful and decorative Fuchsias hardy enough for outdoor cultivation in all but very exposed gardens, and they form delightfully decorative subjects for small town gardens where often they might well replace the unlovely Aucubas, Euonymus, and Privet so commonly seen. Corallina, globosa, macrostemma, and Riccartoni are a few of the kinds available. They may be propagated from cuttings after the same manner as the large-flowered greenhouse kinds.

If in severe winters the tops should be killed by frost they may be cut down to the ground-line, when they will generally throw up new growth from the base.

Funkia.—Handsome foliage and fragrant flowers are the attractive features of the Funkias or Plantain Lilies that will thrive in soils of fairly stiff, moisture-holding character. There are varieties with huge glaucous leaves of almost tropical luxuriance, F. Sieboldiana, lancifolia, and subcordata being of this character.

There are also beautifully variegated forms in both yellow and white combinations with green, and the flowers range from white to rosy lilac and

purple. The plants make big clumps which may be lifted and divided as required.

Gaillardia.—For brilliant colours, freedom, and continuity of flowering, easiness of culture, and decorative value in a cut state the Gaillardias are among our most popular perennials. Quite good forms are obtainable from seed, whilst a few named varieties are so particularly fine that they amply repay the outlay involved in securing true stock, which may be increased by making cuttings of the young growths in Spring. Mrs. McKellar is one of the most beautiful, the large flowers being of rich blood-crimson with a narrow margin of clear gold. Lady Rolleston is entirely yellow, but there are several other good varieties in commerce. Cultural requirements are of the simplest.

Galega.—With a considerable amount of beauty both in flower and leaf, but at the same time a proneness to become somewhat dishevelled and rough in appearance as the season advances, the best use to which the ordinary types of Galega can be put is to fill big spaces in positions where something able to take care of itself is required. Both the mauve and white varieties of Galega officinalis are among the easiest and freest of plants, and seeds sown thinly on the ground they are to occupy will quickly develop into flowering plants. We have now, however, larger flowered and brighter mauves and purer whites, which are of considerably greater merit and utility. His Majesty and Her Majesty

are two such. Galega patula Hartlandii is also an effective plant with bicolor flowers, whilst the young foliage in Spring is variegated with cream amongst the green, but later loses its variegation.

Galtonia candicans.—This is one of the subjects well adapted to planting at regular intervals over a carpet of some dwarf-growing plant, and being itself white it associates well with flowers of bright colours. A circular bed planted with crimson or red Pentstemons with a bulb of Galtonia candicans at every two feet throughout the bed produces a remarkably fine effect, the tall erect spikes with tier above tier of waxy white dangling bells giving an atmosphere of refined grandeur to the bed. Likewise the Galtonia may be used in association with bright-coloured Phloxes, Gladioli, or with the tall but slender and 'airy' spikes of Pentstemon barbatus which is of glowing coral red.

The one thing to do is leave the Galtonias in their position for several years, marking their positions with neat twigs each Autumn so that the other plants may be overhauled without disturbing the bulbs.

Gentiana.—It would be a strange omission were we to pass by the Gentians, the flowers of the richest, purest blues, for although generally classed as Alpine and Rock plants, even the gem of the genus, Gentiana acaulis, may be grown to perfection in the foreground of the border, provided some pieces of porous stone, or even brick rubble, are wedged between the

growths, this seemingly being an essential condition of the maturing of flowering heads. But there are many other species and varieties of Gentian, well over seventy, in fact, and by no means are all blue, for there are yellows, whites, purples, and lavenders, and some are of erect and comparatively tall growth, placing them at once among border subjects. Most of the members of the family require a light gritty soil, with lime, but a few thrive best in sandy peat. All must have plenty of water from Spring to Autumn but perfect drainage in Winter.

Geranium.—Among the real Geraniums, totally distinct, of course, from the Zonal Pelargoniums which by common usage are misnamed Geraniums, there are a number of effective little border plants which are so hardy and accommodating that they may be utilized on the verge of a shrubbery on sloping banks, narrow beds around the house, or in the front row of the general herbaceous border. There are rose-coloured, red, pink, purple, or violet shades of colour, and they vary in height from a few inches to a couple of feet. Some have prettily cut foliage and rich red leafstalks and flower stems that add to their effectiveness.

Gerbera.—The exquisite beauty of the Gerberas, especially the many-coloured hybrids that have been largely produced in the South of France, justifies the efforts that have been made to acclimatize them to British gardens, but it is only in the most sheltered and favoured gardens in the southern and western

counties that the plants may be grown with confidence, except as cool greenhouse subjects. Where a sheltered corner is available a bed may be made up with a fair proportion of peat and sand with good loam, and young plants may be put out in Spring. Here they will produce their elegant long-petalled, marguerite-like blossoms in shades of rose, orange, terra-cotta, and salmon. In the event of a very sharp Winter, it will be advisable to cover the bed with a good thickness of dry bracken, hay, or similar covering, removing this before new growth commences in Spring.

GEUM: "MRS. BRADSHAW."

Geum.—Many are the good points of the best of the Geums. Perfect hardiness and ease of culture, compact habit, fitting them for massing in beds as well as borders, long-sustained production of an

abundance of flowers, and elegance combined with bright cheery colours are their chief characteristics. Scarlet, orange, and bright yellow are the prevailing colours, and there are double-flowered as well as single forms, the doubles naturally lasting longer, although all except the dwarfest are excellent and serviceable for cutting. Mrs. Bradshaw, a large-flowered semi-double of brilliant scarlet, has rapidly risen to a position of widespread popularity, and has practically outclassed the former favourite, G. coccineum flore pleno. Large-flowered yellow varieties have recently made their appearance, and are plants of considerable utility. Seeds are freely produced and germinate with ease, whilst stock may also be increased by division of the roots.

Gillenia.—Closely allied to the Spiræas, but bearing its flowers in loose branching panicles, Gillenia trifoliata is a most elegant and ornamental plant which thrives best in very moist positions near the margins of a stream or pond. In company with Irises, Eulalias, and Funkias the Gillenia is charming in both leaf and flower, and no waterside garden should lack a few clumps.

Gypsophila.—Everybody knows Gypsophila paniculata, and its double form has probably made greater strides in popularity and widespread cultivation than any other introduction among hardy plants during the past quarter-century. The single form is easily raised from seed, and when once planted in its flowering quarters, it should be left

undisturbed, for it makes long fleshy thong-like roots which do not take kindly to disturbance with its inevitable breakages. A soil impregnated with chalk or lime suits the plant best, but it is not over-fastidious. The double variety is best propagated by grafting young shoots on to seedling roots of the single type. Simply sever the shoot from the plant when about three inches long, strip off the lower leaves and cut a thin slice of bark from an inch of one side. Cut the crown from the seedling root and a slice of the bark to correspond with the cut on the scion. Place the two cut surfaces evenly together and bind neatly with raffia. Pot the roots, and place on very slight bottom heat. In less than a month the young grafts should be growing freely.

Seedling Root of Gypsophila Paniculata grafted with Scion of the Double-Flowered Variety.

There are several other species of Gypsophila, but paniculata is the most popular and generally useful.

Helenium.—Among the members of this genus we get some of our showiest golden flowers of Autumn. H. autumnale and its varieties are fine with their

golden-rayed daisies on tall erect stems. We have others with dark discs and then there are grandicephalum striatum, cupreum, and Riverton Gem, which have chestnut-red flowers. The root clumps divide easily and the plants will thrive under ordinary treatment in either borders or beds.

Helianthus.—The Perennial Sunflowers, varying in height from two to ten feet, and including double, semi-double, and single-flowered varieties in several distinct sections, provide us with flowers for cutting throughout Summer and Autumn, and will fill large areas in the border with a glorious show of golden yellow for long periods. Some, such as the maximus type, make close compact clumps, others, like the Harpaliums, are rampant growers, that throw out rambling underground root-stems and are prone to overrun other plants in the border. For this reason they should only be planted in the wilder parts of the garden, between strong-growing trees and shrubs, or they may be given beds to themselves where they will not encroach upon weaker-growing subjects. A variety named Miss Mellish, one of the lactiflorus type, has been a most popular variety, but just recently a giant both in stature and size of flower named Monarch has won high esteem, and is calculated to become a general favourite. Plenty of room, a good depth of well-nourished soil, and transplanting whenever the roots become at all overcrowded are the sole requirements of

Helianthus, but they certainly do better in sunny positions than in total shade.

Heliopsis.—This is one of the plants that seem to be almost unwanted, both Heleniums and Helianthus surpassing them in grace and beauty. Their flowers are certainly of a deeper orange than the Sunflowers, but they are stiff and lacking in elegance.

Helleborus.—In the depth of Winter, even 'midst snow and frost, the Christmas Roses will bloom, and Helleborus niger or varieties of that species will frequently just span the interval between the last late flowers of Autumn and the earliest of the flowers of Spring. Cultural requirements of the Hellebores are simple. They do not ask for special soil, and do not object even to be planted under evergreen trees. The one thing they do like is to be left undisturbed. To establish a really good colony, young plants should be raised from seed and planted out on deeply dug, well-manured soil, and apart from a light forking between the plants each Autumn they should be left to grow at will. Liquid manure will be beneficial when buds begin to throw up, and although absolutely hardy, it is advisable for the sake of preserving the flowers from grime and smuts to cover with a handlight or a sheet of canvas.

Besides the Christmas Roses there are the Lenten Roses, which have flowers of various uncommon shades of colour, many being daintily spotted and pencilled. Some, too, are sweetly scented, and there are many beautiful and interesting hybrid

varieties between the typical Lenten Rose, H. Orientalis, and other species.

Hemerocallis.—The flower of a day, which fades before a second dawn, manages in its brief spell to shed such radiance and glory that even were that one day the beginning and the end, the Day Lily would have a strong claim to our affections; but the fact is that as fast as one blossom fades another opens, and we may have a grand display from May till September. There are varieties with golden-yellow flowers, some of rich orange, and some of terra-cotta and coppery orange. Some are dwarf, and some throw up stout strong flower stems to a height of four feet. All are easy to grow, and so long as they get some sunlight make themselves happy wherever they may be planted.

Hesperis.—Under the homely name of Rocket, both the single and double forms of Hesperis Matronalis have long been favourites in old country gardens. The single purple type is capable of grand effect in Spring if raised from seed and transplanted before it becomes hard and stunted. It likes a fairly rich soil with a good dressing of lime, and is best treated as a biennial. The double white Rocket is an extremely useful subject for cutting, but of late years stocks have become very scarce, chiefly owing to the ravages of a destructive black-leg fungus. A spraying with a solution of Sulphide of Potassium is a good cure and preventive of the disease, and a little powdered charcoal in the soil is of consider-

able benefit. The doubles must be propagated from cuttings of the young growths, which should be inserted round the edges of pots of sandy soil and placed in a cold frame (in Autumn) or on slight bottom heat if taken in early Spring.

Heuchera.—Neatness, extreme elegance, and subtle charm in both leaf and flower characterize the whole tribe of Heucheras. Scalloped leaves of green and bronze overlaid with an iridescent sheen are effective in Winter as well as Summer, and even the quiet-hued and tiny flowers of such kinds as hispida, micrantha, and the hybrid brizoides are charming for their lightness and grace. It is, however, the coral-red flowers of sanguinea that place the Heucheras among the most strikingly effective of border and bedding perennials, and since the introduction of a number of well-selected varieties which grow to a height of three feet or more, and bear larger flowers than the ordinary type, we may justly claim that there are few red flowers that equal in beauty and utility a modern variety of H. sanguinea. True, there is a similarity between the varieties which are offered under such names as Robusta, splendens, grandiflora, and other distinctive names. In some cases this has arisen through different growers securing and fixing seedlings of almost identical character, each giving their own selection a name. Soil and cultivation also have a good deal to do with the height and strength of the flower stems and the richness and lustre of the colouring.

Still, it is worth while getting a good variety rather than a common type, and if one cares to make a collection of varieties it will be found that several of them do show quite appreciable differences.

Heucheras like a dry sandy soil in a sunny position. Transplanting should always be done in Spring, because autumn-moved plants are apt to rot during a wet winter. In some very heavy wet soils it is advisable to lift the plants each Autumn, divide and pot, keeping in a cold frame until Spring. Massed in beds, or in closely planted groups in the front of borders, Heucheras make a brave show and provide the daintiest of cut flowers for vases.

Hieraceum.—For one reason alone we hesitate to recommend unstinted planting of Hieraceums—the plants are so commonly overloaded with aphides that they are not only themselves an eyesore, but a menace to other plants around.

Hypericum.—There is a deal of beauty in both foliage and flowers of the Hypericums, the latter being invariably yellow, but ranging in size from tiny stars of half an inch diameter to large blossoms comparable in size to a dog-rose. In height and habit too they vary greatly, the tiny nummularium and close-growing humifusum snugging the ground, whilst the strong broad-leaved shrubby stems of hircinum reach a height of four feet, patulum sometimes exceeding this by another couple of feet. One of the most effective and generally useful is H. Moserianum, which makes a spreading bush of

densely-leaved stems with fine large golden flowers, in the centre of which are clusters of crimson-tipped anthers. The outstanding merit of the Hypericums is that they will grow on steep stony banks, or in dry impoverished soil under big trees, where the majority of subjects can at the best only languish. Propagation by cuttings is the simplest of tasks, and overgrown clumps may also be divided at will.

Iberis.—The Perennial Candytuft, of which there are several good white and one or two pinkish-lilac varieties, are useful free-flowering plants for edging large borders, or for planting on wall gardens. They may be produced from seed or propagated by cuttings.

Incarvillea.—In all probability not one of a hundred experts capable of complying with a request for a short list of the choicest and most beautiful hardy plants would omit Incarvillea Delavayi and grandiflora. It is less than thirty years since I. Delavayi was introduced from China, and it is undoubtedly one of the finest among the many good plants hailing from that vast land. With flowers comparable in shape to those of Streptocarpus, the Incarvillea is much larger, well-grown plants producing flowers over three inches long and broad. The colour is rosy carmine, with a bright yellow throat.

To see the plant at its best, with handsome spreading foliage and vigorous stems carrying numerous flowers to a height of nearly four feet,

we must prepare a well-nourished bed of deep soil, three feet not being too much, and here should be planted young plants from pots. Year by year they will increase in size and vigour as their thick fleshy roots strike deeper into the soil. It may occasionally happen that a plant remains entirely dormant for a season, but it should not be assumed to be dead, for most probably the following year's growth will be finer than ever. Other varieties of Incarvillea are well worth growing, all being better in partial shade than full sun.

Inula.—There is a refinement even in the largest of the Inulas, for although the varieties Hookeri, Grandiflora, and Glandulosa produce bright yellow blossoms several inches across, the petals are so thread-like and wavy that the flower presents no vestige of heaviness. The foliage too is broad, noble, and very handsome. Plant in strong soil, give ample room, and keep well watered in Summer.

Iris.—It would surely baffle the ablest writer to attempt to pay adequate tribute to the vast and varied Iris family, to describe even in outline the characteristics of the many sections and multitude of species and varieties, and to deal with the cultural requirements of the more fastidious and delicate kinds except under the conditions that he should be granted unlimited space and time to devote to his task. We certainly cannot do justice to this glorious family in this book, and therefore we prefer to urge that every garden should contain some Irises, that

whoever desires to make a special study of one particular class of plants and to acquire gradually a representative collection may find here a family that will keep him occupied for years, and will call into requisition all the aspects, exposures, and soils that the most elaborate garden can provide.

For ease of culture the Germanica section, the Pumilas, Sibericas, and Spurias may be made a starting-point by the novice. The connoisseur will in due time try his skill with the Oncocyclus and Regelias, the remarkable Iris Susiana with its black-netted blossoms being a favourite among this group.

There are the bulbous types and species as well as the rhizomatous, and we may have Irises in the water and bog garden, Irises on the rockery, and others among the ordinary perennials of the herbaceous border.

Isatis glauca.—Why it is we so seldom see Isatis glauca in herbaceous borders is difficult to understand. The plant makes tall branching stems clothed with glaucous foliage and produces great spreading masses of tiny golden flowers, waving in the slightest breeze like a cloud of yellow smoke. The plants scatter seed freely, and an abundant supply of seedlings is thus obtainable which can be transplanted in Spring.

Kniphofia.—The Torch Lily or Red-Hot Poker is a noble plant, making a truly gorgeous display in late Summer and early Autumn. Two points must be observed to ensure successful cultivation. When

transplanting is necessary it should be done in Spring, not in Autumn, and a situation must be chosen where there will be no stagnant moisture around the crowns in Winter. In hot countries, it is true, Kniphofias grow luxuriantly in boggy marshes, but not so in Britain. The best clumps we have met have grown either on gravel or chalk, but have been liberally watered during the Summer. We may have tall robust giants like Aloides grandis and Aloides nobilis, commonly listed as varieties of Uvaria, and we may have small but vividly-coloured sorts such as Nelsoni, Macowanii and Media, while there are many choice hybrids and garden varieties of varying colour and size. Carefully-divided clumps should have their roots well spread out, and covered with sharp sand, always taking care to keep the crown just high enough to prevent soil from smothering it.

Lathyrus.—Familiar as the name of the climbing pea, Lathyrus is also the botanical name of the compact bushy little plants that in gardens have long been known as Orobus. Of the rapid-growing and free-flowering Lathyrus latifolius in its rose and white forms we need say but little—they are well known as climbers for rustic work or treillage; but of the dwarf kinds, which we would still prefer to call Orobus, we would remark that garden owners might well pay them more attention. Luteus with its yellow flowers, and aureus, rich orange, flower as early as April. Pannonicus is a delightful plant

with bicoloured flowers of deep salmon and yellow. Vernus is purple and blue, and there are various other colours, and all have charming foliage as well as flowers. The plants soon make good clumps, which may be divided when increase of stock is required, and in the front part of the border these dwarf plants with small pea-shaped flowers are very delightful.

Liatris.—There is quaintness and beauty in the leafy spikes of closely-set fluffy flowers of Liatris, and the plants have one remarkable distinction, for whereas the general plan is for spiked flowers to open the bottom blossoms first and proceed toward the top, the Liatris starts to open from the top and works downward. L. spicata grows about a foot high. L. pycnostachya runs up to four feet or thereabouts, the flowering portion occupying half that length. L. graminifolia and its variety dubia have slender grassy foliage, and the flowers of the latter are very fine. The root of Liatris forms a corm-like crown which rather resents sodden soil. It is therefore advisable when planting in heavy soil to place some rough rubble or mortar rubbish well down under the plants to ensure good drainage.

Lilium.—As with Irises, so with Liliums we must confess to inability, in a brief paragraph, to deal properly with a genus that embraces a host of wondrously beautiful flowers, some of which are as easily grown as the simplest of plants, others taxing

the skill of experts with the most favoured conditions at their command.

For the ordinary border we may plant such as L. candidum, chalcedonicum, croceum, testaceum, and tigrinum with every prospect of success, so long as the soil is well nourished, but where one wants a collection of the choicest kinds, guidance as to selection and cultural details should be sought in a good work on bulbous plants.

Linaria.—Closely similar in form of flower to the Antirrhinum, and although smaller in size of individual flower, so prolific and constant as to compare with the Antirrhinum for brave display, the Linarias are invaluable to the owner of a wall garden or a stony bank that is generally difficult to plant. The purple, gold-tipped L. alpina, the tall L. dalmatica with golden flowers, and L. purpurea, which as its name implies is purple, may either of them be established by merely scattering seeds in the crevices between the stones, or on any ledge where seed and soil may rest without being entirely washed away. The seedlings contrive in a remarkable manner to get their roots through the narrowest chinks into the body of cool, moist soil behind or beneath the stones, and with this accomplished the stems and foliage will withstand fierce blazing sun and revel in it. One of the daintiest and most useful of the family is L. repens Snowflake. This plant throws underground stems in all directions, eventually rising upward and making bushy branching

stems, clothed with narrow, pointed leaves of glaucous green and graceful little spikes of white flowers having an appearance not unlike Heather. This is a good plant to grow for cutting.

Linum.—The common flax of the linen industry is Linum usitatissimum, a blue-flowered annual, and very pretty it is when allowed to bloom in a mass, but the several perennial and shrubby species are capable of finer effect if only they are given a reasonable opportunity. That opportunity is not given as often as it should be. All too often just two or three odd plants of Linum narbonense get dotted about the border among stronger-growing plants, and thus disposed do not stand a chance of producing a great effect. In the first place, the Linums dislike root disturbance, and in the second, they are only seen to full effect when grown in a broad mass. The best plan with any of the herbaceous types is to sow seed on a patch of ground where the seedlings may grow undisturbed. With the shrubby species, plant a group of young plants from pots, and immediately after each flowering season prune hard back, and mulch with hop manure or very old stable manure to assist the production of vigorous young growth. Blues of shades, yellows, and pure whites may be secured either among the shrubby or herbaceous sections.

Lobelia.—To many the name Lobelia simply indicates the blue-flowered edging plant used so generally, planted in conjunction with scarlet Gera-

niums, but our aim is to draw attention to the rich-hued, tall spiked varieties of L. cardinalis, L. fulgens, and L. syphilitica. The vivid scarlets and fiery crimsons of the first two species are among the most dazzling flowers that grow, and although the plants are scarcely able to brave our Winters without slight protection, they are so good that they are well worth lifting and potting so that they may be wintered in a frame and replanted in Spring.

L. syphilitica and its varieties, which may be had in white, blue, pink, and violet, are quite hardy and very showy.

Although Winter protection is advised for the cardinalis and fulgens types, all the lobelias love abundant moisture in the growing season. They make admirable companions for the moisture-loving Irises, Japanese Primulas, the Astilbes, or even hardy ferns, where their spikes will show magnificently above the quiet green fronds. Quite a number of named garden varieties and hybrids are now in cultivation, many of which are of extremely beautiful shades of colour.

Lupinus.—Among tall-growing spiked flowers the Lupins with their pea-shaped flowers are conspicuously useful and universally popular. The old blue, purple, and white varieties of L. polyphyllus have done duty in the herbaceous border for many long years, but their undoubted beauty has been quite outclassed by the glory of quite a new race of gorgeously coloured hybrids, some of which are of

LILIUM REGALE

A hardy variety that may be raised from Seed

real herbaceous character, while others are unquestionably linked with the yellow-flowered Tree Lupins—L. arboreus.

Both classes are delightful, but the herbaceous class produce very much longer spikes. In one exceptionally fine strain of these latter the range of colours is almost bewildering in its variety and charm. Rose, salmon, and almost red tints, coppery orange, amber yellow, and lovely bicolours all may be had, and with a few pure whites and deep rich blues they provide an incomparable display. The cultural requirements of the whole family are simple. A well-dug soil with a reasonable amount of nourishment in an open position is the most they demand. Seedlings will produce an abundant supply of varied flowers, and any particular favourite can be propagated by lifting and dividing a three- or four-year-old stool or clump. The Tree Lupins can be propagated from cuttings, and a good well-developed bush of the yellow-flowered L. arboreus makes a wonderful show.

Lychnis.—The best of the Lychnis family is the scarlet-flowered L. chalcedonica, and its double form, chalcedonica flore plena. A few of the others are worth growing, particularly Viscaria splendens plena, with spikes of double flowers like rich rose-coloured stocks.

A good rich-coloured variety of L. coronaria with grey foliage and crimson flowers will also make an excellent bedding plant, but some of the other

species are of a somewhat common and weedy character.

Lysimachia.—Loose-strife is the common name given to Lysimachia, but it is also applied to the Lythrum, affording an example of the confusion that follows the use of so-called simple or common names of plants. The Lysimachias are admirable water-side plants, and where a stretch of boggy ground or the margins of a pond or stream can be planted and left to itself, great masses of the white-flowered L. clethroides, the yellow Punctata or thyrsiflora, another yellow, provide colour and verdure in unlimited quantities.

Lythrum.—The ruby-rose spikes of L. salicaria roseum may be seen in great profusion in many a wild uncultivated swamp or marsh, but the beauty of the flower justifies its presence in the cultivated bog-garden, whilst even in the ordinary border the plant will grow and thrive apace so long as an occasional soaking is afforded in times of severe drought. L. virgatum is of slender growth, but very charming, and being perfectly hardy and easy to grow, it is a plant that should never be overlooked where rosy-purple is an acceptable colour.

Macrotomia echioides.—This plant is both quaint and beautiful, and has claims to greater attention than it seems to command. It grows not more than a foot high, often flowering even at six inches, and practically all through the season, from early Spring to late Autumn, a patch of a dozen plants will have

some few heads of bloom in evidence. The flowers are produced in Polyanthus style and of somewhat similar shape. The colour is light yellow, but when the flower is young, each has five circular spots of rich velvety brown, which are first sharply defined and intense, but gradually fade until they disappear entirely. The name Prophet Flower originated from the fact that the variability of duration of these spots was supposed to be governed by approaching changes in the weather, but observation tends to show that the spots fade rapidly when the weather is actually wet. Seeds germinate readily, and if transferred to pots while still small, and kept out of reach of slugs, the seedlings soon develop into strong plants that may be transferred to flowering quarters in the front of a sunny border.

Malva.—The Malvas or Mallows are easily grown and very decorative plants. The pink and white flowered forms of M. Moschata, with their flat Hibiscus-like flowers and cut leaves, are grand plants for dry, exposed situations. Raising from seed is the best method of propagation, for although division of old stools is possible the pieces do not grow with the vigour of young seedlings. In very dry places the plants flower profusely at a height of a foot or so, but in strong soil they will make big branching plants up to a yard in height and diameter. Malva Alcea is a taller plant with soft downy foliage and loose spikes of pink Hollyhock-like blossoms. This also thrives in harsh, dry soils.

Meconopsis.—It would be easy to write glowingly of the Welsh Poppy, Meconopsis Cambrica, which in both its single and double forms of both canary yellow and rich orange is extremely pretty in both flower and leaf, but it must be confessed that by comparison with some of the Chinese and Himalayan Meconopsis our little Cambrian friend appears a very modest little flower. The wonderful glistening flowers of M. Wallichii, with their crumpled petals of pale blue, overlain with the sheen of finest satin, or the charming primrose-yellow blossoms of M. integrifolia are two of the choicest and most fascinating of a quite exceptionally lovely family, and their fine mounds of foliage clothed with conspicuous silky hairs increase their value. To grow Meconopsis well, a soil that is perfectly drained must be secured. Some peat, an abundance of sand, and a sprinkling of small charcoal will make a loamy soil sufficiently porous. During the growing season the soil may be well saturated with moisture, but in Winter the rains and melting snows must be able to drain rapidly from the plants or trouble will ensue. Young stock should be annually raised from seed, for most of the choice kinds perish after one season's flowering, which is generally in the second year of growth.

Mertensia.—It is something to have a plant that is extremely easy to grow and is at the same time of uncommon beauty. In Mertensia Siberica we certainly have such a plant. Its foliage is glaucous,

almost blue, and its racemes of drooping flowers are of varied shades of colour from pink to lavender and almost sky blue. There are several other good Mertensias, some tall enough for the general border, others dwarf and adapted for shady nooks in the rockery.

Michauxia.—It is often amusing to watch the expression on the face of some non-gardening friend when he is told that the plant he is admiring is Michauxia Tchihatcheffi, but however mysterious and unpronounceable he may consider the name, he is sure to be enraptured with the plant, provided it is well grown and full of bloom. Growing to a height of five or six feet, the branching stems are well covered with white flowers of somewhat Lily-like character. The foliage is large, grey-green in colour, giving the plant a strikingly handsome appearance. M. campanuloides is another equally fine plant with a purple shading on its white flowers. Raise from seed, and plant out in a fairly light, rich soil. Stake neatly and give plenty of water when flower stems rise.

Mimulus.—There are many gorgeously beautiful Mimulus which, given a position where moisture is abundant in Summer, but drainage good in Winter, will thrive and prove perfectly hardy. M. luteus, the common yellow species, is a capital plant for the margins of pools or streams. M. cardinalis with bright red flowers, and the large-flowered, gaudily-spotted and blotched hybrids of M. maculosis will

all grow well in soils of an open, porous nature with abundant moisture. The Chalk Hill Giant Mimulus is a remarkable strain producing huge blossoms equalling Gloxinias in size, and superbly spotted and blotched with crimson on a yellow ground. It is a good plan to cover the creeping stems with coarse sand at the beginning of Winter, and transplanting should be done only in Spring.

A Typical Flower of the "Chalk Hill Giant" Mimulus (much reduced).

Monarda. — The Bergamot is an old-fashioned favourite, its heads of bright-hued flowers and its fragrant foliage making it distinct from anything else in the garden.

There are scarlet, crimson, pink, purple, and white kinds of Monarda, all of which are excellent bog plants, but will thrive in any but very dry soils and situations. The root clumps break up with ease, but care must be taken when transplanting not to bury the growth points below the surface.

Montbretia.—The old-fashioned Montbretias, such as crocosmæflora, pottsii, Rayon d'Or, etc., have been quite outclassed by the splendid, large-flowered hybrids which Mr. George Davison raised and introduced some few years ago. The modern race produces wide-open, starry flowers of rich coppery red, orange, or golden yellow, the sprays comparing almost with Gladiolus primulinus for size. A deep rich soil, a sunny position, and summer-time mulching with sifted manure, spent hops, or rough leaf-mould will grow Montbretias to perfection, and if the clumps are lifted and parted every third Spring the size and substance of the flowers will be well maintained.

Morina.—There are several species of Morina in cultivation, the best known and most generally useful being M. longifolia. The foliage is handsome, rich glossy green with spiny edges, evergreen, and of luxuriant growth. The flower stems are clothed with short spine-pointed foliage, the flowers being arranged in whorls, tier above tier. The tubular blossoms are first white, but when fully expanded are bright red inside, the whole effect being wondrously beautiful. The flower stems grow two feet or more high, and the flowering season is from June to September. The plant requires a deep soil, preferably of a strong, loamy nature. Propagation may be effected by careful division of the rootstock in Spring.

Myosotidium nobile.—This plant, known as the Chatham Island Forget-me-not is a subject that

may tax the skill of the ambitious cultivator who desires to succeed with a somewhat difficult plant, but it is one that will well repay the trouble of careful culture. It has large, handsomely-veined, cordate leaves and produces large panicles of rich blue flowers like magnified Forget-me-nots. The chief requisite is a very open gritty soil, and the plant never does so well as when sharp sea sand is liberally incorporated in the soil. It is advisable to protect the crowns in Winter with a little bracken, heather, or straw.

Myosotis.—There is no need to enter into description of the Forget-me-not, for its blue eyes are familiar to us all, and whether seen in the cool dampness of a ditch or brook, waving among the Windflowers and the Mallows in some small copse or spinney, or in neatly regulated edges to the beds of Spring flowers in a terrace garden, the Forget-me-not appeals to us with irresistible power. Before we proceed to plant either for one purpose or another, it is well to bear in mind that there is much difference between the Forget-me-not of the water-side and those that thrive in the woodland and the garden. M. palustris and several varieties of this species are the moisture lovers. M. sylvatica is the wood Forget-me-not, which, however, will accommodate itself to any semi-shaded spot in the garden, but M. dissitiflora is of neat, tufted habit which makes it a most desirable edging for beds of Tulips, Polyanthus and other bright flowers. M. alpestris and its

varieties also make themselves at home in any fairly good soil, and by sowing seeds in early Summer, pricking out the seedlings on a cool border where a little leaf-mould has been mixed with the top-soil, a good stock of plants may be produced for bedding out in Autumn. It will be found that a far better display of bloom will thus be produced than if planting is deferred until Spring.

Nepeta.—Two totally distinct species of this genus demand a brief note, Nepeta Mussini, because it is one of the freest and most continuous-blooming subjects in the whole range of hardy perennials, making shrubby little grey-leaved bushes with spikes of soft lavender-blue flowers, and Nepeta glechoma variegata, because it is one of the prettiest little trailing plants available for shady banks or positions where a ground covering is required. Its foliage is rounded, with crimped or scalloped edges, and the leaves are heavily splashed and margined with white. If the trailing stems are pegged at intervals to the soil, roots will be emitted and the layers can be severed from the patent plant for transplanting. N. Mussini will also root if its branches are layered, but it may also be propagated from cuttings taken with a ' heel ' and inserted in pans or pots of sandy compost under a handlight or frame.

Œnothera.—It may well be questioned whether any garden is really well filled if it contains no Œnotheras. The family is a large one, its species and varieties varying widely in stature, habit of

growth, size of flower, and in colour, although it must be added that in the latter respect yellow in shades predominates. All the Œnotheras are easy to grow, and are among the best of plants for dry, stony, or chalky soils. The garden owner who seeks relaxation in his garden in the evening after a busy day will find great enjoyment in the Œnotheras, for the majority of them open their fragrant and conspicuous flowers in the cool twilight of the evening. The old-fashioned Evening Primrose, Œ. biennis, so readily reproduces itself from self-sown seeds that once installed in the garden, it gives no further trouble, except indeed it may become necessary to remove seedlings that spring up where none are wanted. The smaller, richly-coloured fruticosa varieties are true herbaceous perennials that may be propagated by division of the clumps. Œ. acaulis, otherwise named taraxacifolia, is a very interesting plant. It produces tufts of foliage closely resembling the Dandelion, and on very short stalks large blossoms open widely, which are first pure glistening white, but change before they fade to a pretty shade of light pink. Œ. missouriensis, also called Macrocarpa, is another delightful plant of dwarf stature. Its leaves are covered with silky hairs, its stems are bright red, and its blossoms are of a particularly clear canary yellow. Perhaps the finest gem of a rich family is Œ. speciosa. Its white flowers are freely produced on fairly long, sub-shrubby stems, and here again a delightful pink tinge creeps over the

blossoms after they have fully expanded. Cuttings of this plant will root if taken in September and inserted in a mixture of leaf-mould and sand.

Ononis.—Of shrubby character, the "Rest Harrows" are of compact and attractive growth, their flowers being pea shaped and of effective colouring. Arvensis is a native plant frequently met with on sandy drifts near the sea. O. rotundifolia and O. spinosa are both good plants with rosy-tinted blossoms.

Onopordon.—The Onopordons are giant thistles of majestic appearance. Their huge, elegantly-cut leaves are densely covered with white woolly hairs, and their thistle-head flowers are borne on branching stems, producing a candelabra-like effect. O. arabicum may easily be grown to a height of ten feet, frequent soakings with water and an occasional bucketful of liquid manure being all that is required to promote wonderful vigour. The Onopordons grow readily from seed, but should be planted in flowering quarters while quite young and small. The plants are best treated as biennials, in fact they generally flower to exhaustion in a season.

Ostrowskia magnifica.—Here we have a real aristocrat among hardy perennials. It may be called a glorified Campanula, for it is the largest and most magnificent of the Bell-flowers. It is, however, stately and refined as a Lily, and its colour is delicate and full of charm, a pale and beautiful mauve suffused with white and with a richer shade

of blue. Such a plant is worthy of some special attention, and this it must have if it is to do itself full justice. A deep root-run for its large fleshy roots must be provided, and if the soil is heavy, wet, and cold it is advisable to ameliorate it by incorporating plenty of sharp sand, some leaf-mould, and, if possible, burnt ash or charcoal. The plants should be planted at an early age, and be left undisturbed. From the time growth is commenced until the plants are in full flower water must be given with a liberal hand, but as soon as flowering is over the soil should be allowed to become thoroughly dry. The best plan is to cover the plants with a glazed frame, or a handlight admitting plenty of air and sunlight, the object being to well roast the roots to thoroughly ripen them. In late Autumn the covering must be removed, for it is during the rainy period from November to February that the fleshy roots take up the moisture which will be required to promote vigorous growth the following Spring.

Pæonia (**Pæony**).—The rich glory of the Pæonies, European or Chinese, is too widely known to require description or eulogy. Nor is it necessary to occupy much space with cultural instructions, for the Pæonies species and garden varieties alike are good-tempered and accommodating plants that ask only for ample root room, some nourishment and infrequent disturbance.

Pæonies should be planted for permanency, there-

fore the site should be deeply trenched and well nourished. They like a fairly stiff soil, but with a liberal amount of humus, and very good drainage. Young plants do not flower for a year or two after transplanting, but if well nourished will make a brave display by the third season and onwards. Each plant should be given at least a square yard of space. Foliage should never be cut until thoroughly withered. Liquid manure is highly beneficial. Propagation may be effected by carefully lifting a large stool, and cutting the 'crown' in pieces with one or two tuberous roots to each.

Papaver (Poppy).—Short though the life of the Poppy blossom, there are few plants that contribute more lavishly to the glory of the garden than the Poppies. It matters not whether a garden is sheltered and warm, or high, on the bleak hillside, whether the soil is deep, rich loam, or a hard, hungry gravel, we may plant or sow poppies that will establish themselves and thrive. The one thing they do ask for is sunlight. Poppy colours, brilliant and shimmering, are not of the kind that require shading to preserve their lustre; it may rather be said that although cheery and beautiful when used to decorate the house, they are never so truly gorgeous as when glistening and blazing in the sun-bathed garden. The scarlets and crimsons among the Orientals touch the very pinnacle of brilliancy, whilst the salmon pink of Perry's and Harkness' best varieties is superb. Godfrey's art shade varieties embrace

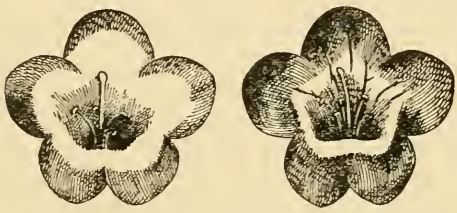
some very remarkable metallic and wine shades, and the whites with their polished black-purple blotches are conspicuous and delightful. All the Orientals can be easily propagated by cutting the thick thong-like roots into pieces about two inches long, inserting the cuttings in trays or pans of sandy compost.

Papaver rupifragum is a strong-growing plant with flowers of a lively shade of terra-cotta. It is easily raised from seed, and is very charming for table decorations.

The Iceland Poppy, P. nudicaule, in its old types of white, canary yellow, and rich orange, has long been popular for bedding and borders and also for cutting. The recent introduction of Harkness' Giant strain and Baker's Sunbeam Poppies has still further enriched our gardens. The flowers are larger, the stems longer, and the range of fascinating colours includes delicate satiny pinks, peach and apricot shades and rich salmons. The Icelands are best raised from seed and treated as biennials. The life of a Poppy flower is brief, but if cut as opening, in the early morning, and the ends of the stalks are immediately dipped for a moment in boiling water, the petals will hold and the flowers retain their beauty for several days.

Pentstemon.—From July to September the Pentstemons will hold their own in competition with the massed legions of perennial flowers. The Florist's Pentstemon, favoured among the favourites of the

florists of the old school, maintains its prominent position among the subjects that may be classified as exhibition flowers, the named varieties being symmetrical in form and rich and pure in colour. To those who wish to form a collection of some subject that may be made a speciality, the Florist's Pentstemon makes a strong appeal. A good Pentstemon must have large bell-shaped blossoms with a wide, evenly rimmed, flattened margin. The outer colour must be rich and solid, and a perfectly clean-cut, unbroken band of the same colour should encircle the wide-open mouth. The throat may be either plain, in which case it should be clean white, or pencilled, that is lined or veined with colour streaks running down the tube over a white ground. The bells must be evenly built up on a tall erect spike, the length and strength of which will depend upon the care and skill of the cultivator.



OUTLINE OF THE TRUMPET MOUTH OF A FLORIST'S PENTSTEMON.

LEFT HAND FLOWER, PLAIN THROATED; RIGHT HAND, PENCILLED.

To propagate named varieties, select in September strong young axillary shoots that break away after removal of flower stems. Take off with a 'heel' or cut square at a stout joint, remove a couple of pairs of leaves, and insert in sandy leaf-soil round the

edges of the pots. Place in a frame and keep close and shaded. When rooted the cuttings should be potted off singly, and kept in a frame until the end of April or beginning of May.

The bed should be deeply dug and well manured. Cow manure is excellent except on cold retentive clay; in such soil it is better to use well-rotted stable manure and if possible some half-rotted leaves. Mortar rubble is also useful on heavy soil.

Give the plants plenty of room, water liberally, and when flower spikes begin to rise either sprinkle a good fertilizer around the plants or give frequent soakings with soot-water and liquid manure. If the number of side shoots are reduced by pinching while small and soft, the flower spikes will be stronger and finer. Each spike should be neatly looped to a stake, for the stems are weighty and are brittle at the joints.

For ordinary bedding purposes a good strain of seed will produce good stock, providing a good range of bright colours, but it must be admitted that the finest effects are obtained by massing individual colours rather than by planting in mixture.

Very different, but very useful and beautiful, are some of the species of Pentstemon. P. barbatus is a tall and extremely elegant plant. Its individual blossoms are small, narrow, tubular in shape, but they are arranged in a very pleasing manner on tall, branching stems, and their colour is an intense coral red. P. glaber is comparatively dwarf and

produces close heads of violet or purple flowers. A few other species are useful for filling big breadths in the wild garden, but some are of rather rough appearance for the flower garden proper.

Inflorescence of Pentstemon Barbatus, showing extreme elegance of form.

Phlox.—With its several distinct classes and types, ranging from the prostrate Alpines to the tall erect varieties of the Decussata or Paniculata section, the Phlox family provides gay and beautiful flowers for any part of any garden. We may have Phlox of one kind or another in bloom from the early days of April to the cold, dull days of October, and there is no difficulty in their culture. We are not at the moment concerned with the Alpine and Rock garden kinds, but the border varieties, Glaberrima suffruticosa for early flowering and Paniculata or Decussata for Midsummer and Autumn, may be planted in whatever is the best soil available, bearing in mind that Phloxes are gross feeders and require plenty of moisture during the whole growing period. Best results are secured from young plants raised from cuttings, but division of clumps in early Spring is an easier method where

one lacks the convenience of frames or handlights. The named varieties of Phlox may be counted in hundreds, but any good hardy plant catalogue provides a descriptive list from which a selection may be made according to individual tastes.

Phygelius capensis.—This is a plant of distinctive character and great beauty. The stems are clothed with broad dark leaves of strong substantial appearance, and the flower spikes stand erect with short horizontal offshoots from which hang tubular flowers of a rich vermilion colour. The plant will thrive in shady places, but also does remarkably well on hot dry banks where its bright flowers maintain a display from Midsummer to late Autumn. Cuttings root without difficulty.

Physalis.—The Chinese Lantern plant is a rampant and vigorous subject with rambling underground stems, from the eyes of which upright growths appear. The leaves are large and overlapping and at intervals along the stems appear bladder-like flame-coloured cases enclosing round seed-pods from which the plant receives the name of Winter Cherry. The chief use of the Physalis is for Winter decoration, the gay lanterns maintaining their beauty for a long period after cutting. P. Alkekengi bears many lanterns of the size of walnuts upon each stem, but P. franchetti has very much larger and brighter lanterns.

Phytolacca.—The Red Ink Plant is interesting because quite unlike other plants. Phytolacca

decandra throws up long racemes of white flowers followed by closely packed purple berries, the juice of which is red as blood. A good clump makes a conspicuous feature in the border.

Podophyllum.—A genus of rich-looking plants with handsomely veined and marbled foliage outspreading like umbrellas. The flowers are creamy white, and are followed by globular fruits of rich bright colour. The Podophyllums love moisture and succeed best in boggy situations.

Polygonum.—A large and varied genus that includes coarse rampant-growing roots suitable only for the wild garden or shrubbery, sweet little trailers for the rock garden or for carpeting the ground under trees, and some bushy erect, growing plants of convenient size for bedding, where their fresh-looking foliage and feathery tassels of bloom make quite a fine show. The best of all, however, is Polygonum Baldschuanicum, one of the grandest of all our climbing plants.

Its growth is very rapid, and its flowers, silvery white with a flush of pink, are produced in waving cloud-like masses that envelop the whole plant. It sometimes happens that a plant will make much growth, but produce no bloom. This is generally attributed to propagating from 'blind' stock, but whatever truth there may be in the blind plant theory, there is certainly something to be said in regard to pruning as a means of stimulating production of bloom. A plant cut back in a haphazard

way will simply break into fresh growth. If allowed to grow in a tangled mass the greater part of the branches will be smothered so that they do not ripen. The proper method is to tie out the long strong shoots, leaving them their full length. Then cut hard back all short, spindly and tangled growth, thus admitting air and sunlight to the strong wood. The pruning should be done in early Summer, and again before growth starts in Spring, any side-shoots that have felt the hand of Winter should be cut away. In this manner a strong hard-wooded plant is built up, and it is from such that flowers are produced in abundance.

Potentilla.—With leaves like those of the Strawberry we have a host of single-flowered Potentillas, that resemble also the Strawberry blossom in shape, but the colours include clear yellows, delicate buff and salmon, as in P. Hopwoodiana, orange and terra-cotta in P. Tonguei, and the brightest of scarlets as in argyrophylla atrosanguinea or Gibson's scarlet, as well as many lovely intermediate tints.

Larger and more showy are the double-flowered Florist's type, of which named varieties are obtainable which are capital subjects for prominent positions in the border. A well-drained, gritty soil is best suited to Potentillas, their only suspicion of delicate constitution being a dislike of excessive moisture in Winter.

Primula.—So extensive, so engrossing, and so varied in character and cultural requirements are

the hardy Primulas that it is utterly impossible to compress into the space of a few paragraphs any descriptive survey that would be worthy of the flowers, or any cultural details that would be of real service to the reader. Of European species and their garden varieties there are sufficient to fill this volume, whilst the Chinese and Japanese groups are worthy of another volume. To collect and establish under congenial conditions a thoroughly representative collection of Primulas, would provide occupation for years and require a garden of considerable extent with varying aspects, exposures, and soils. Some of the choicest will tax the skill of experts, but happily there are many very beautiful Primulas that will thrive in any ordinary garden soil and ask for nothing more than firm planting and plenty of water to keep them in robust health.

The Polyanthus, the Oxlip, and the common Primrose and its blue varieties may well be the starting-point for the novice, and then denticulata, cortusioides, Sieboldii, Japonica and all its hybrid offshoots may be taken in hand. The introduction of new species from China not only added directly to the wealth of beauty in the Primula family, but provided valuable material with which hybridists have achieved highly gratifying results. The hybrids of Cockburniana, Pulverulenta and a number of others are gems of the first water, and we could fain wish space permitted an exhaustive treatise on the distinctive features and cultural requirements of all

our hardy Primulas. The reader is, however, advised to consult a hardy plant nurseryman and obtain advice as to a few easily grown kinds to start with, and gradual study and investigation will guide the way to the acquisition of a choice collection.

Pulmonaria.—For the most part the Lung-worts are of rough and hardy appearance, although by no means lacking in beauty. Their spotted and mottled foliage and heads of reddish and blue flowers are just suited to positions under trees, damp shady places and alongside carriage drives or hedge banks.

Pyrethrum.—Too well known to require description, the Pyrethrums, single and double, are so extremely useful for cutting and for colour effects in the garden that every one desires at least a few. Speaking broadly we may say the Pyrethrum is perfectly hardy and easy to grow, and yet failures are frequent. A brief explanation of one or two aversions of the plant will point to the cause of the majority of the failures, and foremost among the aversions is disturbance and division in late Autumn and Winter. The proper time to transplant Pyrethrums is immediately after the main crop of flowers has run its course. New growth will then immediately be made and the plants will be well rooted before Winter. The only other time the plants may be disturbed is when new growth begins to appear in Spring, but this allows so short a time before the flowering period that only a few buds should be

allowed to develop the first season. A wet soil in Winter is the next thing likely to cause trouble. Pyrethrums like any amount of water in Summer, but want a porous, well-drained soil in Winter. Slugs and snails are responsible for much loss owing to their fondness of the juicy young crowns, which they will eat right down to the root. Dusting the ground around the plants with soot will help considerably to arrest the progress of these pests. Cutting away the entire foliage while still green is another life-shortener. This is frequently done to induce a second crop of flowers, but these are produced at the expense of the vitality of the plant, and ere long it will succumb to Winter's wet. With these few points in mind the cultivator may find quarters and treatment that will ensure complete and gratifying success.

Ranunculus.—Wherever it is too wet for Pyrethrums, we may be sure we may plant one or other of the many kinds of Ranunculus, and from the native Buttercup of the meadows to the tall and chaste white-flowered R. Lyalli, the whole family is full of interest and lovable charm. Yellow predominates, but many of the yellow-flowered species have white-flowered counterparts. There are also the tuberous-rooted Persian Ranunculus, with brilliant scarlet, crimson, and orange shades, and throughout the genus we find handsome foliage as well as beautiful flowers. Water-gardens, bogs, shady woodland walks, grassy stretches under the

shade of trees, the cool moist parts of the rock garden, and the shady corners of the herbaceous border all may be furnished and made cheerful with Ranunculus, the taller growers yielding plenty of delightful flowers for dainty table decorations.

Rodgersia.—For a real gem that will give an aspect of richness and luxuriance to a low-lying damp recess near water, Rodgersia pinata cannot be surpassed. Its bronze, heavily-veined foliage, spreading in large lobes from the top of a strong upright leaf-stalk, wears an appearance of tropical splendour, and its great panicles of rosy red flowers are richer than the richest of Spiræas or Astilbes. Give some peat, charcoal, and some good manure. Plant in Spring, keep clear of weeds, and otherwise leave undisturbed.

Romneya.—By many people considered the finest of all our perennial border flowers, Romneya Coulteri is undoubtedly a plant of transcendent beauty. With blossoms as large as an Oriental Poppy, its petals are as white as flower can be, the sheen upon them being more glistening and shimmering than satin, and against this purity stand out like refined gold a great mass of brilliant stamens. The glaucous foliage is handsomely cut, and when once well established in a favourable spot there is nothing quite like the Romneya. The plant is not fastidious as to soil so long as it is deeply dug and some provision made for quick drainage. A sheltered sunny position near a wall suits the plant, and in very cold

places a little protection afforded by furze boughs, bracken, or similar material may with advantage be afforded. The one thing that should be insisted upon is that plants purchased should be pot grown. The Romneya will not lift and transplant in the way of ordinary plants. Propagation is best effected by cutting up strong roots with eyes, starting in pans of sand on a gentle bottom heat, and potting off singly as soon as growth becomes active. Grow on into five-inch or six-inch pots, and when well rooted transfer in Spring or early Summer to permanent quarters.

Rudbeckia.—Some of the Rudbeckias are strikingly handsome border plants. Some are very useful for cutting, but some are coarse in growth, stiff in appearance, and not sufficiently showy or effective to be really useful except as fill-up subjects for rough and unimportant places.

The best are Californica, nitida, and speciosa, whilst the double form of laciniata is a good plant for positions where a tall, strong-growing fill-gap is required. The Rudbeckias are hardy, bright yellow in colour with conspicuous cone-shaped disks.

Salvia.—The Sage family includes a few plants of considerable decorative value. For the most part they are of shrubby or sub-shrubby habit, and their peculiarly-shaped hooded flowers are of bright and showy colours. Chamædryoides, blue; Grahami, bright cherry crimson; grandiflora, blue and white; Greggii, carmine; Przewalskii, violet; Ringens, purple

and white, and virgata, with leafy bracts as well as flowers of rich violet colour, are a few of the most desirable.

There are also S. patens, the bluest of blue flowers, and fulgens or splendens of intensest scarlet, both of which are capital garden plants in Summer, but must be lifted and kept from frost in Winter. Salvia pratensis is a native plant, but no less desirable on that account. Wherever it is found growing wild it may well be chosen as a fit subject for gardens in the neighbourhood, and there are many harsh and stony soils that may be successfully planted with S. pratensis, its purple flowers being produced in great profusion.

Sanguinaria.—This is a little plant that should be far more generally planted than is the case. Its tuberous roots buried under turf in places where they will not be trodden upon will establish themselves and throw up pure white widely-opening flowers like large Anemones, followed by daintily-cut glaucous leaves.

S. canadensis major is the best variety. Its flowers begin to appear as early as March, and from then till May the plant will attract the attention and win the praise of every visitor to the garden.

Saponaria.—The common Soapwort in its single and double forms, pale pink and fragrant flowers, is one of those very accommodating plants that may be established on dry banks or on the shady side of the garden where few things thrive. The plant

grows about two feet high, and is best seen in a mass, individual plants being apt to look somewhat thin and straggling. But the best of the Saponarias is ocymoides, a trailer with slender, dark red stems clothed with neat, rounded foliage, and yielding rosy pink flowers in such profusion that the plant assumes the appearance of a bright-hued carpet. This plant is invaluable for stone walls, for trailing down steep banks, or for carpeting beds where taller plants of stiff, erect growth are thinly planted. It grows quickly from seed, and may also be rooted from cuttings.

Saxifraga.—Although more generally treated as Alpines than border plants, quite a number of the Saxifrages are extremely useful as edgings, or as carpeting plants, while some are free and showy enough to be used as bedding plants. The mossy section furnish the best for edging, and whilst they may generally be regarded as shade-loving plants, they will do quite well in full sun if their roots can penetrate deeply in the soil or get beneath flat stones embedded in the surface. Thus a bed edged with rough stones may be made very effective by planting varieties of Sax. hypnoides, Wallaceii or trifurcata between the stones.

The Geum section and Sax umbrosa (London Pride) make large rosettes of rounded and toothed leaves, throwing up from the centres light airy panicles of pinkish flowers, and Sax granulata in single and double forms is a fine plant when natural-

ized in grass. The Megasea section includes strong-growing plants with large rounded leathery leaves of rich shining green, the flower heads also being large and bright in colour. These are fine plants for the front verge of shrubberies, carriage drives, and for banks of streams. All the Saxifraga family likes limestone, and if small chippings can be scattered around the roots the plants will make excellent growth.

Scabiosa.—The lavender and mauve blossoms of Scabiosa caucasica are among the loveliest flowers that bloom. Ideal for cutting and of superb grace and elegance, it is small wonder that the plant is universally popular. Of late years many new varieties and choice selections have been introduced, and we may now have deep shades as well as delicate tints, and all are lovely. There are some soils in which the plant cannot thrive. These are either too sticky, wet, and cold, or they are altogether too hot and dry.

Excessive damp in Winter is fatal, whilst scorching heat on a hungry sand in summer burns the plants. The best results are obtainable on a deep, fairly gritty soil that is rich in humus. Young plants put out in Spring will in such a soil quickly establish themselves, and so long as seed pods are removed the flowering will be free and continuous. Roots may be divided, but it is better to start the cut pieces in a frame of light compost than to plant directly out of doors. Seed, if new, will germinate

freely, but the young seedlings must be carefully protected from the ravages of slugs.

Sedum.—This is another family that chiefly belongs to the Alpine and Rock plant class, but like the Saxifrages, there are uses for Sedums in the herbaceous garden. Sedum spectabile and the deep red varieties, erect growing, succulent in stem and leaf, and quaintly beautiful in flower, may well be made occupants of a circular bed or may be planted in bold clumps in the border, choosing hot dry places where sometimes one scarcely knows what best to plant. The keeper of bees will also find advantage in planting S. spectabile, for it is a favourite that yields a rich supply of honey. Many other Sedums will be found useful for covering the bare earth in sun-baked quarters, and the white-flowered varieties such as Spurium album and ternatum are most appropriate for planting on graves.

Senecio.—The name is the botanical name of the Groundsel family, the most numerous of our weeds, many kinds of which are a source of perpetual annoyance and irritation to all who cultivate the land. There are, however, some species that are decidedly ornamental and worthy a place in the garden. Senecio pulcher is one of the most distinct species and is, in fact, quite remarkable among hardy flowers, for we have very few of just the rich wine-purple tint of its large marguerite-like blossoms. Its foliage is lanceolate, fleshy, and glossy. Given a fair amount of water, the plant thrives and attains

considerable size, but for some reason it has never become as plentiful as its merits would warrant. Senecio Clivorum is one of the giants of the family, with immense leaves and great heads of orange-yellow flowers. It attains noble proportions if planted by the water-side.

Sidalcea.—Known as Greek Mallow, the Sidalceas grow erect with spikes of bloom resembling small Hollyhocks. They withstand drought very well, although they attain greater size when not stinted for moisture. S. candida is pure white, grows three or four feet high, and yields a good display of bloom without covering a great deal of ground space. S. Listeri is of a very delicate and pleasing shade of shell pink, the petals being prettily fringed at the edges. S. malvæflora and several named forms of it have deeper rosy and cerise blossoms on two-foot stems.

Silphium.—Yellow-flowered composites are plentiful, but not too plentiful to allow welcome for such plants as Silphium laciniatum and perfoliatum. Both are big yellow daisies borne on tall stiff stems clothed with big bright-green leaves, but the particular shade of yellow is somewhat uncommon, deeper than lemon, but cool and refreshing rather than rich and glowing. In late Summer and Autumn a large isolated bed filled with these stately plants forms a striking object when viewed from a distance. The clumps easily divide in early Spring.

Solidago.—However poor one's soil, however stony

or sandy or chalky, the Solidagos carry on and will cover a good deal of space and send up a crowd of yellow, feathery flower heads. S. Virgaurea nana, a dwarf, stiff-growing variety, will flourish on a wind-swept slope, but to get the finest possible effects from Solidagos choose canadensis, littoralis grandiflora, or Multiradiata. Plant in a position affording plenty of room, thin out the growths while young, allowing only strong, vigorous stems to remain. Stake these with inconspicuous stakes so that the whole plant assumes a symmetrical form, and thenceforward feed liberally with liquid manure. Even a single plant treated thus will make a glorious mound of golden flowers so vastly superior to the general run of half-neglected plants that, instead of being somewhat slighted, as a plant for any odd corner, the Solidago will be looked upon as a plant of unbounded possibilities.

Spiræa.—The lightness and grace of the Spiræas, in foliage as well as bloom, places them among the plants that must find a place in the garden. Wherever there is water and boggy soil, the Spiræas and the kindred Astilbes are, or at all events should be, among the first things thought of by the garden maker, and what a boon they are ; thriving like weeds in the spongy, moisture-laden soil, yet so elegant, so airy and dainty that they never appear to be too vigorous or too aggressive. The choice of varieties is wide. We may have truly herbaceous sorts or shrubby kinds, and of the latter there are

both evergreen and deciduous species and varieties, whilst in regard to height they vary from the one or two feet of the Japanese Palmata to the towering height of the Himalayan Lindleyana, which when well established will run to ten feet. Whites are plentiful, pinks both delicate and rich in tint are also fairly numerous, and there are one or two rich reds and rosy purples.

Even though pre-eminently adapted for water-side culture, the majority of the Spiræas will make themselves quite at home and provide a good display in the ordinary herbaceous border, especially if the soil is fairly stiff and not too readily dried out in Summer. The herbaceous kinds make solid clumps with many crowns and fibrous roots. These may be divided, preferably in February or March, whilst the shrubby evergreen kinds will strike from cuttings in Summer, the deciduous from cuttings of ripened wood put under bell glasses or handlights in Autumn. Spiræa filipendula floreo pleno is one of the most pleasing of the real herbaceous section. Its foliage makes fine tufts radiating from the crown, every leaf being elegantly cut and of fern-like texture. The blossoms are umbelliferous in form, creamy in colour, and of fluffy character. Another sort that may be relied upon to thrive even in enclosed town gardens, where sunlight is more wished for than enjoyed, is Spiræa ulmaria, the 'Meadowsweet,' a native plant that asks only for copious supplies of water to keep it in a flourishing condition.

MODERN VARIETIES OF SCABIOSA CAUCASICA

Stachys.—The Lamb's Ear, or Lamb's Wool plant, Stachys lanata, is chiefly useful for its downy white foliage. Of close-growing habit and hardiest of constitutions, no finer subject is required in a hot, dry situation than this for the purpose of carpeting a bed of Liliums, Lychnis chalcedonica, Eremurus, or other tall-growing plants that like to raise their heads to the sunlight, but delight in a cool root-run. The spreading foliage of Stachys lanata shades the soil, keeps it cool, and thus checks evaporation of moisture, at the same time providing a pleasing setting for the more conspicuous flowers of the overgrowing subjects.

There are a few other Stachys that may well find a place in the border. S. grandiflora has close spikes of violet flowers, the variety superba being richer in tint than the type. Both grow about a foot high, and bloom from May to July. S. libanotica is about double the height of grandiflora, its blossoms being pink and its leaves silvery white. S. coccinea is unfortunately not perfectly hardy, but its scarlet flowers are so bright and effective that the plant is worthy of Winter protection even to the extent of potting in Autumn for Winter storage in a frame and bedding out in Spring.

Statice.—The beauty of the Statices or Sea Lavenders, to give them their English name, is not of the brilliant or dazzling order. They are quite modest and unassuming, yet there is a subtle charm in their light, elegantly-divided panicles of small, soft-

tinted flowers. The latifolia, limonium, and gmelini types are of lavender blue, the incana, tartarica, and eximea types having flattened, spreading panicles with white calyces studded with starry corollas of pink and red shades. It must be admitted that the stocks of many nurseries are somewhat confused in regard to nomenclature, and often plants supplied as latifolia or limonium, or gmelini are indistinguishable one from the other. So, too, with incana, eximea, and tartarica, the confusion being added to by reason of the variability of either species when raised from seed. For ordinary garden purposes the species selected is not really so important as getting a really good form, and this is by no means a certainty if seedling stock is procured.

To raise a batch of Statice from seed is not quite the task for the owner of a small garden. The seed must be new, and well ripened to ensure good germination. The seedlings take about three years to attain strength and true character, and in all probability only a small proportion will be of really good form. When, however, a plant is found to be vigorous and free, throwing up large well-branched heads with flowers of a pleasing shade of colour, that plant should be marked for propagation. By the time the plant is four years old, it will, if it has grown undisturbed on a deep, fairly rich soil, have made a number of long whip-like roots, about the thickness of a lead pencil. By digging deeply round the plant and lifting carefully, these roots

may be severed from the main stock and cut into two-inch lengths. The root cuttings should be laid regularly in a shallow box or pan of fine gritty soil and covered with coarse silver sand. They will callous and break into growth if kept just moist and placed in a cold frame, or if convenient in a slightly heated pit or greenhouse. When in active growth the young plants may be potted off and ultimately planted out in permanent quarters. Statices dislike root disturbance, and except for propagating purposes they should not be lifted when once in the ground.

In addition to the charm of the Statices in the garden—and they are particularly useful in seaside districts where the salt sea breezes are too strong for many plants—they are of exceptional value for Winter decoration. The flower stems should be cut as soon as the real flowers—the corollas—are expanded, and should be hung heads downward in a cool, airy shed to dry. The corollas will shrivel and fall, but the calyces and leafy bracts will dry, and retain their natural form and colour, providing excellent material for vases, fire screens, hall-stands, etc., and also for making wreaths and other floral emblems of a lasting character.

Sternbergia.—The species lutea is the only member of this small genus cultivated in our gardens. Its chief distinction is that it throws up its yellow starry flowers on six- or seven-inch stems quite late in Autumn, leaves appearing after the flowers have

faded. The bulbs should be planted about four inches deep in fairly dry, well-drained positions. It is a good plan to carpet the ground with Arenarias, close-growing Sedums, Saxifrages or Aubrietias, both for the sake of preventing the splashing of the blossoms with mud during Autumn rains and affording some protection to the bulbs during Winter.

Stokesia cyanea.—In form and colour the flowers of this plant are of similar appearance to a large-flowered Michaelmas Daisy. There is a refinement and a brightness in the flower that makes it very acceptable in the dull month of October. Given a sheltered position the Stokesia will remain in bloom for several weeks, and it is a particularly good plant for pot culture where an unheated conservatory has to be made as bright as possible during the earlier half of Winter. In six- or seven-inch pots, well fed, the plant will make a sturdy bush about two feet high and as much through, the whole surface being studded with its soft lavender-blue stars.

Tellima grandiflora.—So far as its flowers are concerned there is nothing very striking about Tellima grandiflora, and why its specific name should have been given it is rather a puzzle. The flowers are of dull greenish hue, small, and dangling on slender stalks after the style of a Heuchera, but what the plant lacks in brilliancy or showiness in its flowers is counterbalanced by very handsome foliage. The leaves are something like those of

the Heucheras and Tiarellas in shape, and their satiny surface shows up the crimson purple tints that make the plant attractive, especially in Winter, when a cheery patch of colour is most acceptable.

There is no difficulty in the culture of Tellima, which grows readily from seed, and may also be propagated by division.

Teucrium. — Several species of Teucrium are among the plants that may well be tried in positions where, as one often hears remarked, 'Nothing seems to grow.'

We may reckon among these awkward positions little beds at corners where cutting draughts rush round from narrow passage-ways. T. Chamædrys, with rosy flowers on shrubby stems a foot high, braves such positions remarkably well. A narrow strip near the wall on the sunny side of the house, or a stony bank that gets hot and dry will find a home in which T. Scorodonia aureum or variegatum will maintain itself and produce bright and cheery tufts of crimpled foliage.

Even in those corners that the sun never reaches, where high walls meet at right angles, keeping off rain as well as sunlight, the Teucriums, flavum (yellow flowered), Polium (downy leaved), and Marum, with lilac-coloured flowers, will bravely struggle to make a show of pretty foliage and nettle-like flowers, but the last-named will stand no chance if it falls a prey to marauding cats, for they

will devour every leaf and shoot of this plant, which has been christened 'Cat Thyme.'

Thalictrum.—If there were no other charm than that of their foliage the Thalictrums would be too good to be overlooked, for the finely divided leaves have the grace and elegance of ferns, although of tougher and sturdier tissue. T. minus adiantifolium closely resembles the Maidenhair fern, and even the largest and coarsest forms of Aquilegifolium are still elegant with spreading leaves like those of the Aquilegias. But in addition to the frond-like leaves the flowers are peculiarly beautiful and of very uncommon form. They have not broad, showy petals, but in most cases have loose bunches of fluffy stamens backed by small sepals which are greenish, creamy, rosy or purple. In anemonoides and petaloideum the sepals are flattened out in petal form, and there is a double form of anemonoides in which the stamens also are flattened. The Aquilegia-leaved varieties have big loose bunches of soft feathery flowers, there being purple, rose, and white varieties. T. flavum is a native plant with yellow heads, easy of culture, as indeed the whole family may be said to be. T. glaucum is another very effective plant with pale yellow flowers.

The gem of the whole family is T. dipterocarpum, producing long and most elegant panicles of violet-coloured flowers with amber-yellow stamens in the centre. This plant makes a delightful pot plant, and should thus be treated except where it can be

given a cosy nook where its graceful plumes of bloom will not be damaged by rough winds. The rest of the family will thrive in almost any position and in quite ordinary soil, the tall growers being useful among Delphiniums, Tritomas, Phloxes, etc., and the dwarfer sorts such as minus, anemonoides, and petaloideum as dot plants in the foreground of the herbaceous border.

Thermopsis.—The Thermopsis bears spikes of flowers like yellow lupins, the leaves being spreading, thrice parted, and of substantial texture. There are five or six species, and they make suitable companions for Baptisia Australis, to which they bear resemblance except in the colour of their flowers.

Thymus.—A fragrant plant will always be beloved, and the refreshing odour of Thyme is particularly enjoyable. The very dwarf and creeping Thymes are of course well suited to rock gardening, but they may also be used between the stones of rough paving, or for carpeting small beds of bulbs and other flowers. Of taller growth and shrubby habit, T. citriodorus and its silver and golden varieties, as well as the woolly-leaved T. lanuginosus may well be planted beside pathways where they will waft their refreshing perfume around whenever their branches are brushed aside by passers-by. These kinds also make appropriate companions for the Cistus, Helianthemums, and the dwarf, berried Pernettyas, with whose character of growth they are in keeping.

Thymes may be propagated by layering, and cuttings will also strike in a bed of fine, sandy soil.

Tiarella. — Appropriately called the 'Foam Flower,' Tiarella cordifolia and its white and rosy coloured varieties may be likened to the Heucheras, the heart-shaped leaves even more than the flower spikes bearing the resemblance.

The foliage assumes ruddy and metallic tints in Autumn, whilst the extreme lightness of the flowers, fluttering with every movement in the air, gives reason for the name of Foam flower. The plant throws out little rooting side-growths, by separation of which stock may be increased.

Tolmiea Menziesii.—Akin to both Tiarella and Tellima in appearance, this plant throws spikes or panicles of flowers to a height of about eighteen inches. The colour is of greenish hue, not gaudy, but quietly interesting, and very useful for toning down more aggressive flowers in table decorations. A cool, moist and shady spot suits Tolmiea, which may be propagated in the same manner as Tiarella.

Tradescantia virginica.—There is a modest and quaint appearance about the clusters of three-petalled flowers of Tradescantia virginica as they nestle bashfully at the base of the narrow, gracefully arching leaves that appeals strongly to many flower lovers, whilst to some the plant seems to be quite uninteresting. True, there are very many showy plants that outshine the little Spider-wort, but listen or take heed to its good qualities and consider

whether there is not a place in the garden where it may not with advantage be planted. It asks no special favours, but will grow in sunshine or in shade, in wet places or in dry, in the cold exposed gardens of the north or east, or in the sandy soil of a garden by the sea. Its blossoms are plentifully produced from the latter days of Spring to the approach of Winter, and the colours available include pink, red, purple, bright blue, and lavender, as well as pure white. A clump will divide into several plants that may be immediately replanted to quickly re-establish themselves. Surely this is not a plant that deserves to be ignored.

Tricyrtis.—Where one's garden happens to be a piece of reclaimed heathland with a sandy-peaty soil, the Tricyrtis' uncommon and prettily spotted Lily-like flowers will make themselves at home and constitute an unusual feature. In anything like a clay soil, or on chalk, the plants will not be a conspicuous success, nor can they stand scorching sun in an exposed situation. The species hirta, with its varieties grandiflora, nigra (with black blotches on a white ground), and variegata (with white-margined leaves), are the most useful sorts, but others that may be included where a collection is decided upon are Aestivalis, with speckled grey and purple blossoms; Macropoda, yellow dotted with purple; and Pilosa, growing only about a foot high with white and purple flowers. The other kinds named grow two or three feet high.

Trillium.—The Trilliums or Wood Lilies are such delightful, endearing little flowers that one feels there must be some very definite reason why we so infrequently see them looking really happy in gardens.

The puzzle is solved when once a really flourishing colony is seen and the environment and conditions compared with those generally existing in the average garden.

It will with almost unfailing certainty be found that the really flourishing colony is located in some shaded dell where the soil is a soft bed of rotted leaves in which the foot sinks as easily as one's head is embedded in the depths of a downy cushion, and we shall find that the actual roots are deep down in the cool moisture of that bed, the stems rising through the soft, yielding leaf-mould perhaps a foot or more before daylight bids the leaves unfold. How different the conditions of the ordinary garden border; where, if planted an inch or two beneath the surface, the roots are scorched and parched in Summer, and if planted deeply the close hard-setting soil above make the struggle upward to daylight too severe. We must come to the conclusion that the Wood Lily, chaste and charming, must either be reserved for the woodland garden or that it must be provided with a suitable leaf-bed in the coolest part of the garden under the grateful shade of a kindly tree. In such homes we may make the most of T. grandiflorum and its varieties, and all the

other Trilliums of which there are whites of glistening purity and pink-tinted flowers of delicate charm.

Trollius.—Of yellow flowers there are many. Of May and June flowers also many. Among either or both the Trollius may justly lay claim to a prominent position. The globular or cupped flowers, the cut leaves, and the whole contour of the plant may be likened to a Buttercup on a magnified scale, but in some the gold gives place to deep fiery orange, in some the flowers are practically double, in all they are strikingly effective, and the Trollius are capable of artistic arrangement in vases and other receptacles for cut flowers. Easily grown in most soils, the plants show a decided preference for strong loam of a fairly tenacious character, but it must be deeply dug so that the great mass of long fibrous roots may delve deeply in search of the large supplies of moisture absorbed in building up the fleshy tissues of the foliage and flower stalks.

Tropæolum.—When one considers the frequency with which inquiries arise for 'some quick-growing climbing plant that will make a good show during the first season of planting,' it seems somewhat strange that the gorgeously brilliant, free-flowering, and rampant perennial Tropæolums are not far more frequently grown. The old-fashioned Annual Nasturtiums, favourites with every juvenile owner of a little garden plot, are gay and cheerful, but for refinement combined with dazzling display of colours the perennial species leave the common Nasturtium

in the shadowy background. Tropæolum speciosum, a plant that many have coveted and tried in vain to establish in their gardens, need not be despaired of if very simple precautions are taken at the outset, and once established it may be depended upon to grow in strength and beauty year by year.

The first point to insist upon is that the nurseryman from whom stock may be obtained shall supply plants well established in pots. This is a great step toward success. A great many roots of this Tropæolum are imported every year. They come from sandy-peaty soils, and before they reach the private planter's hands have probably been so long out of the ground that they have lost half their vitality, and in any case it is difficult for roots grown in sand and peat to take hold of the ordinary garden soils of this country.

With well-established plants in pots we have a good chance of success. The next thing is to choose a site. If the soil be cool and heavy the position may be open to the sun. If the soil is light and disposed to be dry, a shady situation will be best. Deep planting is best, the lighter the soil the deeper the roots should go, even to a foot or more below the surface. If leaf-mould, peat, and sand can be well mixed with heavy soil, so much the better, coolness, moisture, but free drainage being the ideal to aim at. After all, it does not involve a deal of trouble or expense to provide these conditions, and the glory of the vivid sheets of intense, radiant

scarlet of a vigorous colony will abundantly repay the effort. T. tuberosum, with pretty pendent, tubular flowers of brillant red and rich orange grows from a balloon-shaped tuber, which should be planted deeply and bedded in sand, when they will be safe from harm even in sharp winters.

Of remarkable beauty both in leaf and flower, T. polyphyllum seems naturally adapted for trailing over the steep slope of a bank, or the face of a rough stone wall, where its glaucous leaves and bright golden flowers form a charming sight. It is a plant that never fails to attract admiring attention.

Veratrum.—There is a stateliness and luxuriance about the broad, deeply ribbed leaves of Veratrums that is reminiscent of the exotic palms, but there is the additional feature of tall pyramidal inflorescence of a very uncommon character, purplish black in the case of V. nigrum, white with tinges of green in V. album, and also in californicum, and deeper green in V. album Lobelianum.

As centre plants for a circular bed on a lawn no finer subjects can be desired, but they should be allowed to grow undisturbed for several years, lifting only when it is deemed necessary to divide the roots. If helped with good soakings of liquid manure the plants will produce an effect of tropical splendour.

Verbascum.—Given a large border of deep, well-drained soil, with a fair amount of lime or chalk, a

collection of Verbascums is capable of producing an effect that may well hold one spellbound, for there are few possibilities to provide a more imposing display than that obtainable from such a border. In the background would naturally be towering masses of such grants as V. Olympicum, and the large-flowered hybrids such as Harkness' Giant, Miss Willmot, and V. longifolium, and its woolly-leaved variety pannosum. Before the yellow columns of these six-to-eight-or nine-feet monsters we would group the rich terra-cotta hybrid Caledonia, J. M. Burnie, and the several others of this class, and greater variety of colour would be introduced by interspersing varieties of the species Phœniceum, of which there are purples, rosy pinks, lilacs, and a pure white. V. Wiedemannianum would stand conspicuously out among its neighbours with its three-feet spikes of dark, almost indigo, flowers, which turn a wine purple as they age, and further variety might be provided by dotting here and there a plant of V. Thapsus, with its big flannel-like leaves of a hoary whiteness.

In the foreground would come the bright-hued V. Chaixii, with close-set spikes of golden flowers with red-purple centres, V. Blattaria, which is a native of our chalky downs, and also Blattaria alba, a white-flowered form. There are still many other Verbascums that might be gathered into the border, some of biennial character, which are quite easily reproduced from seed, and some true perennials,

propagated from cuttings of their stout, hard-fleshed roots.

The glory of this border would be well sustained from early June to the end of September, removal of exhausted flower spikes, and some nourishment in the form of liquid manure, with attention to staking of the taller sorts constituting the sum total of the demands upon time and attention. Where a whole border cannot be provided, room should certainly be made for a few clumps of some of these fine plants.

Veronica.—The genus Veronica is a very large and varied one. In V. canescens we have one of the smallest plants in cultivation, its growth being just a fine film of hairy foliage nestling so closely to the ground that even the uneven surface of the soil is followed precisely, and over the lacy carpet of slender stems and leaves are distributed lilac-tinted blossoms on the shortest of slender stalks. In startling contrast to this little midget we turn to V. elliptica and V. Traversii, great shrubs that frequently attain a height of six feet and sometimes even eight feet, and between these two extremes it is easily possible to select a hundred perfectly distinct sorts, some trailing or prostrate, some reaching various heights from a couple of inches to several feet, some evergreen and shrubby, some truly herbaceous, some simulating the Club Mosses, some like small coniferæ, and others almost like the Boxwood tree. In colours they run through

the whole range of blues, purples, and mauves, with reds, pinks, and many pure whites. The flowering period of a representative collection of Veronicas may easily extend from April to October, and whilst the miniature prostrate forms make ideal carpeting plants, edgings, or rock-garden subjects, many of the taller varieties provide excellent spikes of flowers for cutting. Some of the shrubby types are not completely hardy, and should in order to obtain best results be grown as pot plants for the conservatory, the verandah, etc., but the herbaceous kinds are almost all of hardest constitution and rank among the easiest of plants to grow. It is rather unfortunate but not at all surprising that considerable confusion exists in regard to the nomenclature of Veronicas, and many a sort masquerades under several names. The outward similarity of such species as longifolia, spicata, and virginica has led to their becoming sadly mixed, whilst synonymous names are all too common, spicata being frequently called brevifolia, incana having also such names as candida and candidissima, whilst varieties of longifolia are often wrongly given specific rank, instances being elegans and verticillata. In the same way the plant so frequently listed as V. corymbosa should properly be classed as a variety of the species spicata, and so we might go on to point out similar errors; but nevertheless there is sufficient charm in all the types and varieties to make the plants worth having

in the garden, and to those who take a delight in identifying plants the finding of the correct names of a collection of Veronicas will offer an engaging task. For just half a dozen of the most distinct and pleasing sorts to form the nucleus of a collection, or to include in a border of mixed perennials, we shall not go far wrong in choosing V. subsessilis, frequently represented as a variety of longifolia, one of the strongest growers, with long arching spikes of rich purple flowers; V. virginica, a tall, erect, white-flowered species of distinct character; V. spicata corymbosa, of dwarf habit with loose branching heads of deep blue flowers; V. longifolia rosea, with pretty pink spikes; V. salicornoides, having a shrubby habit like a small Retinospora; and V. gentianoides, with close tufts of glossy leaves and upright spikes of china-blue flowers which grow about a foot high and are often in bloom by the beginning of April.

Viola.—Of the Florist's or Bedding Violas, so near akin to pansies, so much has been written that it would be mere pedantry to suppose that a paragraph or two in this book would advance in any way the widespread popularity and universal culture of these wholly indispensable plants. The writings of specialists in periodicals and handbooks cover every phase of the cult of the Florist's Viola for bedding and for exhibition. We will but draw attention to some of the charming little species that are among the daintiest gems of the garden, and urge our

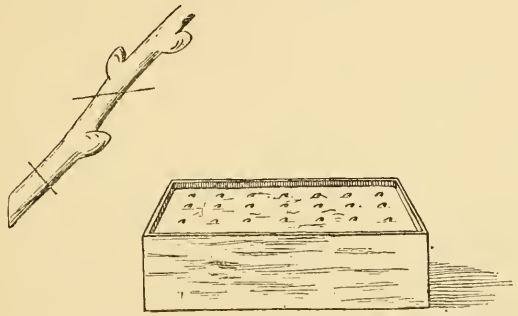
readers to allot some space in their gardens, however small those gardens may be for these small but bewitchingly beautiful members of the Viola tribe.

V. cornuta, which claims to be one of the parents of the popular bedding race, is itself a charming plant, with a curled horn at the back of each blue blossom. A number of named varieties now in cultivation offer interesting and pleasing variety and the plants are free growing, free flowering and admirably adapted for bedding or for edges to borders. V. gracilis too has been taken in hand by the plant breeder, and in addition to the small-flowered type which often does duty as a substitute for Violets in posies we may have larger, richer-hued flowers of select named varieties. V. pedata, hailing from America, has flowers of Pansy shape which measure about an inch across and may be of any shade between a rosy lilac and a dark blue-purple. Quite a number of other Viola species exist, several of which are more particularly suited to the crevices and nooks of a rock garden, but those mentioned are among the best for semi-shaded beds or patches in the border.

To propagate any is a simple matter if the old stems are cut back after flowering and young shoots from the centre of the plant are carefully removed, with a young root or two at the base if possible, and dibbled into a pan of sifted leaf-mould and sand, to strike in a shaded frame.

Vitis.—Among climbing plants the ornamental

vines are a family of wondrous charm and beauty. Eminently suited to cover pergolas and screens, the choicer species and varieties may also be made outstanding features by training in columnar fashion over upright poles or trunks of dead trees. Old walls and ugly sheds may be artistically draped and festooned by the leafy trails of the Virginian Vine, and wherever a rampant climber or a display of



"Eye" of Ornamental Vine.

CUT AT CROSS LINES EMBEDDED IN BOX OF SAND, AS SHOWN IN THE ILLUSTRATION, WILL AFFORD A READY MEANS OF PRODUCING YOUNG STOCK.

gorgeous autumn tints may be desired, a vine to meet the requirements is not hard to find.

The popular climber known as *Ampelopsis Veitchii* is botanically *Vitis inconstans*. *V. quinquifolia* is the Virginian creeper, and *V. vinefera purpurea* is the hardy purple-leaved vine. But the large heart-shaped and beautifully veined and netted leaves of *V. coignetiae* are of surpassing splendour, the rich glowing crimson autumn tints being as resplendent as the gayest flowers. There are quite

a number of other choice vines which are capable of adding lustre to our gardens. Most will thrive in quite ordinary soil, and can accommodate themselves to any situation.

Vines may be propagated by layering of the ripened growths of the current season, but plants propagated from "eyes," as shown in our illustration, eventually make the strongest and finest plants.

Yucca.—For their stately needle-pointed foliage alone a well-developed specimen or two of either Yucca filamentosa or gloriosa should be installed in every garden. Nothing finer can be wished for in the way of an isolated specimen on a lawn, or in the centre of a conspicuously placed flower bed, than a big plant of Y. gloriosa, the sword-like evergreen leaves standing out in every direction from the short-stemmed, stout-headed crown, having a palm-like appearance suggestive of tropical luxuriance and grandeur. The towering columns of drooping bell-shaped flowers of an ivory white will sooner or later give a display unique and grand, and even though we may have to wait a few years for this crowning glory the plant in the meantime will give us much pleasure, and the ultimate reward will be well worth waiting for. Yuccas should be planted where they may develop undisturbed and throw out their luxuriant foliage to the sunlight.

When it is desired to propagate, a plant must be carefully lifted, and at the roots will be found thick fleshy protrusions from the main stock with whitish

knob-like crowns and a number of brown cord-like roots. These must be cleanly severed from the plant, and may be potted in good compost, with a proportion of peat and sand as well as good fibrous loam.

Zauschneria.—The last plant with which we have to deal is appropriately one of the brightest and most distinct of all. Nicknamed the Californian Fuchsia, there is some slight, but only a slight, resemblance to some of the narrow-tubed Fuchsias such as Fuchsia fulgens and triphylla; but bright as these may be, the vermilion tubes of Zauschneria are brighter still. The plant has woody stems clothed with hairy leaves, and if thoroughly at home in a well-drained, elevated position with a good depth of not too heavy soil, the stems and flower spikes will run to a height of two feet, the whole plant in August and September being aglow like fire with its shining scarlet flowers. Cuttings severed at the axils of the main stems will root in a compost of half soil and half sand, and they should be grown on until they have well filled three-inch pots with roots. In very bleak places a little bracken or heather may with advantage be placed around the plant in Winter, but its reputation for tenderness is rather due to its elegantly fragile appearance than to inability to survive our average Winters, for even when cut to the ground by severe frost it will generally break up from the base in Spring.

A variety named Splendens, when obtained true, is of larger size and freer flowering habit than the type, but although some catalogues list Z. Mexicana as a separate species there is, so far as we have been able to discover, no marked distinction to warrant the planting of the two under separate names.

INDEX

D

E

F

G

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