

STUDIES IN
GARDENING
A. Clutton-Brock



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STUDIES IN GARDENING

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BY
A. CLUTTON-BROCK

WITH PREFACE AND NOTES

BY
MRS. FRANCIS KING
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PREFACE

THE title of this book does not belie its contents. Within these covers lies matter for the consideration of those who *think* about gardening as well as for those who see and practice it. Unlike other gardening books in its light-hearted choice of topics it is also unlike them in its high charm of manner, in a certain urbanity to which we confess ourselves unaccustomed. Never was a lighter pen than this, never such a pen so well-directed. For gardening, and more especially the appreciation of the art of garden design, are matters upon which much light needs to be thrown for the amateur in this country. Certain chapters of "Studies in Gardening" should be read before every progressive garden club in America; the two on "The Theory of Garden Design," "Common Sense in Gardening," "The Right Use of Annuals," "The Problem of the Herbaceous Border," "The House and the Garden," and that portion of the Introduction entitled "The Planning of the Garden." And what delectable learning is stored in these pages!

The tribute of tributes is most surely paid to a book one has been asked to annotate when the would-be critical reader becomes so absorbed in its pages as to forget the critical attitude. So entirely is "Studies in Gardening" what a book on gardening should be,

so entirely is it what no other has yet been, that to keep from overpraise is difficult. There may be, there will be those to whom a few matters of individual taste in these pages may not commend themselves. This would be always so, whoever wrote, whoever read. The point to be noticed is this: the taste of the author of "Studies in Gardening" is with rare exceptions based on principles and, therefore, cannot but be sound.

When one reflects upon the lack of knowledge of the principles of gardening among our own amateurs one feels more keenly the need of such a leaven as this book affords. General enlightenment on the great subject is our instant want; more study of the broader aspects of the gardening art, enlivening this of course by constant excursions into the lovely realm of flower, shrub, and tree, matters of garden enclosure and garden decoration.

It will be noticed that among the plant subjects considered in the present volume there are some not to be recommended for our Northern States for reasons of soil and climate. It has seemed wise to leave these names unchanged, adding on occasion an explanatory note. Many of these plants flourish in our Northern Pacific States as in England, and of certain parts of the South and Southwest the same may be said. The difference in climate with regard to time of bloom of plants dealt with here makes the suggestion fitting that the reader allow a date one month later for the latitude of Boston. This opinion is based upon care-

ful notes, kept for many years and constantly compared with like notes in English journals. I wish we might impress upon the American gardener (and by gardener I mean of course the amateur) the fact that the good English book carries as much value for him as for the Englishman. It is easy to learn the distinctions between English climate, English soils and the soils and climate of this country; and while good sense compels us to believe in the use of those subjects known to be suited to our country, our own estates or bits of ground, we must still look across seas for most of our finer garden books, and in so looking, we invariably find fresh and excellent material for our beds and borders.

Many unfamiliar names occur in the course of the book. It chances that nineteen varieties of *Dianthus* are brought into the dissertation on Pinks. I venture to think most of these unknown to the average gardener, but why should he not add them to his present knowledge of the genus? Bailey lists twenty-six! Nurserymen will respond to calls for these things. Here is a little foot-hill of horticulture which any one may climb if he will. Let us not level it by means of notes, but rather urge the ambitious gardener to ascend the slope and there achieve a view so fair, so satisfying, that he will wonder that he thought the climb a heavy or laborious thing.

And how accustomed are we in America, those of us who garden, to being written down to! How seldom in our young literature of gardening may we

gather the grateful inference of a little practical knowledge on our part and a bit of taste to boot! We need books to lift us, not to continually presuppose our ignorance. We need books to stimulate our search for garden learning, to send us hunting meanings of names new to us. America is passing from her gardening infancy to her gardening youth. This youth, filled with the romance and beauty of the newly discovered art, is ready for the best in garden writing. Wherefore a book like this is thrice welcome. Its writer has that wide outlook upon the subject denied to all but few. The book has a virility seldom encountered in writings of this character. It shows a large practical and personal acquaintance with plants, and an equally wide knowledge of the principles of fine gardening. Joined to these qualities a love of beauty shines through every page, a charming humour will out upon occasion, and an entirely delightful English style enwraps the whole. American gardening cannot but be richer, finer, for every reader of this book. "It is" exclaims a correspondent lately, "the Englishman at his highest and best. Hear these words: 'But a single flowering shrub rightly placed in front of a dark barrier of greenery has your eye to itself and satisfies it, like an altar piece in a quiet church.' Can we forget a sentence like that? I have seldom read a book with an intenser pleasure."

The chapters of this book appeared in the form of letters to the *Times* (London). The subjects seem to have been taken at random, for in three instances

only are the articles explicitly related to each other. It has seemed well therefore to allow the order of chapters to stand as in the English edition.

Grateful acknowledgment is here made for valuable help given by Mr. Hubert M. Canning and Mr. Wilbur F. Dubois; also by Dr. Alfred Rehder of the Arnold Arboretum to whom I owe the note on *Cytisus*.

LOUISA YEOMANS KING.



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INTRODUCTION

THIS book contains articles upon both the theory and the practice of gardening. There is no need to speak of the practical articles in this introduction; but it may be as well to say something about the general principles upon which the theoretical articles are based. Those principles are concerned mainly with the planning of gardens and with the character of the flowers that should be planted in them. The writer is in favour of the formal planning of gardens, and in this introduction he proposes to give some general reasons for his preference. But he cannot deny himself the pleasure of a rock garden, although he knows that a rock garden cannot well be worked into any formal design. In this matter he sins with many excellent gardeners, who are not likely to give up their rock gardens from any artistic scruple. Rock gardens exist, and more of them are made every year. In some respects they have had a good effect upon other kinds of gardening. We must therefore make the best of them. This introduction, then, will deal with rock gardens, and will attempt to show, first, what is the secret of their delight, and, secondly, how they can best be placed and planned so as to spoil the design of a formal garden as little as possible.

The third matter to be dealt with is the character of garden flowers; and this is more controversial even than the first two. The writer's remarks on this subject have already provoked some controversy and met with more agreement. He repeats them here because they are based upon the general principles which he has tried to express in all his theoretical articles, and because they still seem to him as true as when he first wrote them. But we will begin first with the most important matter, and that is —

THE PLANNING OF GARDENS

Nothing in gardening is so difficult as the planning of a garden; and it is peculiarly difficult now, because we are still in the midst of a revolution, a return to nature, which has upset all the old ideas and conventions of garden design both good and bad. This return to nature has done much good in destroying some of the worst fashions of fifty years ago. It has taught us to love plants for their natural beauty and to grow them so that their natural beauty may be shown to the best advantage. It has, indeed, revived the whole art of horticulture, which in the gardens of the rich had shrunk, a generation or two ago, into the cultivation of a few dull bedding plants under the most unnatural conditions. But it has not taught us, nor can it teach us, the art of garden design. For a garden is, and always must be, something quite different from a wild paradise of flowers, and no art can turn it into one. Flower borders are artificial things,

and so are lawns and gravel paths. If we are to follow nature in the design of our gardens we must do without these, and even the wildest of wild gardeners will scarcely go so far as that. We should remember that the discredited landscape gardening of the last century, with its "specimen" conifers, its irrelevant shrubberies, and its aimlessly circuitous paths, was itself an attempt to imitate nature. We are sick of it now, not, as many suppose, because it was unnatural, but because it was ugly; and it is an interesting fact that William Morris, writing so far back as the end of the seventies, attacked landscape gardening, not for its artificiality, but for its lack of order and design. He, with all his love of wild beauty, of woods and meadows, said that a garden should "by no means imitate either the wilfulness or the wildness of nature, but should look like a thing never to be seen except near a house." He knew that no work of art should put on the airs of nature; that, as houses ought not to be built to look like caves, so gardens ought not to be designed to look like flowery meadows or stretches of woodland. The beauty of nature is one thing; the beauty of art another. Each has its own romance, its own peculiar appeal to our memories and affections; and these different appeals cannot be combined in one.

The love of gardens has always been so deep in Englishmen that it survived even when their love of all other beautiful things seemed for a while to be dead; and, when they built the ugliest houses, they

wished to forget the ugliness of them in their gardens. Thus it was that landscape gardening came into fashion. It was an attempt to ignore the existence of the house. Shrubberies were grown to hide it as best they could, and paths twisted about in a vain reluctance to approach it. But when men built beautiful houses they had no desire for landscape or for any kind of wild gardening. They were proud of their handiwork, and did not look to nature or any pretence of nature to conceal it from them. The garden was as much a part of their conquest of nature as the house itself; and, like the house, they designed it to be expressive of the will and the purposes of man. So the house and the garden were all part of one design, of which the house was the centre, giving a purpose and meaning to the whole; and this idea that the house shall dominate and explain the garden is the principle upon which all formal gardening is based, whereas all wild gardening is based upon a despair of the house and a desire to ignore it.

Now that we are beginning to build beautiful houses again, we are beginning also to design formal gardens to suit them; but even those of us who must needs live in ugly houses will do well to make the best of them, as Morris advised. For, after all, even the ugliest house cannot be ignored by those who live in it; and no skill can really make a garden look like a flowery Alpine meadow or a stretch of woodland. Indeed, the uglier the house the more incongruous must be the most plausible imitation of nature, whereas a

garden of ordered beauty will do much to mitigate the ugliness of any house.

But, if we make up our minds for a formal garden, we must understand clearly what are the proper limits of its formality; and, in the first place, we must know that a formal garden does not mean formal flowers. The landscape gardeners tried to imitate nature in their design, and to depart from nature as far as they could in their horticulture. The good formal gardener will forget nature altogether when he plans, but when he comes to choose his flowers he will remember that nature is a better designer of plants than any gardener, though gardeners may sometimes improve upon nature's designs in detail, and to suit their own purposes. The English idea of a pleasure garden has always been a garden of flowers. We love flowers by instinct, and the return to nature in gardening got all its force, not from our desire for a new kind of design, but from our desire to see once more a natural abundance and variety of flowers in our gardens. It is therefore the task of the designer to provide this abundance and variety within the limits of his design. In this respect he will try to outdo nature rather than to ignore her, and he will be eager to learn any lessons that she can teach him. He will place his beds and borders according to a pattern in his own mind, about which nature can teach him little or nothing; but, when he comes to plant them, he will know that nature can teach him a great deal; for wild flowers, in the course of the struggle for life,

have acquired a natural fitness of combination and arrangement, which art may improve with its greater variety of material, but should not ignore. It used to be the delight of gardeners to ignore this natural fitness. As Ruskin remarked, they would tear house-leeks from their roofs and plant them round their beds. It was their practice to seize on the abnormalities of nature and make them the rule in the garden, although such abnormalities are usually the result of adaptation to peculiar conditions and look utterly out of place except in those conditions. Most Cacti, for instance, are desert plants, and may have a beauty of their own when they grow among rocks and sand. They have none at all in a flower-bed. The return to nature has taught us to see the absurdity of carpet bedding and all such misuses of natural materials. It has quickened our sense of the fitness of things, so that the best gardeners now delight in growing plants in conditions that will show off their beauty to the best advantage. It is the business of formal gardening, as of every other art, to do this; to make its own design, and at the same time to obey the laws of its material — that is to say, to use its material so that its characteristic beauty may be displayed to the best advantage.

To combine these two things, formal beauty of design and a right use of material, is the main difficulty of every art, and it is peculiarly difficult in gardening. There is always a strong naturalistic tendency in the gardener who loves his plants, as in the landscape

painter who loves the country, or the dramatist who loves men and women. The mention of this naturalistic tendency makes one think at once of

THE ROCK GARDEN,

which is the most signal instance of it in modern gardening. It must be confessed at once that rock gardening, as we all practise it, is inconsistent with all the ideas that have produced formal gardening, and aims at a different kind of pleasure from that which the formal garden gives. A formal garden is a place to live in, whenever our climate allows; but no one would think of living in a rock garden. There are no flat spaces of lawn in it or shady retreats. It is all up and down, and, except for a few narrow and winding paths, all made up of rocks and flowers and shrubs. No one except the rock gardener himself ever stays in it for long. For others it is a sight to be seen, perhaps with interest, perhaps with a polite show of interest. If it is very large, very boldly built, and very skilfully cultivated it may possibly have some slight resemblance to an Alpine hollow or slope; but usually it has none at all, and betrays itself at once as a contrivance for the cultivation of certain plants that will not thrive or will not display their full beauty except in certain special conditions. It is, in fact, a place made for the sake of the plants which are grown in it, whereas the plants in a formal garden are but ornaments to the general design of the garden.

So, if you are a formal gardener on principle, you

cannot defend the rock garden on the same principle; and we may say at once that, if it were possible to have only one kind of garden, the formal garden would be the kind to choose. But luckily that is not so; many different kinds of gardening are possible, and many different kinds of pleasure are to be got from them. The pleasure of the formal garden is the most universal, the most sure, and the most lasting. Any one who knows nothing at all of plants or horticulture can enjoy a formal garden; and if it changes hands its beauty can be easily maintained, since there is a routine of formal gardening which most professional gardeners understand. On the other hand, you must have a peculiar interest and delight in plants for their own sake if you are to take a real pleasure in a rock garden; while the knowledge necessary for the proper cultivation of a rock garden is not usually possessed by professional gardeners, so that when a rock garden changes hands and loses the care and skill of its original possessor it is apt to run wild and become a mere confusion of coarse-growing plants. But these objections to the rock garden are the very reasons why the true rock gardener takes a peculiar delight in it; and it is a curious fact that every gardener with a real love of his art tends sooner or later to become a rock gardener and to take a greater pleasure in his rock plants than in any others. This may seem both wrong and incomprehensible to those who are not gardeners; but they must remember that the gardener not only takes a pleasure in his flowers when they are grown,

he also takes a pleasure in growing them; and there is more pleasure to be got from growing Alpine plants than any others. This is not merely because they are difficult, although in every kind of art and craft there is always a pleasure in overcoming difficulties; it is also because Alpine plants have a peculiar kind of beauty which appeals to the lover of flowers more than the beauty of any other kind of plants.

Alpine plants, as every one knows, have adapted themselves to certain abnormal circumstances. They grow in high wind-swept places, often in deep fissures of rock with but little soil, where they enjoy but a short spring and summer, and where they endure for a great part of the year the most extreme cold. In one way they are the hardiest of all plants; but in another they are the most delicate. For in adapting themselves to their life among the snows they have lost much of the power which other plants possess of adaptation to other conditions. And this applies not only to their health, but also to their beauty. If it were possible to grow the higher and more difficult Alpine plants in an ordinary border, they would look quite insignificant among the coarser plants of the lowlands. Even those easier rock plants which will grow readily enough in the border lose a great part of their beauty there, for their home is the rocks, and they seem to have been designed by nature as ornaments for the rocks alone. Still, we are used to seeing many of them in the border and find them beautiful enough there. No one, however, could think of the

higher Alpines, the Androsaces, the smaller Pinks and Primulas, the little encrusted Saxifrages, or the most delicate Campanulas as anything except mountain plants; so much do they seem made for their mountain home that one could almost believe they would bring a vision of it to any one who knew them only in captivity; and yet a great part of their beauty comes from the contrast between its delicacy "so still and faint and fearing to be looked upon" and the wild, fierce places in which they grow by nature. But that delicacy is very far from the hectic delicacy of tropical flowers. The higher Alpine plants grow and flower for but a short time of the year, but in that time their life is eager and quick in proportion to its shortness. When the warm spring wind blows and the snows melt they turn from brown to green in a week. Their buds swell so that you can almost see them swelling; and their flowers have a peculiar brightness that seems to tell of the abundance of life packed into so small a compass and enjoyed for so short a season. There is nothing in nature so full of wonder and delight as an Alpine spring. It is the very symbol of all sudden happy changes, the chief theme of mountain folk-song and mountain music; and it is not strange that, as we go to hear the songs of Grieg in a London concert-room, so we should wish to see some of the magic of that spring in our lowland gardens. Therefore the rock gardener contrives his little makebelieve. He cannot hope that his small rocks and slopes and valleys will in themselves have any look of the Alps; but

they will at any rate serve as a frame not incongruous to the beauty of his Alpine flowers. And his pleasure in rock gardening is enhanced by the fact that the nearer he gets to a natural arrangement of his rocks the more likely are his plants to thrive among them.

This kind of natural arrangement is not easy to contrive, and will never come by chance. When people first began to make rockeries they seem to have had some dim idea of imitating chaos. They bought loads of clinkers, certainly the most chaotic objects ever produced either by nature or art, and they shot them down in confused heaps in parts of the garden most unfavourable to plant life. Among these heaps they planted Ferns and Stonecrops and London pride. Some of these perhaps contrived to live, and did in time conceal some of the desolation of the clinkers; but their survival was a credit to themselves rather than to those who put them there. When, however, rockeries first began to be thought of as places for the cultivation of rock plants, there was a violent reaction from this imitation of chaos. Every plant was provided with a square enclosure of stones and a large zinc label, so that even if the plant died, which it often did, it might not lack a monument. This was formal gardening reduced to an absurdity; and those who really loved the beauty of Alpine plants and were eager to grow them soon began to see that the mere proximity of a rock would not cure an Alpine plant of its home sickness. They set to work to discover what benefit the plant got from its native

rocks, and they saw that it was protected by those rocks from extremes both of heat and cold, of drought and moisture. They saw, too, that it could get that protection only from rocks arranged in certain natural ways; and therefore they set to work to imitate such arrangements in their own rock gardens. So the building of rocks became an art and also one of the chief pleasures of rock gardening. It is difficult to convey to any one who has never tried it how great that pleasure can be, and how it increases with experience. There is no one fixed principle of rock building, since natural arrangements of rocks are infinitely diverse, and different plants have adapted themselves to their diversities. But this fact is what makes the pleasure of the game. The beginner, if he is wise, will build upon a fixed principle. He will arrange most of his rocks so that they run into the ground at an angle of about 45 deg. with the earth's surface, and so protect the roots of the plants below them from both heat and cold. But as his knowledge increases he will get more of the variety of nature into his building, and put his rocks together so that they provide homes exactly suitable for the more difficult plants which he wishes to grow. He will come to look upon his rockwork as a kind of puzzle to be fitted together so that every interstice will have some peculiar charm for some particular plant; and it will be his delight to find a plant perfectly suited to each interstice. Needless to say, this is not a game that can be played in the ordinary flower border, where there is not much

variety of condition and where the plants are all contented, in reason, with what they get. Those who are quite ignorant of gardening may think a fine flower border more beautiful than any rockwork, and may wonder why any one should be at so much pains to produce an inferior kind of beauty. In answer to them it must be confessed that rock gardening is a kind of game which makes its own difficulties and gets its own pleasures out of them; yet the rock gardener will not admit that it produces an inferior kind of beauty, but rather a beauty more subtle and to be appreciated only by those who love plants and study their ways of growth. Plants, he will say, like all other kinds of life, get a great part of their beauty from their adaption to their surroundings, and the more exactly and narrowly they are adapted to their surroundings the greater that beauty will be; while plants that thrive anywhere can have but little of that kind of beauty. Their good nature makes them lose character. They are like men with whom you can do what you choose — useful but uninteresting. Of all plants the higher Alpines are most narrowly adapted to their surroundings; and of all plants they have the most character. Nature seems to have designed them more exactly than other flowers with a more unrelenting pressure of circumstances, so that they have a beauty of proportion not often found in the lowland plants that will adapt their growth to conditions so various. There is, we may suppose, an ideal proportion for every plant in all its parts. This

ideal proportion is continually forced upon the higher Alpines by the severities of nature, but not upon plants that have a wider range and an easier life. But the peculiar beauty of Alpine plants must explain itself, if it is to be appreciated. You must be able to see from its surroundings how it has come to be what it is; and the rock gardener's art or game is to contrive those surroundings so that they shall tell their own story. He cannot do this so far as the elements are concerned. He cannot provide winds or snows, but he can provide rocks naturally disposed; and he must do all he can to provide sunshine and fresh air. It is all a game, perhaps; but it is one of the pleasantest and most innocent in the world; and since it is a game played with living things and against the caprices of the weather, there is no end to it, nor is there ever likely to be one. Some plants are easily enough grown to-day that were thought almost impossible twenty years ago; but still there are many, not only from the Alps, but from the Himalayas, the Pyrenees, and the Caucasus, that have not yet been tamed by any skill. Some of these may in time yield up their secret or grow content with our climate. Perhaps some day the blue glory of the Fairy Forget-me-not¹ will come down from its mountain heights to shine on suburban rockeries. But that will not be in our time. For many years to come lonely triumphs will be possible to every rock gardener; and, indeed, one often sees some difficult plant better grown on a small rockery

¹ *Myosotis palustris*. L. Y. K.

than in the most sumptuous rock gardens. Rock gardens are to be found everywhere now. They are a part of the return to nature in gardening, and, like other things in that movement, they are sometimes carried to absurd lengths. But, in spite of this, with their ceaseless experiments and with the new sense they bring of the characteristic beauty of plants, they have done much good, not only to the craft of horticulture, but, in an indirect way, to the art of flower arrangement. They are teaching gardeners not to play tricks with their plants, not to use them like chips in a mosaic. They have, at any rate, put an end to carpet bedding except in certain public gardens where it is practised as an interesting survival. In the rock garden nature itself forces upon the gardener some congruity of arrangement. You cannot mix Hollyhocks with *Androsaces*; at least, if you do the *Androsaces* are pretty sure to die. And the gardener who gets a sense of congruity from his rockwork will carry it into other parts of his garden. It is not in the least inconsistent with formal design. Indeed, formal design is quickly spoilt by any incongruity in the arrangement of plants; and the best formal borders have a natural look, with all their regularity.

Still, with all that can be said for it, rock gardening remains a game for the true gardener, and no one should have a rock garden who does not intend to spend time and labour upon it himself. Professional gardeners are an excellent race of men; but most of them are made gardeners, not born, and rock gardens

are usually incomprehensible whims to them. They can take a pride in a regiment of calceolarias, but not in a plant that dies if you pull it up by mistake for a weed and makes no show even when it thrives. There is some danger that rock gardens will become fashionable; and already you will sometimes find strange accumulations of stone in pretentious gardens which are, no doubt, meant to be rock gardens. Indeed, there is a story of a millionaire who built a rock garden all of concrete blocks so well fixed together that there was no room at all for plants to grow between them. But, if rock gardening does become fashionable, it is not likely to remain so for long. A rock garden cannot be bought outright, like a diamond necklace, and kept without further trouble. It is nothing unless its owner loves it and understands it; but, if he does, then he can get as much pleasure out of it as out of any amusement provided by the bounty of nature and the ingenuity of man.

This difficulty of the rock garden is only an extreme instance of the difficulties that must be always cropping up for every gardener who loves his plants and seeks to provide them with natural conditions, and who also aims at a formal beauty of design. At every point he will have to make some kind of sacrifice or compromise. But that is no reason why he should forgo formal beauty altogether. It is rather a reason why he should try to understand its principles clearly, so that he may know what is the best sacrifice or compromise to make in each particular case. Unless he

accepts and understands the principles of formal beauty, he will have no principles to go on except principles of horticulture, which, however excellent they may be, will not help him to solve many of his most difficult problems, will not, for instance, tell him when to leave nature alone and when to subdue it to his own purposes. It is a main principle of formal gardening that a gardener may do anything he chooses with his materials to increase their use or beauty, but that he must not play tricks upon them merely to show how far he can pervert them from the course of nature. Thus, where a tree or shrub is grown for its own sake, to clip it is to spoil its natural beauty for no reason. But, when trees or shrubs are used to make a hedge, clipping increases their beauty as it increases their use. A hedge, properly used, is only a kind of living wall, and you can see at a glance that it is grown not for its own sake, but to serve as a wall. So, whatever treatment makes a better wall of it is justified; and the formal gardener will not try to conceal his living walls, but will make them play a part in the beauty of his design. He will see that they are of the finest materials—of yew, or box, or holly, not of privet or laurel; and he will clip them carefully, so that they grow solid and even. Hedges of this kind, well grown and well placed, will serve as divisions of different parts of the garden, as shelters for the flowers, and also as frames to set off their beauty. Every one must feel the charm of well-kept yew hedges in an old garden, and the secret of that

charm is that in them nature is subdued to the happy purposes of man. She is always quiet within their enclosure, as the sea is quiet in a harbour; and they are a sign, wherever they are to be found, that order and peace and a delight in beautiful things have been long established there. This is the secret of the charm of formal gardens, and it is a charm that we cannot find in any flowery wilderness, still less in the most cunning imitation of one.

So much for the planning of gardens. There remains to be considered.

THE CHARACTER OF GARDEN FLOWERS,

and in particular the principles upon which one should aim at their improvement.

The art of improving or changing garden flowers is probably as old as the art of gardening itself. So soon as plants are cultivated many of them become liable to changes and developments of a kind which they seldom experience in a state of nature, because such changes and developments are of little or no use to them in the struggle for life. The gardener's purposes, however, are apt to be different from those of nature, and he makes a different use of that tendency to variation which exists in all plants. Wild plants in favourable conditions, for instance, often show a tendency to double their flowers; but that tendency seldom goes very far, since doubling is rather a hindrance than a help to plants in the propagation of their species. It is a kind of excess that comes with

prosperity, and is apt to be soon checked by the severe laws of life. To the gardener, however, it often seems an excess to be encouraged, and he encourages it by selection on a different principle from that of nature. He may also encourage an increase in the size of the flowers and a greater brightness or variety in their colour by the same means. Such changes or improvements have been practised from time immemorial, particularly in the East, so that the origin of some garden flowers, as, for instance, of several kinds of roses, is unknown to us. In the seventeenth century there was a great variety of florists' flowers, and particularly of carnations, as we can tell from the illustrations to Parkinson's *Paradisus*. The Dutchmen had then developed Tulips and Hyacinths and Crocuses pretty much as we have them now; and most of them were far removed from the original natural species. But all these developments were produced by simple selection and cultivation. The principles of hybridization were not understood, and the process therefore could not be practised artificially. Now that these principles are understood and can be practised, however empirically and imperfectly, our florists have an enormous advantage over their forefathers; and as their knowledge increases of the conditions most favourable to hybridization, that advantage will grow still greater. Already changes are being worked upon certain plants with wonderful speed. The Pansy, as we have it now, has been developed out of the little wild Pansy (*Viola tricolor*). The process began about

1813, and by 1830 many varieties approaching the modern Pansy in size and colour and shade were already in existence. But the Viola of gardens, or tufted Pansy, is a creation almost of our own time and a hybrid between the Pansy proper and the Alpine Viola cornuta. Not much more than a generation ago the Begonia was a plant with insignificant flowers and grown chiefly for its leaves. Now we have Begonias with flowers almost as large as Roses in a great variety of colours. Dahlias have changed the character of their flowers under our eyes. Wonderful things have been done, and are being done, with Larkspurs and Phloxes. There are innumerable new Daffodils, and they increase about every year in size and in brightness and diversity of colour; while there seems to be a promise of new races of Roses utterly surpassing any that we have now both in beauty and in vigour of habit.¹

But this new power will be attended with new dangers if it is not exercised with discretion; and already we can see what these dangers are. It is a delightful game to make new flowers, but it is not one that should be played wantonly or blindly. It is unfortunate that hybridization should be first practised systematically in an age of very uncertain taste; for there is a danger lest irreparable harm may be done

¹ Certain species of roses recently discovered in China by E. H. Wilson have never been hybridized. When one considers that all the roses we now have are descended from four or five species it is not easy even to imagine the number we may have after bringing in fifteen or twenty new species, crossing those with each other and with those we already know. L. Y. K.

to some of our finest flowers while every one is exulting over the improvement worked upon them. At present the florists seem to be working upon no system, because there is no general standard of taste to impose a system upon them. They believe that every increase in the size of a flower, every change in its colour, is an improvement; and they are often confirmed in this belief by the awards of flower shows, which, in the provinces at least, are still inclined to favour flowers as little like nature as they can be. Flower shows, indeed, have not had a good effect upon the development of plants, however much they may have improved their culture, since their tendency has been to encourage gardeners to grow plants for their flowers alone. Now a plant intended to be an ornament to a garden ought to be considered as a whole. Its flowers are only a part of its beauty, and it should also have a beauty of leafage, of habit, and of proportion. The flowers of wild plants are often too small, at least to the gardener's taste, in proportion to their leafage and stature; but the flowers of garden plants may easily be too large; and in some cases the florists have already made them so. The modern Begonia, particularly the double Begonia, is an instance in point. The flowers are so enormous that all proportion is lost between them and the plant itself. It seems to be overburdened with them like a woman laden with heavy jewelry. There are other plants of a habit less prostrate by nature which bear the weight of huge flowers still more awkwardly.

There are Carnations and Dahlias and Roses that look like weary Titans unless every flower head is supported with sticks. This defect is not seen in separate blossoms exhibited at a flower show; but it is glaring in a garden, and ought to banish them from all gardens. It is important that we should cultivate in ourselves and in our florists a nice sense of proportion in all the parts of a plant. No one can say exactly what is the limit of size beyond which the flowers of a particular plant ought not to be developed; but it is easy to see that every plant ought to carry its flowers with ease; and, besides this, the size of the plant itself, the nature of its habit, and the character of its leafage should be considered. A small creeping plant may usually have larger flowers than an erect plant of the same size, because it can carry them more easily; and indeed among mountain plants there are many with flowers very large for their size. Also, a plant with large leaves can endure larger flowers than a plant with small ones; and obviously a large plant can endure larger flowers than a small one. Yet this plain fact is often ignored by florists, who will dwarf a plant without decreasing the size of its flowers and so destroy the greater part of its beauty. The dwarf Snapdragon is a case in point, which looks as much a deformity as a human dwarf; and the dwarf Sweet-pea is not much better.

The doubling of flowers is a part of the same tendency to grow plants for their flowers alone, which is often carried to excess. Most flowers are more

beautiful single than double. But there are exceptions; and a good many double flowers are, at any rate, more durable and stronger in colour than single ones of the same kind. It would be absurd to object to all double flowers on principle, as, for instance, to double Pinks or Roses or Dahlias; but even these may be easily made too double, so that they look stiff or puddingy; while there are other flowers of great natural beauty of form which are entirely spoilt by being doubled. Among these are nearly all bell-shaped flowers. Yet the florists are always producing double varieties of the beautiful *Campanula persicifolia*, in which all its grace of form is destroyed without any improvement in force of colour. To take other instances, the double *Begonia* looks as if it had been made by some one who had never seen a real flower. The extra petals of the double Day and Tiger Lilies look like mere growths of disease, and even the double China Asters are usually inferior in beauty to the single flowers of the old *Aster sinensis*, which has only lately come into our gardens again. It is almost safe to say that we have enough double flowers already, and it is quite certain that florists could do much more useful work in other ways than in doubling any more of them.

The colour of flowers is more a matter of individual taste than their proportion or form; but even with regard to colour one cannot doubt that the florists sometimes make mistakes. There is the case of the perennial Larkspur, for instance. The glory of the

Larkspur is its blue colour. In no other genus of easily-grown garden plants is there such a range of blues combined with such purity; and the hybridists have already shown us what a race of Larkspurs might be produced if only they would give all their efforts to combining purity of colour with beauty of form. Unfortunately, it is very easy to obtain double Larkspurs in which the form of the flowers is spoiled; and also to obtain Larkspurs tinged or freaked with mauve or plum colour. Now mauve is a good enough colour in its way; but we have plenty of mauve flowers. Also the combination of mauve with blue may have a sort of curious discordant beauty; but it is a beauty that one soon tires of; whereas pure blue, deep or pale, is a rare colour in our gardens and one that could never weary any one. No garden flower in existence is more beautiful than the Belladonna Larkspur with its flowers of a silvery pale blue and no less perfect in form than in colour. But the Belladonna is smaller and more weakly in constitution than the great hybrid Larkspurs. Already some of these almost rival it in colour, and they might in time surpass it. Already, too, there are some hybrids of a deeper blue almost as fierce as the colour of the Gentians, and these might be common soon, if the florists would set to work to produce only pure blue Larkspurs. But they have now produced so many with mixed colours that it becomes more difficult every year to raise pure blue Larkspurs from seed. The taint of mauve is deep in their blood, and it would

take some time to get rid of it even if every one tried. The Larkspur is a plant of so stately a habit that it would not be easy to make its flowers too large so long as they keep their purity of form. They have already been greatly enlarged, but the largest are often half double and parti-coloured, so that their size is only a thing to wonder at, not to admire.

The Larkspur is the worst case that could be found of colour perversion in plants. Most other cases are more disputable. But many people who love strong wholesome colours cannot but think that our Roses are suffering in their colour from the popularity of Tea Roses and hybrid Teas. The colours of most Tea Roses are rather faint and exotic. Their delicacy is pleasing to a timid eye, and there is so much bad colour in our art now that most people's eyes have grown timid. But there is no need to have a timid eye for flowers. They are not dyed with cheap dyes, or woven of dull shoddy stuff. The brighter they are the better, particularly when they have the texture of Roses. We need more pure pink and deep crimson in our Roses, and not those pinks washed with yellow or those yellows dulled with brown that are so common among the Teas.

Roses are not plants of which the ordinary amateur can usually raise new varieties for himself. But there are some plants easily raised from seed and very variable, such as Larkspurs and Columbines and Oriental Poppies, upon which any amateur with room enough in his garden might try his hand. He can

hybridize for himself if he will take the trouble, and with the plants just mentioned it is quite easy to do; but in many cases nature will hybridize only too readily for him, so that he has but to save the seed of any variety that pleases him and to go on raising seedlings and pulling up all inferior ones until he gets plants that seem to approach his standard of perfection. If this were done intelligently and systematically by amateurs all over the country, there would soon be a vast improvement in our garden flowers; and no doubt the vagaries of the florists would be checked. They provide novelties because novelties are popular; and they work more or less at random because there is no certain taste to direct them. The remedy is in the hands of amateurs who in some cases can show what they want by producing it for themselves, and in other cases can enforce a right standard by buying only plants which conform to that standard.

We are all too ready to think that every flower must be beautiful, whether produced by nature or by the florist; and we are ready to think that every kind of garden must be beautiful, if only it contains an abundance of flowers. The gardener should grow his flowers well — that goes without saying. But he should choose them upon clear and rational principles of taste, and he should plan the garden, of which they are to be the ornaments, upon the same principles.

STUDIES IN GARDENING

BANKS AND SLOPES IN GARDENS

FEW people who have banks or steep slopes in their gardens know what to do with them. They cannot be turned into ordinary flower beds or borders, because with their sharp drainage they do not afford enough moisture to most plants in the summer; and, if they are covered with grass, the grass is difficult to mow. The usual plan is to plant them anyhow, with shrubs such as laurels, snowberry, or *Berberis aquifolia*, with a carpeting of ivy or the Rose of Sharon, and having planted them thus to leave them alone. Now, whatever may be said in favour of wild gardening in places where the garden can hardly be distinguished from surrounding woodland or meadow, there is nothing to be said for it where it is merely the result of ignorance or indifference. Neglected banks of this kind are constantly to be found in hill-side gardens right in front of the house; and they have scarcely more wild beauty than a disorderly rubbish heap. In such places neglect and untidiness are as discomfoting as about the house itself. Yet one often sees a house, neat and trim enough, with all its neatness and trimness spoilt by one of these unkempt wildernesses in front of it. Sometimes there will be an ailing pine or fir tree here and there on the bank, underneath which not even ivy will grow, and

beyond the shadow of these desolate conifers a stunted thicket of snowberry suckers and sometimes a straggling bush of gorse¹ or laurustinus; while the ground, if not entirely covered with ivy or Rose of Sharon, will be ornamented here and there with sickly clumps of heather or stray seedlings of the coarsest plants from other parts of the garden. A spectacle of this kind is so common, that, like the ugliness of most houses, it only fills us with a vague kind of discomfort. We, no more than the owners of the neglected bank, attempt to analyse what is wrong. We only feel that we should not like to live in a house with that kind of ugliness about it.

Now it is unjust to condemn any system of gardening wholesale because of its worst examples; but it is fair to point out that banks treated in this way are the result of the misapplication of the principles of landscape gardening to small gardens. For it is such landscape gardening that has made people indifferent to trimness and neatness, or rather has given them an excuse for evading the trouble which is necessary to keep a garden neat and trim. The owners of such banks can always console themselves with the thought that there is no formality about them. But in most cases, no doubt, they make no conscious excuse for their neglect. Bad landscape gardening, the kind of gardening practised by the

¹ For Gorse the American gardener may read Forsythia or Spiraea: the Laurustinus is not hardy in the United States except on the Pacific Coast. L. Y. K.

speculative builder, which naturally always follows the line of least resistance, is so universal in most suburbs, and even in many country places, that people take it as a matter of course, and never even ask themselves how their gardens could be bettered. Their eyes have been spoilt, as the eye is spoilt by machine-made ornament; and, even if they always feel a slight melancholy whenever they come in at the garden gate, they do not ask themselves the reason of it. If not actually contented, they are resigned to things as they are, just as they are resigned to the stamped iron ornaments on their fireplaces or the gouty legs of their billiard tables.

And, yet, it is worth some trouble and thought to make a garden wear a smiling face, so that it will give pleasure, not only to its owner, but to every passer-by who gets a glimpse of it from the road; and we are all inclined to think well of the owner of a garden which does this, and to thank him for that pleasure. Nor are much trouble and thought, in most cases, necessary. It is very easy to make a steep bank beautiful with flowers and suitable shrubs, especially if it slopes towards the south; and, being so easy, it is strange how seldom it is done, even by people who are ready to spend much labour and money upon other parts of their gardens. Indeed, one often sees the worst examples of neglected banks in gardens with large greenhouses and with gaudy displays of spring and summer bedding. But these are a matter of routine and custom. A steep bank is

not supposed to be looked at, however conspicuous it may be. It is regarded as a mere nuisance in the garden; and, consequently, a nuisance and an eyesore it remains.

There are, of course, many people who will not have untidiness of any kind in their gardens, and whose banks are at least tidy. But they usually take a great deal of unnecessary trouble in keeping them so. Either they cover them with grass, or else they hide them with shrubs, probably laurels, which are carefully clipped quite level. Now, this is just as troublesome as grass, and much more irrational. There is no purpose or meaning whatever in a clipped shrubbery, particularly on a steep bank. It does not explain itself, like a hedge; and its only effect is to make the bank look a few feet higher. Laurels suffer more than most shrubs from being clipped, since their leaves are too large to make a close even texture like that of a clipped yew, and they are beautiful only when allowed to blossom and grow tall. Therefore, a clipped bank of laurel is an example of the worst kind of formal gardening, of formality in the treatment of plants, and not in design. There is no such formality in the proper treatment of a steep bank, and much less labour is required for it.

No doubt the common neglect or misuse of steep banks and slopes has been caused by the belief that no plants of any value will grow upon them; and this belief arose at a time when our gardens were filled only with bedding plants, few of which, it must

be admitted, will flourish upon a steep bank. But we are no longer dependent on bedding plants; and, as a matter of fact, there are many plants of extreme beauty, both in flower and in growth, which ask for nothing better than a steep bank, even with the lightest and sandiest soil, to grow upon. There are so many, indeed, that the gardener can exercise some choice among them; and he will be wise to cover his bank for the most part with plants or shrubs that are evergreen and of a creeping or lowly habit. A bank clothed thus will be interesting, and even beautiful, in the depth of winter, far more so than any border, and it will be full of blossom both in the spring and for a great part of the summer. The plants should be low growing, because steep banks are naturally suited to low-growing plants. Tall shrubs or plants look awkward and out of scale upon them, and find it difficult to get enough root hold to keep them firm against the wind or the wash of the rain. A bank that is to be planted should always be well dug, so that the roots of the plants may be able to strike deep with as little resistance as possible; and, if small rocks can be embedded here and there, they will be of great service to the plants in protecting them from drought, and also to the bank itself, in preventing the soil from washing away from it. If rocks are used, they should be driven downwards into the bank, as in ordinary rockwork, and a plant should be placed just below every rock, so that its roots may have the shelter of the rock. Of course the more rocks

that are used on a bank, and the larger, the better. But elaborate rockwork means trouble and expense, and we are proposing to make a bank beautiful without much of either. Luckily there are many plants that will flourish upon a bank without any protection of rockwork, provided they do not suffer from drought when first planted. Planting, therefore, should be done in wet weather in early autumn, especially if the soil is very light. It should not be done, in any case, later than October, as many of the most suitable plants are apt to rot off in the winter if disturbed too late.

There are no plants which thrive or look better on a bank than the stronger species of wild Pinks. They are evergreen and of a creeping habit. They will endure any amount of drought when once deeply rooted, and, though their flowering period is not very long, their leaves are beautiful at all seasons. The strongest of all is the common *Dianthus plumarius*, a species of which there are an infinite number of varieties, and which has produced many hybrids with other pinks, particularly with the Cheddar pink (*Dianthus caesius*). This is much smaller and slower in its growth and rather more delicate in constitution, but it will usually grow on a steep slope looking to the south without much trouble. Other very easily grown pinks in the driest places are *D. arenarius* and *D. petraeus*, the English *D. deltoides* (the maiden pink), *D. fragrans* (or the plant which usually goes by that name in gardens), and *D. monspessulanus*.

All of these may be easily raised from seed, and that is far the best way of getting a large stock. Almost as valuable as the pinks is *Aubrietia*, of which there are many varieties, and which can be just as easily raised from seed. *Aubrietia* should always be planted or divided in early autumn, about the beginning of October, as, although one of the easiest of plants, it is apt to resent disturbance at other times. It is scarcely necessary to mention *Arabis* except to say that the double form lasts much longer than the single in flower and is even more vigorous. A taller growing plant, which combines beautifully with the purple of *Aubrietia* and the white of *Arabis*, is the yellow *Alyssum saxatile*. There is a dwarf form of this, very useful on banks, and also a dwarf variety with pale yellow flowers called *A. saxatile citrinum*. All of these can be raised from seed, and usually come true. *Arenaria montana* is a beautiful plant of the pink tribe which flowers soon after *Aubrietia*. It has white flowers, rather like those of the larger stitchwort, and the same creeping habit. Of the same family, and a little later in flower, is *Gypsophila repens*, with its larger variety *G. repens monstrosum*; plants which will endure any amount of drought. The species is easily raised from seed, but the variety must be propagated by cuttings. Also of the pink family are *Saponaria ocymoides* and *Silene maritima flore pleno*; the *Saponaria* smothered in May with small pink flowers, and for many months afterwards; the *Silene* flowering rather later with large white blossoms that

remind one of those of the pink, Mrs. Sinkins. The *Saponaria* can be raised from seed. The *Silene*, being double, cannot, but must be increased by division in early autumn or by cuttings.

There are two kinds of thyme that are invaluable for the driest, steepest places — namely, the white and woolly varieties of the wild thyme (*Thymus serpyllum albus* and *T. lanuginosus*). A little native plant as low in its growth is *Astragalus hypoglottis*, with its more beautiful white variety. This is the smallest of all the vetches. It is unfortunately not evergreen, like the *Gypsophilas* and *Silene maritima*, but otherwise is admirably suited for steep banks. A plant with beautiful silvery leaves and delicate white flowers which will endure any amount of drought is *Tanacetum argenteum* (formerly called *Achillea*), and this looks very well mixed with clumps of thrift, *Armeria maritima*, and especially with the richer coloured thrift known as *A. lauchiana*. Both of these grow about 8 in. high and will afford a little variety to the perfectly prostrate plants. The *Helianthemums* (sun roses) are little low-growing bushes covered with white, pink, yellow, or red flowers. A variety with golden yellow flowers and glaucous leaves, sometimes called *H. croceum*, makes a beautiful mixture with the common blue flowered *Veronica teucrium*; and this may also be mixed with the fine yellow vetch (*Coronilla cappadocica*), which should be carefully planted and not disturbed. Another *Veronica* less brilliant, but more delicate in its beauty, is *V. pectinata*, with both blue and pink flowers and downy

leaves. The creeping Phloxes are not so patient of drought as the other plants here mentioned, but they will grow well on a bank if the soil is fairly rich, or if they are protected by a rock above them; and they are among the most brilliant and beautiful of our spring flowers. Nothing, in fact, can exceed the beauty of large tufts of Phlox Vivid and Phlox Nelsoni, with their mossy habit of growth and their sheets of pink and white flowers.

There are some southern plants that do not thrive in the ordinary border, but flourish amazingly on very hot sandy banks looking full south. Among these are *Calandrinia umbellata*, a little plant of the purslane tribe, with flowers of the most brilliant crimson magenta colour. This should be raised from seed, and it will usually seed itself freely every year. *Callirhoe involucrata* is another plant of the same habits; it can be raised from seed to flower the same year, and is of rapid growth, spreading over a great space of ground. It flowers for a long time, and often dies after flowering; but this matters little, as it can be so easily reproduced. Several of the *Aethionemas* also will grow well on dry sunny banks, particularly *A. grandiflorum*, *A. pulchellum*, and *A. coridifolium*. These are true rock plants, near to candytuft, but with glaucous leaves and delicate pink flowers, and they are the better for a few small rocks about them. They should be planted in spring, or, if raised from spring-sown seed, as soon in the summer as they are fit to move.

Many bulbs will thrive on a steep dry slope, partic-

ularly the Squills and Chionodoxas, if planted deep, and there is no reason why there should not also be Crocuses, and even the dwarfer Tulips. Bulbs when they die down leave a bare space for most of the summer, and therefore it is well to carpet them with creeping plants that will not interfere with their growth. Nothing is so suitable for the purpose as several species of Stonecrop, in particular *Sedum album*, which will grow anywhere, and is beautiful in and out of flower.

The surface of the bank may also be varied here and there with low-growing shrubs, and these are much better for the purpose than tall plants, as they do not look out of scale with the creeping plants about them. But the shrubs should be chosen with some care, and none of them should be of a straggling habit of growth, or of a kind likely to suffer from drought; for nothing is uglier in any part of the garden than a sickly shrub. Luckily there are a good many shrubs suitable for the purpose. The lowest growing of all are some of the prostrate *Artemisias* and brooms. Of the *Artemisias*, *A. sericea* is the best, covering the ground with a carpet of beautiful silvery leaves and growing at a great pace. It is far more robust than most of the other creeping species. Among the brooms are *Cytisus Ardoini*, a very dwarf plant with yellow flowers, *C. Kewensis*, a hybrid also prostrate with paler flowers and rather larger in all its parts, *C. Schipkaensis*, a small and beautiful white flowered broom, the double form of the native *Genista*

tinctoria, and also the native *Genista pilosa*. These are all very small shrubs growing naturally in the driest places. Most of the *Cistuses* are rather large for planting on banks; but *Cistus florentinus*, *C. lusitanicus*, and *C. formosus* are small enough and may be kept compact by cutting back. *Olearia stellata* (*Eurybria gunniana*) is the smallest of the *Olearias* and also may be cut back after flowering with advantage. This and the *Cistuses* are flowering shrubs of the greatest beauty. There is also a dwarf form of Lavender very suitable for banks, and a prostrate form of the common Rosemary, a most beautiful and valuable shrub. *Santolina incana* and its smaller variety, *incana nana*, look their best on banks of the poorest soil, and should be cut down every two years or so in spring.¹

All the plants and shrubs which we have mentioned will endure any amount of drought when established,

¹Of the several species of *Cytisus* mentioned here *C. Schipkaensis* may be found in Bailey's new *Cyclopedia* under *Cytisus* No. 2, *C. leucanthus Schipkaensis*. *Cytisus florentinus* is possibly a mistake for *Genista florida*, see under *Genista* No. 12; there is no *Cytisus florentinus* known in botanical literature. *C. lusitanicus* is apparently *Genista lusitanica*, see *Genista*, suppl. list. *C. formosus* is possibly *Genista formosa* which is *Cytisus racemosus*, see No. 16. *C. pilosa* is *Genista pilosa*, see No. 15. Only one of these species is offered in American trade catalogues, *C. Schipkaensis*. This and *Genista pilosa* are hardy in the latitude of Boston. The others could probably be grown only in California and the South. The same is true of *Olearia stellata* which is apparently not sold in the United States.

The following may be suggested as American substitutes for the shrubs mentioned above: *Cotoneasters* in their evergreen dwarf forms, *Berberis aquifolia*, *Ceanothus*, *Daphne*, *Evonymus radicans*, especially var. *vegeta*, *Rhododendron Wilsonianum punctatum*, *Andromeda*, *Leucothoe*, *Hypericum calycimum*, *Kalmia angustifolia*, *Lonicera halliana*, *Rosa wichuriana*, and *Xanthoriza*. L. Y. K.

and they all establish themselves very quickly. Many others might be named that are only a little more impatient of drought, and will grow well enough on a bank of good soil. But we have given enough to show that any bank may be made beautiful, however unpromising it may look, if once it is cleared of rubbish. It is useless, however, to attempt to grow anything on a bank shaded with pine-trees or filled with straggling hungry shrubs. All these must be cleared away before anything can be done with it; and, when it is ready to be planted, the planting should be done with some taste and judgment, the plants being arranged in drifts or masses, each drift at its extremities being interwoven with a drift of another species. The shrubs also should be massed here and there in places where they will seem to grow most naturally, and not aimlessly dotted about. By these means many a bank which is now a mere eyesore might be made the most interesting and beautiful part of the garden, with very little trouble or expense.

THE NAMES OF FLOWERS

PEOPLE who are not gardeners often complain that the names of unfamiliar flowers are apt to be ugly, inappropriate, and difficult to remember. A beautiful pink trumpet-shaped blossom catches their eye and they ask you the name of it. When you tell them *Incarvillea Delavayi*, they are not satisfied.¹ They demand an English name, a name appropriate to its beauties, and one that will call them to mind by its mere look and sound; a name, in fact, like daffodil or honeysuckle. They forget, or they do not know, that all flowers, even those which have the prettiest fancy names, have also business names for purposes of identification, which are often no prettier and no more significant than *Incarvillea Delavayi* itself. Honeysuckle, for instance, when botanists talk about it, becomes *Lonicera*. The buttercup is *Ranunculus acris* and the daisy *Bellis perennis*. Now honeysuckle was probably called honeysuckle in England long before it got the name of *Lonicera*; but newly discovered plants do not carry pretty names on collars round their necks. Names have to be invented for them for purposes of identification; names, too, that will serve

¹ A new fern at the Holland House Show (London), July, 1916, is thus christened: *Polystichum angulare divisilobum plumosum* Perry's No. 1. L. Y. K.

for every language; and so the person who christens a new plant, whether the discoverer or another, does not usually tax his fancy much in doing so. Sometimes he does supply it with a compound descriptive word from the Greek, as in the case of the *Chionodoxa*, which may, perhaps, in time come to be known as *Glory of the Snow* or *Snow-glory*. But he is apt in naming it to pay a compliment to some botanical friend or to commemorate his own achievement; and thus we get names like *Brugmansia* and *Bougainvillea*, and *Tschichatchewia*, names which seem to hang like millstones round the necks of their unfortunate owners. But even these seem worse than they are to our insular prejudice. No doubt *Tschichatchewia* sounds quite simple and pretty to a Pole; and we cannot expect all new plants to bear English-sounding names, unless Englishmen discover them all. Besides, the remedy is in our own hands. Our fathers invented English names for the flowers they knew, and we must do the same for the flowers that were unknown to them, if we dislike the names the botanists give them. Until we have done that, we must be content to call a *Brugmansia* a *Brugmansia* (or rather a *Datura*, for that is its present title), however difficult we find it to "tongue" the word. In fact it would be well, perhaps, if all new flowers were named after Poles, so that the difficulty of remembering, spelling, and pronouncing them might act as a spur to the vernacular invention. But, unfortunately, the vernacular invention seems nowadays to be so slug-

gish that nothing will stimulate it. *Eschscholtzia* is a word that no one surely would use if he could help it; and yet *Eschscholtzias* have been known so long that they seem quite old-fashioned flowers; and no one, so far as we know, has even attempted to find a name for them with less than six consonants in a row. The *Fuchsia*, the *Dahlia*, and the *Wistaria* are even more familiar, but they remain still commemorative of Messrs. Fuchs, Dahl, and Wistar; and the nearest we have got towards Anglicizing them is to mispronounce them.

No doubt the chief reason why we do not find English names for our new flowers is that we are under no absolute compulsion to do so. They have their botanical names when we first know them, and so we put up with them as a stopgap. Then by use and wont we come to forget that they are stopgaps; and in time *Dahlia* seems just as fit and proper a name for one plant as *Daffodil* for another. But, even if English names are invented for new plants, the competition of the botanical name makes it difficult for them to get currency. For it must be remembered that the botanical name is universal, and in most cases puts the identity of a plant beyond all doubt, whereas some even of our oldest popular names, such as *Gillyflower*, *Fair Maids of France*, and *Bachelor's Buttons*, are applied to two or more quite different plants. Also the botanical name identifies the species, which the popular name often fails to do. Thus, if you order a certain plant from a nurseryman, and in

doing so call it *Zauschneria Californica*, the nurseryman will know at once what you mean; whereas, if you call it California Fuchsia, or humming-bird flower, two praiseworthy attempts at an English name, he is pretty sure not to take your meaning. The object of botanical names is scientific precision, which they certainly provide; and so where scientific precision is needed they are usually indispensable. But, for all that, the want of beautiful English names to many beautiful flowers seems a reproach to their beauty, and to stamp them as aliens and not true citizens of our gardens. And the question is, How are we to find beautiful English names for them? The multitude of modern discoveries would make it difficult to keep pace with them, even if we tried; and we certainly do not try very hard. But it must be remembered that the beautiful old names probably took hundreds of years to grow, like other words. They were sometimes corruptions of French and Latin names, the corruption no doubt maintaining itself because of some appropriate beauty in its sound or some suggestion of a new meaning. Gillyflower, for instance, is said to have been derived from *Caryophyllus*, *Dianthus caryophyllus* being the specific name of the carnation, or rather of the pink, from which the carnation has been developed. Gillyflower is a pretty-sounding word, but it has no particular meaning. In the seventeenth century, however, an attempt was made to corrupt the name further into Julyflower because the carnation flowers in July. But

this corruption, for some reason or other, did not stick. The modern name carnation is said to have been originally only an adjective applied to certain Gillyflowers, although Parkinson uses it as an alternative to Gillyflowers, or, as he calls them, gilloflowers. No doubt it has ousted Gillyflower because that name was applied to other plants, as, for instance, Wallflowers (which still keep it), Stocks, Rockets, and African Marigolds. The most beautiful names of flowers have grown like folk-songs or ballad poetry; and there is a kind of natural and unconscious poetry in them full of the delight which generations of men have taken in the flowers themselves. But sometimes the same flower will have two different names, one poetic and one expressing the Anglo-Saxon liking for nicknames. Thus Love in a Mist has also the name of Devil in a Bush, and Bleeding Heart (*Dicentra*) is, or used to be, called Dutchman's Breeches.

We cannot expect to make beautiful names for new flowers off-hand; in such matters the invention of individuals will never equal the invention of generations, nor can it hope to get an immediate currency, especially with the competition of botanical names. Still, it is desirable that some effort should be made to find English names for our newer flowers, and to use them when found; for there is a danger that we shall grow too content with the botanical names, and apply them even to flowers which have beautiful and well-established English names of their own. Already many good old names have fallen out of use

and others seem to be going. There is, for instance, a growing tendency to call perennial Larkspurs *Delphiniums*; and the name Columbine, beautiful alike in sound and sense, and one that can be used without any fear of ambiguity, is giving way to *Aquilegia*. Most people now say *Sedum* instead of Stonecrop, even in the case of the species to which the English name can be given with perfect propriety, and many call Snapdragons *Antirrhinums*. Often, of course, a particular species can be indicated only by the botanical name; but that is no reason for using the botanical name where the English name can be used without fear of error. If one wished, for instance, to speak of *Antirrhinum asarina*, one would have to call it by that name; but Snapdragon will serve for *Antirrhinum majus*, indeed, it is a more exact term than the generic name of *Antirrhinum*.

The rage for Latin names has gone so far that you will now sometimes see Lilies called *Liliums* by people who write about them in the gardening papers. Their defence, no doubt, would be that some plants which do not belong to the lily genus are also called lilies; but since we have Primrose and the Rose of Sharon, this would be a reason for calling Roses *Rosas*; and it is to be hoped that we shall never come to that. But, since there is such a strong tendency towards the unnecessary use of botanical terms, it can be checked only by a conscious effort, and that effort ought to be made. A great deal could be done by writers both of gardening books and in the garden-

ing papers if they would use English names as much as possible, giving the botanical name where there is any fear of ambiguity, and, even when the botanical name is the one in general use, adding the English name, if one exists. By this means English names in common use might be maintained, some that have fallen out of use might be revived, and some newly invented for new flowers might gain currency. The nurserymen also might help, by always adding English names, where they exist, to the botanical names in their catalogues. Some of them already do this, and in some gardening books a praiseworthy effort is made to keep up the old English names, and even to introduce new ones. Mr. Robinson, for instance, in his "English Flower Garden," always gives an English name when he can, even to newly introduced plants and to different species; sometimes by the mere process of translation, which is often the only one possible. For instance, he calls *Sempervivum arenarium* the Sand Houseleek; and there is no reason whatever why it should not be generally known by that name, or why *Arenaria montana* should not be called Mountain Sandwort, or *Tigridia* the Tiger Flower. When entirely new names have to be invented, it is a more difficult matter. People are apt to be shy of using sentimental names, however pretty, unless they are quite familiar, like Forget-me-not; and it is difficult to find a descriptive name for a pretty flower without making it a little sentimental. Nothing could be prettier than the name "Angels' tears"

for *Narcissus triandrus albus*, but it has not come into general use, although some writers have persevered with it. No doubt it is too sentimental. Then there is Foam Flower for *Tiarella cordifolia*, another pretty name and quite appropriate, but again, perhaps, rather too sentimental. At any rate, it has not taken root. On the other hand, Rockspray for *Cotoneaster* is a name so descriptive and so well sounding that every one ought to use it; yet it is not used. Other descriptive or half-descriptive names fail from being too cumbrous. Thus we cannot expect that the name "twin-leaved lily of the valley" will stick to *Maianthemum bifolium*, even though the alternative is no less cumbrous. But it is no use being discouraged by the failure either of good names or of names less good. Only persistency in the use of them will give them a chance, and only by such persistency can it be proved whether or not they deserve to survive. Even a name too sentimental is better than a mere botanical term; and, if there is a general tendency to use English names, invention may be quickened, and in some cases alternative names may have to struggle for the mastery. In such a case we should have some approach to natural selection, the best possible means of obtaining good names.

In many cases, however, what is required is not invention, but merely revival, and this ought to be far easier; for there are many old names now fallen out of use that ought to take the fancy of any one who hears them, as, for instance, *Virgin's Bower* and

Lady's Bower for *Clematis flammula* and *C. montana*, Cardinal's Flower for *Lobelia cardinalis*, Goldilocks for *Helichrysum*, Lady's Laces for variegated grass, Pearls of Spain for the white Grape Hyacinth, and Rosaruby for the red Adonis. Many of these names should serve as models for new inventions, particularly in the richness and appropriateness of their sound; for it is sound probably that keeps a name in common speech more than any other quality; and it is only through too much reading that people grow indifferent to the sound of words. Goldilocks and Rosaruby are a delight to the ear. They can only have fallen out of use because they belonged to flowers not much grown nowadays. As for Pearls of Spain, it is a delight both to the ear and to the mind, and worthy of one of the most exquisite of all spring flowers.

Even in the naming of florists' varieties some fancy used to be exercised in the seventeenth century, particularly in the case of carnations. There were red Hulos, and Chrystallines, and Striped Savages, and Cambersines, and Lusty Gallants, and Pale Pageants, and Infantas, and Feathered Tawnies. And there is no reason why florists now should not show a little more spirit and invention in giving names to their novelties. Florists' varieties do not have botanical names; therefore, the florist has a free choice, and no excuse if his names are meaningless or ugly. Yet they are usually both. What is to be said for the name *Blairii* ♀, given to an excellent old rose,

or Gruss an Teplitz, given to an excellent new one? The habit of calling flowers after people is a very dull one and ought to be discouraged. All that can be said for it is that the names of people do not need to be translated. But this would apply also to classical names, which are far less used than they might be. Indeed, they are used scarcely at all. But, even if a pretty florists' name had to be translated it would not matter much, provided it was short and descriptive. Daffodils in this respect are better treated than roses; for instance, Lucifer is a good name for the glowing flower to which it is given; and Sunset is another. But there are some pretty names even among roses, as, for instance, Irish Glory and Irish Modesty for the beautiful Single Teas which have lately come from Ireland. Even humorous names are better than dull ones, and the gardener is to be commended who christened a new cucumber "Tender and True," when he might have called it Lord Kitchener or Sir Henry Campbell-Bannerman.

GARDENING IN HEAVY SOILS

THE problems of gardening in heavy soils are naturally quite different from those of gardening in light soils; for whereas the chief enemy of plants in light soils is drought and heat in summer, their chief enemy in heavy soils is damp and cold in winter. Climate is not the only condition which affects the hardiness of plants; soil has also to be considered; and many plants that are hardy on a light sandy soil are not hardy on a stiff clay, although the climate may be no colder. The chief reason of this is that moisture on a stiff clay does not drain away quickly, but remains about the roots and even about the crowns of plants, so that the ground is very cold when it is frozen and, even when it is not frozen, is all through the winter so charged with damp that many plants are liable to rot off in it. It follows from this that drainage is the chief essential to success in a stiff soil; and it is necessary not merely to protect the plants from damp and cold, but also to make the ground fertile, for if the upper layer of the soil is charged with water, air cannot get into it, and without air those processes of decomposition which make soil fertile are impossible.

No one, therefore, whose garden consists of stiff clay can hope to grow any but the coarsest and strong-

est plants in it without good drainage. And drainage is not a matter merely of carrying the water away, as it is carried away from the roof of a house; but rather of carrying it down far enough below the plants to prevent their suffering from it in cold and wet winters; for there may come a time, in hot and dry summers, when even in a stiff clay the plants will need all the moisture they can get. Indeed, plants suffer from a prolonged drought in a stiff clay as much as in light sandy soil, or even more, for the clay, if it is in a crude natural state, bakes and cracks, in some places pressing tightly round the roots of the plants, in others exposing them to the full heat of the sun. It follows, therefore, that it is not enough to drain the moisture away from the soil by means of pipes, even if that could be done in a soil which can be deprived of moisture only by the heat of the sun. What is needed is to change the nature of the soil itself, so that moisture will have a free passage through it. Without such a change, even the use of drainage in the shape of broken bricks, rubble, &c., some feet below the surface is not a complete remedy, for the soil above will still hold a great deal of moisture if its consistency is not altered. The first step towards doing this is to break it up thoroughly by means of deep digging. Deep digging is necessary on a light soil, but it is even more necessary on a heavy one, for it is one of the chief means of introducing air into the ground and thus of making it fertile, and also of enabling the water to find a free passage through it.

But the effects of deep digging upon a stiff clay are only transient, unless the clay is mixed with other matter which will prevent it from clogging with the damp and caking with the heat. It must be made porous by the addition of other more porous substances which will both relieve it of moisture and add to its fertility. Of these the most valuable are rubble and humus—that is to say, soil consisting of decayed vegetable matter and, in particular, leaf mould. There are, of course, many kinds of rubble, but the best of all is mortar rubble, for not only is it very gritty, but it is also full of lime, which in itself is a most valuable form of plant food. Many people use cinders, and these certainly increase the porosity of the soil, but unfortunately they also impoverish it, as they contain no kind of nourishment whatever. Mortar rubble, therefore, should be used, if possible; and it may be very plentifully mixed with a stiff clay soil with the best results for all except the few plants, such as Rhododendrons and Azaleas, and Kalmias, to which lime is poison. Humus does not, of course, increase the porosity of the soil so much as rubble, but it does make it more porous and also warmer, and it is a most valuable and in a stiff clay an almost essential plant food. The rubble and the humus should be mixed together and dug well into the clay, so that the soil for 2 ft. at least is permeated with them. If further drainage is necessary it should consist of a foot or so of broken bricks, &c., the larger the better, about 2½ ft. below the surface of the

soil. To prepare a border in this way entails a good deal of trouble and some expense, but when once it is done the border will need but little attention for some years and the plants will not need to be renewed constantly.

It is only in a border so prepared that a great number of plants can be satisfactorily grown on a stiff clay soil, and, further, it is only in such a border that farmyard manure can be employed so as to give the best results. Manure, of course, adds to the fertility of a heavy soil and also, to some extent, increases its porosity; but it is also apt to rot the roots of plants that come in contact with it in cold, wet weather, and to turn sour and breed noxious gases, while its juices can only be thoroughly distributed through clay when it is made porous.

Of course, many people will not be at the trouble of preparing a border thus; but even so they may protect their plants from some of the dangers of damp and cold by thorough deep digging, and also by placing some drainage below the roots of particular plants and surrounding these roots with humus and rubble. Thus they will be protected during the winter from the immediate contact of the clay. Many plants will thrive on a stiff clay, which would otherwise damp off in the winter, if they are planted in a border raised half a foot or a foot above the general level of the soil. Such a border is particularly useful for the culture of bulbs, such as Tulips and Daffodils, and of those low-growing plants which thrive by nature

among rocks, such as Aubretia, the creeping Phloxes, and many kinds of Pinks, including Carnations. Such a border is not difficult to make, especially if it is enclosed by fairly large rocks shaped like tiles and driven firmly into the ground; and it is one of the easiest means of providing drainage, especially for shallow-rooting plants. In a light soil it is well to plant, if possible, in the autumn, so that the plants may be thoroughly established before the summer droughts; but in a stiff clay many plants should be planted in the spring, since winter damp is a greater danger to them than summer drought. This applies, perhaps, even to Roses, unless the soil can be thoroughly prepared for them beforehand, and to all except the hardiest shrubs. It is true, of course, that with a favourable winter Roses will survive even in the stiffest clay, and that in such a case they will do much better their first summer than if they are planted in the spring; but if the winter is very severe they are likely to go off wholesale. If the gardener likes to take that risk, he can plant in the autumn, but not later than the beginning of November; if he prefers safety, he will plant in early spring, as soon as all danger of severe frosts seems to be over. Most herbaceous plants can be safely planted in the spring, and some, in a stiff clay, can only then be safely planted. Larkspurs and phloxes, for instance, are very apt to go off if planted in autumn.¹ Even plants

¹ Exception must be taken to the application of this statement to American gardens; Phloxes do well in the United States when autumn-planted, Larkspurs also when on well-drained soil. L. Y. K.

like Pæonies and German Irises, which usually will not flower well the same year if planted in spring, are best so planted in a very stiff clay. As in the case of Roses, they may do nothing the first year, but they are well established before the winter comes. In any case, if autumn planting is done at all with herbaceous plants, it should be done as early as possible, and it can be done earlier in heavy than in light soils, because there is less danger of drought. Speaking generally, deep-rooting plants are better moved in autumn and shallow-rooting in spring, as the shallow-rooters recover most quickly from disturbance. But in a light soil many shallow-rooting plants are best moved in the autumn, as there is no fear of their perishing from winter cold and damp, whereas if moved in spring they may not recover before a long drought begins. Such plants can usually be moved in spring with perfect safety in a stiff soil; whereas a good many deep-rooting plants in such a soil will succumb to winter cold and damp if moved in autumn.

Speaking generally, again, deep-rooting plants are most suitable to light soils, in which their roots protect them from drought, while shallow-rooting plants do best in heavy soils, where there is usually enough moisture on the surface even in summer to keep their roots cool. But this is only a general rule. Some deep-rooting plants, such as Pæonies, are never so fine as in a stiff soil, and many shallow-rooting plants will not endure the cold and damp of a stiff clay.

Most bulbs, of course, must be planted in the autumn even in the stiffest soils, and they should be planted as early as possible, so that they may be able to start into growth before the winter cold begins. This applies particularly to Daffodils, all kinds of Squills, Chionodoxas, Snowdrops, all Lilies that are planted in autumn, and even to Crocuses. It is less important in the case of Tulips, as most of these start into growth later. It is, as a rule, more difficult to grow bulbs well in a heavy than in a light soil, as they are particularly apt to rot off from damp. It is well, therefore, to put some drainage under them, and to surround them with leaf-mould and grit. Particular care should be taken that the soil is pressed close round them, as, if it is not, water will get into the empty spaces and rot them in the winter. This is more difficult to ensure in stiff clay than in a light soil, as the clay after being dug remains in lumps, whereas the light soil crumbles away. Bulbs in a stiff soil should not be planted so deep as in a light one. As bulbs differ very much as to the depth at which they like to be planted, it is impossible to give general rules in this matter; but four inches is quite deep enough for the base of Tulip, Daffodil, or Snowdrop bulbs, while Crocuses can be placed not more than an inch below the surface.

There are many plants which thrive in half-shade with a north aspect on light soils but which prefer full sun and a southern aspect on heavy ones. This applies to Pæonies, Pansies of all kinds, Phloxes,

Michaelmas Daisies, Madonna Lilies, and, indeed, all the Lilies which will do well in stiff soils — Day Lilies (*Hemerocallis*), Columbines, many species of *Campanula*, Lilies of the Valley, Violets, *Coreopsis*, the hardy *Cyclamen*, Larkspurs, Foxgloves, *Doronicum*, *Alstroemeria*, *Funkia*, Cranesbills, Christmas roses, Rose of Sharon, all the German Irises (though these, indeed, prefer full sun with any soil), Lupins, *Mimulus*, Bergamot, Forget-me-nots, *Anemone japonica*, Solomon's seal, *Dicentra spectabilis*, *Polyanthuses*, and even Primroses, *Spiræas* of all kinds, Meadow Rue, Spiderwort, and *Trollius*. All these plants will do well in a stiff soil, provided they get plenty of sun and do not suffer too much from stagnant moisture. In very hot places *Anemone coronaria* will do better than in light soils, and even *Anemone fulgens* will thrive if some leaf-mould and lime are mixed with the clay. Hollyhocks also must have a warm place on a stiff soil, and should always be planted in spring. Larkspurs and Phloxes are never so magnificent as in a stiff soil properly prepared. Pansies, *Polyanthuses*, *Trollius*, Day Lilies, and Lilies of the Valley all grow well in a stiff soil if it is also fertile. The Madonna Lily is often at its best in clay if it is protected from stagnant moisture and in the fullest sun. It also likes lime mixed with soil. Of other Lilies, the Tiger Lily, the Orange Lily, *Lilium umbellatum*, *L. elegans*, *L. Martagon*, and *L. Pyrenaicum* will all grow well in clay; while *L. Chalcedonicum*, though a capricious plant, is sometimes seen at its best in clay in a hot

place where the soil is impregnated with lime. The magnificent *Lilium Szovitzianum* is also said to grow well in clay, but it, like *L. Chalcedonicum*, needs to be thoroughly protected from stagnant moisture.¹ Among the *Narcissi* some do much better in clay than others. Speaking generally, the pheasant-eye *Narcissus* (*H. poeticus*) and those hybrids which are nearest to it do better in a stiff soil than the Trumpet Daffodils. For these latter the soil should be prepared with grit and humus. The double form of *Narcissus poeticus* thrives better in a clay soil than in any other. It is commonly supposed that all roses do best in a clay soil, but this is not the case. Nothing suits most roses so well as a rich loam; and many of the more delicate teas and Chinas are apt to die off in a stiff clay unless it is very carefully prepared. Of all roses hybrid perpetuals do best in a clay soil, and of these the hardier and more vigorous should be chosen. It is certainly true, however, that clay is better suited to roses than to most plants; but the common idea that any rose will thrive in a clay soil, if planted anyhow, often leads to disappointment. The more rich and porous the soil is made the better, and this applies, not only to roses, but to all kinds of shrubs. Indeed, it is useless to attempt to grow any except the most robust and long-suffering shrubs in

¹ Some gardeners recommend planting Lilies on the sides instead of upright, in order to drain the water from their crowns. This is a practical method but in any case the lily should be set on a bed of silver sand for drainage. L. Y. K.

a stiff clay without a thorough and deep preparation of the soil.

The soil also should be carefully prepared where any annuals are to be sown, for a stiff clay is by nature too hard and rough and uneven, even when thoroughly broken up, for seeds to germinate well in it. Indeed, on clay one seldom sees those self-sown seedlings which are so common in a sandy soil; and even trees reproduce themselves from seed much more rarely, which is, no doubt, the reason why light soils are apt to be more wooded than heavy ones. Therefore, when seeds are sown out of doors on clay the surface of the soil should not only be very thoroughly broken up, but should be enriched and softened with leaf-mould and grit. It is seldom much use to sow annuals in autumn on clay, though it is the best way of growing many kinds on a light soil. Indeed, all annuals should be sown, even in the spring, some weeks later on clay than on sand. In the case of biennials and perennials many kinds which can be sown in the open ground when it is sandy should be sown in boxes of prepared soil where the natural soil is clay, since not only are they apt to fail to germinate, but they are also liable to be eaten off by slugs while still in a young and tender state. Slugs and snails are perhaps the worst pests of a heavy soil, and there is no means of extirpating them. They can only be dealt with in detail by killing all that are encountered and by surrounding the plants for which they have a particular fancy with soot or ashes. Not only is the voracity of slugs,

though vegetarian, comparable with that of sharks and crocodiles when the difference of size is considered, but they have also a horrible epicurism of taste which will not be satisfied by an innocent meal off the leaves of vigorous and full-grown plants. They make for whatever is young and tender, and are happy only when they can kill where they dine. Where they abound, therefore, seedlings should not be exposed to them until they have outgrown their first delicacy.¹ All these matters make gardening on clay a difficult and troublesome business; and the stiffer the clay the stiffer is the gardener's task. But we cannot all live on a rich loam of the right consistency. We must take gardening as a game, with different rules in different places. Sometimes the rules are easy and sometimes difficult. On a stiff clay they are certainly very difficult. But some people find the most difficult games the most interesting, and the born gardener reveals his genius most when he has to deal with stiff clay or pure sand.

¹ In the United States snails and slugs are not common. Their counterpart may be said to be the cutworm, whose ravages many American gardeners know too well. L. Y. K.

SLUGS VERY COMMON IN NEW ENGLAND

CAMPANULAS

THERE are some flowers which in the most formal garden never lose their wildness or that air of romance which most wild flowers possess. Every Daffodil looks like a meadow flower, and all campanulas seem to belong to the mountain-side or the woodland. There is a mysterious charm about all bell-shaped flowers, as if they really had some secret musical purpose; and there seems to be a further mystery in the dim-blue colour of campanula bells. The wild beauty of these plants has been but little touched or altered by the florists, and the reason, no doubt, is that Nature herself has already done nearly all that can be done with them. There are some plants, such as Pansies or Begonias, in which she seems to produce merely possibilities for the gardener to realize. There are others which she herself perfects for the garden, enlarging their flowers until they can scarcely be further enlarged without loss of symmetry, and developing innumerable species infinitely varied in habit and form. This is the case with campanulas. There are some that grow as tall as a man, and some that grow scarcely higher than moss. The flowers of some are bell-shaped, others starry, and others almost flat like plates. Only in colour do they vary little, being nearly all of a soft-grey blue or purple,

although there are soft-pink Canterbury-bells and white varieties, either natural or garden, of many species. In some cases the florists have enlarged their flowers, in one or two they have doubled them; they have also produced a certain number of hybrids, but even among the hybrids as many have come by accident as by design. But all these are only exceptions; most campanulas are as Nature has made them; and she has produced few flowers with more character and beauty. For garden purposes it is convenient to divide campanulas into classes, the tall kinds of the lowland and the low-growing mountain species, while there are a certain number of intermediate kinds, such as our own English harebells and *Campanula carpatica*. The taller kinds, naturally, are best suited for the border, and the mountain species for the rock-garden; although several of the latter are so easily grown that they make excellent plants for the front of the border. Most of the border campanulas are woodland or half woodland plants, and, therefore, they like a cool or a shady place, except in a very stiff soil. They are nearly all easily grown, but they prefer a rich soil, and many of them will not reveal their full beauty without it. The best known of all campanulas is the Canterbury-bell (*C. medium*), of which it is scarcely necessary to speak except to say that the double and cup and saucer varieties are not nearly so beautiful as those with flowers of a natural and simple form. Two other species are almost as common and, being perennials, are even more useful than

the Canterbury-bell — namely, *C. latiloba* (or *grandis*) and *C. persicifolia*. *C. latiloba* is the easiest grown of the campanulas, thriving in poor soil, provided it is not too hot, and increasing like a weed. It has soft-blue flowers shaped like a plate or a shallow saucer, and there is a white variety which grows stronger than the type. *C. persicifolia* is, perhaps, the most beautiful of all border campanulas, and one of the few that have been improved by the florists. The type is naturalized in some parts of England, and has bell-shaped flowers of the ordinary campanula blue. There is a natural white variety of it, also naturalized. *C. p. grandiflora* is a variety with much larger flowers and a most beautiful and vigorous plant. It can be obtained with dark-blue, pale-blue, and white flowers. *C. persicifolia*, like most campanulas, can be raised very easily from seed, and the best way to obtain fine forms is to raise a number of seedlings from a good strain of the *grandiflora* variety and to keep only the finest of these, raising seedlings from them again in due course. *C. persicifolia* is not a very long-lived plant, and is apt to dwindle and deteriorate after two years or so, so that the stock should be constantly renewed. Several double varieties have lately been produced, but in all of them a great part of the peculiar grace of the flower is lost, and there seems to be no reason whatever for their existence. *C. latifolia* is a fine British species with pale-blue flowers. In rich soil and a cool situation it will grow 5 ft. or more high and seeds itself freely.

There is a beautiful white variety and a variety called *macrantha*, a fine plant, but not so stately in habit as the type. *C. van Houttei* and *C. Burghalti* are probably hybrids between *C. latifolia* and some other parent unknown. They are both very beautiful, having large bells much paler in the latter than in the former. They grow only about 2 ft. high.

C. lactiflora is another stately bell-flower, growing often 6 ft. in height. Its flowers are small, but very numerous, and of a very pale-blue colour. There is a variety with deeper blue flowers. *C. celtidifolia* appears to be only a rather inferior variety of the same species. *C. lactiflora* seeds itself freely, and should be left in the same place for years, as it shows its full beauty only when undisturbed.

Campanula pyramidalis is a well-known plant, often grown in pots in greenhouses. It is, however, perfectly hardy, though it is apt to deteriorate quickly after the first year's flowering. It also often grows 6 ft. high and remains in flower for a long time. Although such a tall plant, chance seedlings of it will thrive in the fissures of walls, and in such places it often seeds itself profusely. It is best renewed from seed about every two years, and, if the seed is sown early in spring and the plants are well treated, they will flower the next year. There is also a fine white variety and a shorter variety called *compacta*. *C. pyramidalis* likes more sun than most of the taller campanulas.

Campanula alliarizæfolia is a handsome plant grow-

ing less than 2 ft. high. It has large drooping white bells, and can be easily raised from seed. *Campanula urticifolia* is usually seen in the white double-flowered variety. This is one of the few cases in which doubling improves a campanula, and it is a very pretty plant. *C. glomerata* is a British species and very easily grown. It is only about a foot high, and the flowers, of a rich violet colour, are crowded together at the top of the stalk. The white variety is very beautiful, but not so vigorous as the type. There is also a new very dwarf form called *acaulis*, a good plant for the rock garden. *C. punctata* is another low-growing border plant, with white spotted flowers. It often takes a year or two to establish itself, and then is apt to become a weed. Besides these are two fine hybrids, *C. Hendersonii* and *C. Fergussonii*, both of them, perhaps, being crosses between *C. carpatica* and *C. pyramidalis*. They are both valuable and distinct border plants growing about 18 in. high.

We will pass now to the campanulas of intermediate growth, most of them inhabitants of hill countries or Alpine pastures, but most of them also easily grown in the border. The English Harebell, *C. rotundifolia*, is, of course, both a lowland and a highland plant; and only its commonness prevents it from being a favourite flower in our gardens. The white form is rather rare, though often seen in Derbyshire. It is less vigorous than the type, and often dies if divided. *C. Hostii* is a variety of *C. rotundifolia*, and scarcely to be distinguished from it except by

the eye of the botanist. It is chiefly valuable for its white form, which is much more vigorous than the white harebell proper, and can be divided without fear. There is also a curious and beautiful double variety of *C. rotundifolia* called *C. soldanelloides*. This should be grown in some cool part of the rock garden, as it is far less vigorous than *C. rotundifolia*. *Campanula carpatica* is a well-known and beautiful plant with large, open, bell-shaped flowers, growing about 9 in. high. There is a white variety, and several other varieties, of which *pelviformis* is particularly beautiful. *C. carpatica* is best raised from seed, and the seedlings are apt to vary a good deal in the size of their flowers and also in the depth of their colour. *Campanula turbinata* is a dwarf variety with flowers very large in proportion to its size, and one of the finest of campanulas for the rock garden. It will not often come true from seed, and therefore should be increased by division in early spring. *Campanula mirabilis* is a plant from the Caucasus, of which a great deal was made when it first appeared some ten years ago. It is certainly beautiful, being like a very delicate Canterbury-bell, but, as it often takes years before it flowers and appears always to die after flowering, it is not a very valuable garden plant. It can be easily raised from seed, and should be grown in rather poor, stony soil, on the lower slopes of the rock garden. *Campanula rhomboidalis* is a pretty harebell growing about a foot high and thriving in any border of ordinary soil.

It can be easily raised from seed. *C. barbata* is no doubt the most beautiful of all these intermediate campanulas, perhaps, the most beautiful of all campanulas. Unfortunately, it is rather capricious, growing freely and increasing by self-sown seedlings in some places and dwindling away without flowering in others. In Switzerland it is a plant of the Alpine pastures, and more often than not a biennial. It seems to do best in light, rich soil, in a fairly sunny, well-drained place, where the ground is carpeted with other low-growing plants. It can be easily raised from seed, and its beauty is such that no pains should be spared to make it thrive.

There are a great many mountain campanulas, some very easy to grow and some difficult, but nearly all both interesting and beautiful plants for the rock garden. The best known of these are *C. caespitosa* and *C. pusilla* (or *pumila*) which may for garden purposes be regarded as the same plant. *C. caespitosa* is a little harebell only a few inches high, which will grow in a border in light, rich, well-drained soil, but which looks its best and lives longest in long, deep, and narrow pockets in the rock garden. In such places it will thrive in full sun and poor soil, throwing out runners wherever it can find space and growing into a plant a foot or more long. The blue flowers vary a good deal in the depth of their colour, and there is a white variety. *C. caespitosa* can, like all or nearly all the rock campanulas, be increased by cuttings taken when they are just starting into growth

in the spring. These cuttings will make good flowering plants the same year, if they are stuck in cold frames. But the simpler plan is to raise seedlings, and these, if seed is sown in March or April in a cold frame, will also flower the same year. Hundreds of plants can be quickly raised in this way at the cost of a few pence, and plants raised from seed are the most vigorous. The white variety often comes true from seed. *C. caespitosa* makes a particularly beautiful contrast with *Sedum album*, which flowers at the same time.

Scarcely less well known, and quite as beautiful, is *Campanula muralis* (also called *Portenschlagiana*). This plant, although it will grow in the smallest fissures of rock in the hottest sun, will also thrive in rich soil in cool and half shady places. There are two varieties and their naming is rather uncertain. The type appears to be the smaller plant with pale blue flowers, while the variety *Bayarica* is larger and has deeper and more purple flowers. Both are most valuable plants for the rock garden, particularly for the north side, where they may be mixed with *Silene alpestris* with beautiful effect. They are very deep-rooting plants and should be left undisturbed as long as possible. They can be increased either by division or by cuttings treated like the cuttings of *C. caespitosa*. Seed is not very common, and there is, unfortunately, no white variety known.

Campanula pulla is a plant with much the same habit of growth as *C. caespitosa*, but even smaller, and with deeper blue, or rather purple, flowers. It is

also rather more delicate, though easily grown in long, narrow pockets of the rock garden and in light rubbly soil where its runners have room to increase. It will thrive either on the north or south side, but should always have a cool root run. It is best moved and divided every two or three years. It can be increased by seed, though this is rather uncertain in germination unless sown as soon as ripe; by cuttings, as in the case of *C. caespitosa*; or by division.

C. Wilsoni is a pretty hybrid between *C. pulla* and *C. carpatica* and more vigorous than *C. pulla*, though of the same habit of growth. There appears also to be one or two other hybrids of *C. pulla*, such as *C. haylodgensis*, though these are of uncertain parentage. *C. Tommasiniana* is another small Bluebell, with long and very narrow pale blue flowers. It has a very delicate beauty, but is quite easy to grow in chinks of the rocks, thriving best in full sun. It must be increased by division or cuttings.

Campanula garganica is a small campanula with leaves very like those of *C. muralis*, but with star-shaped flowers. There appears to be some doubt as to which of two varieties is the type. One of these is more tufted than the other, has shiny green leaves, and blue flowers. The other has leaves more bronze or brown in colour, a more spreading habit of growth, and flowers nearer to purple in their hue. Of this form, which is perhaps the type, there is also a white or almost white variety. Both are very beautiful, and easily grown in narrow chinks of rock or even

fissures of the wall in full sun. They can be easily raised from seed or cuttings, and should be left undisturbed when once planted, as they root very deeply. The variety called *hirsuta*, with downy leaves, is a larger and more vigorous plant altogether, and will thrive on the north or south side of the rock garden. It should be increased by cuttings or division. All the forms of *C. garganica* are very beautiful, and peculiarly well-fitted to the rock garden.

C. Waldsteiniana is a very small campanula rather like *C. garganica* in its flowers, though more upright in growth. It is rather rare, but quite easy to grow in sunny chinks between the rocks. It must be increased by cuttings or very careful division.

Campanula abietina is a beautiful plant quite easy to grow, but rather a shy bloomer. It is best grown in rather poor light soil and in full sun among the rocks, and should have a top dressing of leaf-mould every spring. It can be readily increased by division, and, indeed, thrives best if divided and given fresh soil every two years or so. Otherwise it is apt to die out. *C. abietina* is rather taller than most of the rock campanulas, throwing up stalks about 8 in. in height.

Campanula isophylla and *C. fragilis* are two beautiful prostrate campanulas usually grown in pots; and, indeed, they are too tender to thrive out of doors except in warm places. It is worth while, however, to try them in the warmest part of the rock garden closely packed among the rocks. *C. isophylla* likes

fairly rich soil consisting chiefly of mortar rubble and humus, and it must be watered in hot dry weather. *C. fragilis* will do best in the narrowest chinks between the rocks in a soil mainly made up of rubble. It can be raised very easily from seed. *C. isophylla* is best increased by cuttings taken in spring. Both should be protected in winter if they are left out of doors.

There are a few campanulas from the high Alps which are difficult to grow. Among them *C. Allioni*, *C. cenisia*, *C. excisa*, *C. Elatines*, *C. lanata*, and *C. Zoyzii*. They are all purely rock plants and should be grown in very narrow chinks of the rocks, in a soil consisting mainly of sand and rubble, with a very little leaf-mould. They are best grown from seed when it can be obtained. *C. Allioni* spreads by means of runners throwing up little tufts, and should be given some space to increase in. *C. cenisia* and *C. Zoyzii* are tiny tufted plants. *C. cenisia* grows in its native home in masses of broken shale. *C. Zoyzii* likes a narrow fissure and does well in some gardens. *C. excisa* is worth attempting, since it has a flower both curious and beautiful and can be readily raised from seed. *C. lanata* has a yellow flower, and very little appears to be known about its culture in England. It comes from the Balkans.

All the rock campanulas are best disturbed or divided in spring, as some even of the most vigorous of them are apt to die in the winter if they are disturbed in autumn. Although most of them like a good deal of sun, they also like a cool place for their

roots, and, therefore, should be placed so that their roots can run under rocks. The kinds, such as *caespitosa*, *pulla*, and *Allioni*, which run under the soil, should be given plenty of room for increase, as otherwise they quickly deteriorate. The more difficult species all like a south-west aspect, but many of the more vigorous kinds, such as *caespitosa*, *garganica*, *hirsuta*, *turbinata*, *Wilsonii*, and *pulla* do well on the north side if unshaded, and are most useful plants for this purpose. *Muralis*, as we have said, will thrive also in half shade. With the Pinks and Saxifrages, Campanulas are the most valuable of all families of plants for the rock garden.

THE CULTIVATION OF ALPINE PLANTS

THERE is some vagueness in the use of the term Alpine as applied to plants. It never means merely the plants of the Alps. Indeed, the epithet *Alpinus* is applied botanically to mountain plants from other continents besides Europe. But besides this geographical looseness there is also some uncertainty about the character which is implied by the word Alpine. Some people apply it generally to all plants which grow on mountains, however readily they may adapt themselves to the lowlands. Others confine it to those high mountain plants which can only be grown in our gardens in special conditions and with some care and skill. This seems the best use of the word for any one who considers Alpine plants from the point of view of their cultivation, since it is only the more difficult among them that need to be cultivated in a peculiar way.

But, even if one confines the term to mountain plants that need special conditions, there still remains the difficulty that such plants vary a good deal in the conditions which they require; and ignorance of this fact causes many failures. Not only do Alpine plants come from many different climates, but even the same range of mountains will usually afford a great diversity of conditions, resulting in an equal diversity in the character and requirements of the plants which

grow upon it. Thus, even in the Swiss Alps, there are some plants that are purely saxatile growing in very narrow and deep fissures or chinks between the rocks, needing hardly any soil for their nourishment and getting all the food and protection they require from the rocks which surround their roots. Plants of this kind are apt to be very deep-rooting, and, when once they have thrust their roots down among the rocks deeply embedded in the soil, they are usually safe against any amount of drought and heat in the summer or moisture and cold in the winter. The more difficult among them need scarcely any soil at all, merely a little grit and rubble to fill up the spaces between the rocks. They will usually thrive on a steep, sloping bank; and there is no need to arrange the rocks where they grow so as to catch and hold the water on the surface of the soil, as they get all the moisture they need from the rocks about their deeper roots. Most of them like all the sun they can get, and should, therefore, be grown on rock-work facing to the south. Many plants of this kind which can be successfully grown in English rock gardens come from mountains in Asia Minor and other hot countries, so that they sometimes suffer from very sharp frosts, especially if accompanied by cutting winds. They should therefore be grown in sheltered places, and in very hard winters should be protected with a mat or cut heather.¹ Among plants of this deep-rooting purely saxatile character may be men-

¹For "cut heather" Americans may read "pine boughs." L. Y. K.

tioned the *Aethionemas*, some of the more difficult *Campanulas*, the *Acantholimons*, the *Wahlenbergias* (also called *Edraianthus*), *Armeria caespitosa*, some of the smaller and more delicate *Pinks* such as *Dianthus neglectus* and *D. freynii*, *Geranium argenteum* and *G. cinereum*, *Hypericum repens*, *H. reptans*, and *H. coris*, *Iberis saxatilis*, *Lychnis lagascae*, *Phyteuma comosum*, *Potentilla nitida*, *Saxifraga longifolia*, *S. pyramidalis*, and many other saxifrages of the same class, *Silene Elizabethae*, *Antirrhinum asarina*, *Erodium guttatum*, and *E. chrysanthum*. These plants are not all difficult to grow; a good many of them, indeed, are quite easy; but they all do best, and are safest against the caprices of our climate, when grown in deep and narrow chinks between rocks; and they will all thrive with very little soil. The problem of the cultivation of plants of this kind is, therefore, fairly simple. The main thing is to induce them to root deeply. Until they have done that, they must be protected from drought as a rule; but, when they have done it, they will protect themselves. Most of them will thrust their roots several feet down. The rocks about them, therefore, should be equally deeply embedded in the ground, and the soil should be thoroughly well drained as far as their roots are likely to descend. It is no use to attempt to grow such plants upon a heavy or damp subsoil with a foot or so of rocks and grit above it. They will thrive until they reach the subsoil, and then their roots will rot away the first winter after they have reached it.

But there are other high mountain plants — and these are often the most difficult to grow — which are not content merely with deep and narrow chinks between the rocks. They are plants which, in their native homes, obtain a continual supply of moisture from the melting snows during their growing and flowering season; and they need, therefore, a supply of moisture, when they are grown in a rock garden, in all hot and dry weather. They also usually need as much sun as they can get; and, since in their native mountains they are at rest and frozen hard for many months of the year, they are apt to suffer very much from the damp of an English (or American) winter, and often require as sharp a drainage as the purely saxatile plants. Plants of this kind often root deeply, but they often also increase by means of runners which travel below the surface of the soil and throw up tufts in all directions. In this case they cannot be grown in very narrow chinks, like the purely saxatile plants, but must be given room enough for increase; and this also makes it difficult to protect them from drought. *Gentiana verna* is a plant of this kind; and it has got the reputation of being difficult to grow, because many people have treated it as if it were a purely saxatile plant, stuffing it into some narrow chink between the rocks in a place where no moisture will stay on the surface. *Gentiana verna* is really rather a plant of the Alpine pastures than of the rocks; and it is usually seen on grassy slopes which are watered by the melting snows during its flowering

period, and where it can throw out its tufts in all directions. If it is grown on a slope in England (or America), however, it is difficult to protect from drought, especially as it needs all the sun it can get. It is best grown, therefore, in a little hollow of the rock garden, which will catch all the rain that falls into it, and where the plant will have plenty of room for increase. *Gentiana verna* is not difficult to grow when once its needs are understood, because it is not very impatient of moisture in the winter. There must be good drainage below it; but, if such drainage exists, it can and should be grown in rich soil — a mixture of turfy loam and leaf-mould, for instance, suits it well.

But there are other plants which need as much moisture in the summer, but which are so impatient of damp in the winter that they must be provided with a much lighter and poorer soil. It is plants such as these that are particularly difficult to grow; and yet a good many of them can be grown successfully if only the rocks are arranged so as to protect them both from drought in the summer and from damp in the winter. Like *Gentiana verna*, they must be grown in little hollows among the rocks, but in hollows where the drainage is very sharp. The pockets in which they are planted should not themselves be sloping, but slightly depressed in the middle like a saucer, so as to catch the rain. They should be planted close to a rock arranged so that their roots can run under it and be kept cool by it, but the other rocks should come closer together downwards like the sides of a

pot, so that the earth enclosed by them may remain firm, and so that all rain may run down by the roots of the plant.

Alpine plants which increase by underground runners, and which are liable to suffer from drought, are much benefited by a top-dressing of silver-sand and leaf-mould when they are just starting into growth in the spring. This top-dressing is peculiarly valuable — and indeed essential — to all delicate surface-rooting plants, as it protects them from drought and gives them just the nourishment they require. It should be applied very carefully and worked in among the growths with the fingers, and may be repeated later on in the summer if the earlier dressing has washed away. A top-dressing of this kind is a natural remedy, since Alpine plants in their native homes are often subject during all the warm part of the year to a perpetual wash of sand and grit and vegetable matter; and some of them, such as the smaller primulas, have a habit of growing out of the ground, which is no doubt a natural device to protect them from being smothered by the wash of earth. Such plants will soon die if they are not top-dressed. Alpine plants with very woolly leaves are also the better for a top-dressing of pure grit in the autumn as this absorbs the moisture and prevents their suffering from it. The Fairy Forget-me-not (*Eritrichium nanum*) is an extreme instance of the plants which need the kind of culture described above. It and a few other plants of the high Alps have never yet, we believe,

been successfully cultivated for any length of time in England, and are never likely to be until some new secrets of acclimatization are discovered.

But there are other plants with the same kind of requirements, but less exacting, which often fail in English gardens because they are usually treated like the purely saxatile plants and so are apt to suffer from drought in the summer. Among such plants, some of which can be grown easily enough in the manner we have described, are *Androsace carnea*, *A. ciliata*, *A. villosa*, and *A. vitaliana* (also called *Douglasia*), *Dianthus alpinus*, and *D. callizonus*, *Draba Mawii*, and *D. pyrenaica* (also called *Petrocallis*), *Globularia nana*, *Myosotis rupicola* (this plant will thrive in a narrow chink, but needs protection from drought), *Polemonium confertum*, *Omphalodes luciliae* (a very capricious plant, which will often thrive on a north slope), *Rhododendron chamaecistus* (which likes some shade), *Saxifraga burseriana*, *S. apiculata*, *S. Griesbachi*, *S. Boydii*, *S. squarrosa* and *S. caesia*, and *Silene acaulis*. Some of these plants are quite easy to grow, as, for instance, *Androsace carnea* and *A. villosa*, *Polemonium confertum*, and the white form *P. c. mellitum*, *Saxifraga apiculata* and *S. caesia* and *Silene acaulis*. But they are all the better for surface moisture, and are apt to perish from drought if grown as purely saxatile plants. There are also many plants which come between the two classes. Many of the Alpine primulas, for instance, are purely saxatile plants in their native mountains, yet are apt to suffer

from drought in England if grown on the south side of the rockery, and tightly packed among the rocks; while, if they are placed on the north side, they often refuse to flower. The best plan with them is to grow them in little hollows on the south side where the rain will not all run away off the surface, and where they can be watered with some effect and get a little shade from the rocks about them. This applies also to *Morisia hypogaea*, a pretty little tufted cruciferous plant, with yellow flowers that often appear at the end of February and continue for months; also in a less degree to *Erodium Reichardii* (or *Chamaedrioides*), a very minute prostrate plant with delicate white flowers, which sometimes suffers from drought if placed on a dry slope; also to *Aquilegia pyrenaica*, the smallest of the Columbines, and a plant which often suffers from drought in English rock gardens. There are also some larger plants which need the same kind of treatment such as *Daphne Blagayana* and *Atragene (clematis) alpina*. These also like a good deal of sun, and yet will not often endure the dryness of steep slopes in the rock garden.

It is easy in most rock gardens that are properly planned and constructed to protect plants from excessive moisture. The real difficulty usually is to protect them from drought and to know how much drought they will endure. On this point only experience can bring certain knowledge; but the gardener can often guess a good deal from the nature of their roots and of their growth. Shallow-rooting plants,

for instance, are always likely to suffer from drought, and also plants whose roots are very fine and delicate. The roots of some of the more delicate Alpines are like silk, whereas the roots of plants like the *Aethionemas*, which will endure any amount of drought, are thick and strong. Further, it is easy to see that a plant which grows like a tree from a single trunk or crown will need a much smaller surface of soil in which to grow to its full size than a plant which spreads in a mossy tuft or by means of runners under the soil. Some of the plants which increase by means of runners need only a very narrow crevice or pocket between the rocks in which to spread, but it must be long as well as narrow. Such a plant, for instance, as *Campanula pulla* will thrive in a long slit full of leaf-mould and rubble, but if confined by rocks on all sides it will soon die out. All Alpine plants must be kept quite free from drip, and, therefore, no rocks must overhang them. The plants of the higher Swiss Alps usually prefer a south-west or a south-east aspect, those which suffer from drought or which flower very early doing best when they look towards the south-west. The Alpines from hot climates, such as the *Aethionemas*, the *Wahlenbergias* (except *W. hederacea*, which needs moisture and half shade), and the *Onosmas* should be placed on a slope looking full south. All Alpines when planted should be pressed very tightly into the ground. There is no detail in their culture more important than this; and after a sharp frost they should be examined to see whether

the frost has lifted them at all out of the ground. If it has, they should be pressed back into their places. The best time of planting for most of the more difficult Alpines is the early spring, or, if they are raised from seed, as soon in the summer as they are large enough to plant out. It is risky, of course, to plant out small seedlings in May or June; but, if they can be protected from drought, they will be strong plants by the autumn; and, though a few may succumb to the winter, the survivors will be much more healthy than if they had been enervated by the protection of a cold frame. For the higher Alpines all naturally like as much fresh air as they can get, and a winter in a cold frame will often undermine their constitutions.

Whenever it can be done, the best as well as the cheapest way of obtaining Alpine plants is to raise them from seed. Most of them come readily from seed if it is sown as soon as ripe, and this should always be done, if possible. When the seed cannot be obtained as soon as it is ripe, it should be sown about the end of March. The seed of the rarer and more delicate plants is best sown in shallow earthenware pans with, of course, a hole for drainage at the bottom. The soil should consist of a mixture of sand or grit and fine vegetable soil. The pans should be very sharply drained with a mixture of crocks or rubble filling about half the pan. The most important point in the raising of seedlings is to keep the soil always fairly moist; and it is a great help towards

this to cover the pan with a sheet of glass to prevent evaporation. This sheet must be removed as soon as there is any danger of its drawing the seedlings. Watering must always be done with a very fine rose, and care must be taken not to wash the seed all to the edges of the pan. To avoid this, and to keep the pans in an even state of moisture, some gardeners place them in troughs or basins with about two inches of water in them. Then the water gets into the pans through the hole at the bottom and keeps the soil always fairly moist. Where seed is sown of very rare or delicate plants, it is well to follow this plan. The seed of some Alpines, as, for instance, of the Saxifrages and some Campanulas, is almost as fine as dust. When such very small seed is sown it should be mixed with silver sand so that it may not be sown too thick, and should be covered only with the slightest possible layer of the same silver sand. When the seedlings are up they must be protected from the hot sun, but must have plenty of light and air.

It is impossible to give precise general directions as to the best soil for Alpines, as they vary a good deal in their requirements. Some, for instance, need lime, and to some it is poison. It is much to be desired that some one should make a trustworthy test of the lime haters and lime lovers, based upon observation and experiment in an English garden. The lists which have hitherto been made are usually imperfect and often erroneous. Most Alpine plants, however, do not dislike lime, and a great many are

the better for it. The best form in which it can be given to them by those whose rockwork does not consist of limestone is mortar rubble; and a mixture of one part mortar rubble, both grit and lumps, with one part leaf mould or other thoroughly decayed vegetable matter, and one part fibrous loam will suit the great majority of Alpine plants thoroughly. In the case of those which dislike lime, lumps and grit of sandstone should be substituted for the mortar rubble. Speaking generally, one may say that the more difficult an Alpine plant is to grow the poorer should be the soil in which it is planted. But such plants, if planted in fine sand, would suffer much from drought. They need a soil consisting more than half of small lumps of rubble or rock, the rest being mainly grit, with a very little leaf mould. The specially prepared soil should not be less than a foot, or, in the case of deep-rooting plants, two feet deep, and little pieces of rock or rubble should be placed here and there on the surface. All these precautions sound very elaborate and troublesome; but the gardener who has learned to take a delight in Alpine plants delights also in taking pains with them. Alpine gardening is a game, and all good games are difficult to excel in.

COLUMBINES

THE Columbine is a very old English flower; indeed, *Aquilegia vulgaris*, the common columbine, with short-spurred flowers of a dull blue or purple colour, grows wild in parts of England, and may be indigenous. This common columbine has always been a favourite with painters, because of its beauty of form. There are columbines in Titian's "Bacchus and Ariadne," and Dürer drew them with obvious delight. They are a favourite flower in Italian embroideries; and Parkinson, in the seventeenth century says that there are many sorts, "as well differing in form as colour of the flowers, and of them both single and double carefully nursed up in our gardens for the delight both of their forme and colours." Some, he says, "are wholly white, some of a blue or violet colour, others of a blush or flesh colour, or deep or pale red, or of a dead purple, or dead murrey colour, as nature listeth to shew itself." Among the double columbines, some he says, are "party-coloured blue and white and spotted very variably." He enumerates five varieties, one being the common single columbine and the others merely double forms of it. One of them, which he calls the rose or star columbine, and which has no spurs at all, but all its petals arranged "like unto a small thick double rose laid open or a

spread marigold," has been lately revived as a novelty, and is certainly both a curious and a pretty flower.

But the columbine in its finer forms is a modern plant, and one which may still be much improved. The beautiful long-spurred species from North America and Siberia were unknown to Parkinson, and most of them were introduced into our gardens in the nineteenth century. They excel the common columbine both in beauty of form and in variety and purity of colour. They are inferior to it only in vigour; and, luckily, this defect has been lessened and may in time be entirely removed by hybridization; for there is no plant which hybridizes more readily than the columbine. Indeed, it hybridizes too readily, so that, unless a particular species is kept far apart from others, there is no telling what its offspring will be like. But this is a fault on the right side; for, although one may be disappointed with many seedling columbines grossly inferior to a beautiful parent, yet there is always a good chance that some will be superior; and the ordinary amateur, by merely saving seed from the best varieties and without any skill in hybridization, may in a few years obtain a splendid strain of columbines. Indeed, he may, if he cares to give up a good-sized plot of ground to their culture and if he selects his seed judiciously, obtain a race of plants surpassing most of those sold by the florists. For the beautiful long-spurred hybrids now on the market are too apt to have the rather delicate constitution of *Aquilegia coerulea*, and others of their

North American parents. The amateur should aim at obtaining plants with the vigour of growth of *Aquilegia vulgaris* and the beauty of flower of the long-spurred species. The best way of doing this is to plant some of the better forms of *Aquilegia vulgaris* among the long-spurred species. The result will be, no doubt, that many inferior seedlings will be obtained, which should be destroyed as soon as they betray their inferiority; but there will also probably be some splendid plants with the virtues both of *Aquilegia vulgaris* and of the long-spurred species, plants growing 3 ft. or more high and with multitudes of large blossoms, blue and white, pink and white, pink and cream, purple and white, purple and cream, and red and yellow. From these alone should seed be saved, and they should, if possible, be isolated from inferior varieties. This kind of selection may be carried on indefinitely, and, if so carried on, ought to produce results beyond any yet obtained.

There are now a good many species of columbine which can be cultivated in our gardens, and an infinite number of varieties of these species and of hybrids. The varieties, for instance, of *Aquilegia vulgaris* are quite numerous. There is a fine white variety with larger flowers than the type, which is, perhaps, the most vigorous and easily grown of all columbines. It is, however, a dangerous plant for those who wish to obtain a fine strain of long-spurred hybrids, since it intermarries profusely with all columbines grown anywhere near it, and the offspring are apt to be an

exact likeness of the white parent, no matter what the form or the colours of the other parent may have been. There is also a very pretty marbled blue and white variety of *Aquilegia vulgaris*, no doubt that which Parkinson speaks of as party-coloured blue and white and spotted very variably. There is a dwarf form with dark blue double flowers, a variety with leaves mottled with yellow, and one called *Wittmanniana* with purple and white flowers. The double varieties are sometimes neat and curious, but not so beautiful in form as the single.

The species which has been most valuable in hybridizing is *Aquilegia caerulea*, a most beautiful plant from the Rocky Mountains, with large blue and white flowers and very long spurs. It only grows about a foot high, and is more delicate both in appearance and in constitution than most columbines. It does not usually flourish for very long in our gardens, and often begins to dwindle away after flowering well for two years. Luckily, it can be raised very easily from seed, although it is sometimes rather difficult to obtain a strain of seed that comes true. It is said, indeed, that seed always should come from its native home, and some seedsmen sell seed directly imported. The seed should be sown in spring, so that the plants may be strong enough to plant out in their permanent homes in early autumn. If they are planted out late, they often succumb to our winters. Where the soil is heavy and cold, they should be planted out in spring. *Aquilegia caerulea* likes a light, rich soil with

plenty of vegetable matter in it, and a fairly cool place. It is an excellent plant for the north side of a large rock garden. There is a rare white form, and also a yellow one which often appears in a batch of seedlings, but is inferior to the type.

Aquilegia canadensis has light scarlet and yellow flowers, long-spurred, but smaller than those of *A. caerulea*. It has also a stronger constitution, and will flower well in our gardens for some years. *Aquilegia chrysantha* is another long-spurred species from North America, with soft yellow flowers. It is a very vigorous species, almost as vigorous as *A. vulgaris*; and there are several varieties of it, including a double one. It deserves a place in every garden. *Aquilegia californica* is yellow and orange, and also a vigorous tall-growing plant. It has produced several hybrids, some superior to both species. *Aquilegia Skinneri*, a species from Central America, is also red and yellow, and a very bright-coloured flower. It has been used a good deal in hybridization; the hybrids with *A. vulgaris* are more vigorous than the species, and very various in colour and form. *A. Skinneri* itself, coming from a hot climate, is not very vigorous in our gardens, particularly in a heavy or cold soil. *Aquilegia Jaeschkanii* is a hybrid, also with yellow and red flowers.

There are several species of columbines from Siberia; but the only one well known is *Aquilegia glandulosa*. This resembles *Aquilegia caerulea* in colour and in the delicacy of its beauty; but it is more com-

compact and upright in growth, its spurs are rather shorter and its flowers not so widely opened. Its leaves are even more delicately cut, and it flowers some weeks earlier. Besides being one of the most beautiful of all columbines, it is unfortunately one of the few that are difficult to grow, often dying out quickly in English¹ gardens, and sometimes refusing to flower at all. It must never be disturbed while at rest, but should be moved, if at all, after it has flowered. It is best grown from seed sown as soon as ripe or in spring; and the seedlings should be placed in their permanent homes as soon as they are large enough to be moved; or, if they are not large enough till late in the year, they should be left till the spring, and wintered in a cold frame. There is still a good deal of uncertainty about the conditions which suit *Aquilegia glandulosa* best, as it is a most capricious plant. But it seems to prefer a light soil enriched with humus and a rather cool situation. Drought will often kill it off quickly. It should have a westerly or north-westerly aspect, as the flower-buds form very early and are apt to be withered up by the morning sun, when it follows a sharp frost. It is a plant well worth trying on sheltered north-westerly slopes of the rock garden; and it may be that a dash of lime in the soil will assist its growth. Some people say that it likes a heavily manured soil; but manure is probably more

¹ May and June in the United States. *A. glandulosa*, according to Bailey, is likely to flower only two or three years, and should be treated as an annual. L. Y. K.

useful to it as a protection against drought than a nourishment, and should be placed well below the roots, or used as a top-dressing in hot weather, if applied at all. At any rate, a plant so beautiful is worth some trouble. *Aquilegia Stuartii* is a hybrid between *A. glandulosa* and *A. vulgaris* Wittmanniana. It is, perhaps, the most beautiful of all columbines, being in appearance simply a finer variety of *A. glandulosa*. It is also capricious. It appears to do better in Scotland than in England; and the late Dr. Stuart, who raised it, seems to have had little difficulty with it. It should be cultivated in the same way as *A. glandulosa*, but should be increased by division, as seedlings seldom come true; and division should be done very carefully with a sharp knife after the plants have flowered. *A. Stuartii* is a plant which appeared to be almost extinct a few years ago; but in the last year or so some very fine forms of it have been raised, forms surpassing in beauty any other columbines; and it would be well if further experiments were made in hybridizing *A. glandulosa* with other varieties of *A. vulgaris*. In the case of *A. Stuartii*, we believe, the pollen of *A. glandulosa* was used. There seems to be no reason why plants should not in time be produced with the delicate beauty of *A. glandulosa* and the vigour of *A. vulgaris*, and also with some variety of colour. *Aquilegia alpina* is a plant which is very seldom seen true in English gardens, and which appears to lose a great deal of its beauty in captivity. The true species has large blue flowers and grows less

than a foot high, and there is a variety with white and blue flowers more beautiful even than this type. *Aquilegia pyrenaica* is the smallest of all columbines and a beautiful plant for the rock garden. It grows about half a foot high, and has soft blue flowers with bright golden anthers. The foliage is almost as delicate as that of a maidenhair fern. This, again, is a plant which is seldom seen true in English gardens. Most nurserymen sell for it a fine dwarf variety of *A. vulgaris* flowering very early, whereas *A. pyrenaica* is a perfectly distinct plant and the latest flowering of all columbines. It seems to be difficult to raise from seed, unless the seed is sown when just ripe; but it is not difficult to grow in a cool part of the rock garden in light soil with a good deal of leaf-mould. It does not always ripen seed in England.

There are a good many other species of columbines; but we have mentioned most of those which are most distinct and beautiful. Columbines, but for a few exceptions, are easily grown in most English gardens; and the North American species, which do not last many years, are probably not true perennials in their own country. Indeed, all columbines are usually at their best in the first or second year of flowering, and should be frequently renewed from seed. Luckily they are among the easiest of plants to raise from seed, and many kinds will reproduce themselves freely, especially in light soil. The seed may be sown as soon as ripe, in which case many of the seedlings will flower the next year; or else in May, when if well treated

the seedlings are sure to flower the next year. The safest plan is to sow the seed in boxes in a soil made light and rich with leaf-mould. The seed usually takes some weeks to germinate; and the seedlings should be kept moist and lightly shaded, and planted out as soon as they are large enough. If plants are bought, they can be planted in early autumn or in spring. In a light soil they are best planted in autumn. Columbines can also be increased by division, but this must be carefully done with a sharp knife; and divided plants are seldom so vigorous as seedlings. The short-lived North American species, such as *Aquilegia caerulea*, are not worth dividing and should always be raised from seed. Columbines like a cool place, particularly in a light soil, and many of the more vigorous kinds grow well under the shade of trees. They are seen at their best, however, in a cool half-shaded border well enriched with manure and humus. In such conditions some of the most vigorous hybrids will grow to a great size and bear hundreds of blossoms for several years. These hybrids, though they may not have all the delicate beauty of *Aquilegia glandulosa* or *Stuartii* or *caerulea*, are better worth growing for the ordinary gardener, as there is no difficulty in their culture, and they are infinitely varied in the colour and form of their flowers and in their foliage. They are, indeed, among the most beautiful of all garden plants; and, as we have said, there seems to be no reason why they should not be made still more beautiful. Nor is there any reason

to fear lest their flowers should be made too large; for the best hybrids have a growth and leafage vigorous in proportion to the size of their flowers, and double columbines, luckily, are quite out of fashion, being found usually only among the varieties of *Aquilegia vulgaris*. In fact the columbine is a flower of the future even more than of the present.

APRIL NOTES IN THE GARDEN ¹

THIS year we have had some of the wild capricious glories of a mountain spring; no weeks of dull east wind to keep the colour out of the sky and the early flowers; but first of all continuous sunshine all day with hoar frosts at night, and then torrents of rain, and one night a fierce snowstorm followed by a day of showers and warm sunlight. That was a day, indeed, that reminded one of a Swiss April, and one almost expected to see the gentians shining blue through the melting snow on the hillsides. Snow showers of this kind do little harm if unaccompanied by frost, and if no spell of east wind follows them. More harm was done by the earlier alternations of bright sunlight and frost; but even these came too early to be really disastrous. They caused the blue flowers of spring, the *Chionodoxas* and the first Squills, to fade quickly, and they injured the flowers of the early Daffodils and Irises. They also stunted the stalks

¹ The reader should remember that for gardens in the latitude of Boston, at least one month's difference must be allowed for blooming-period of most of the subjects named in this chapter. Tulip *Kaufmanniana* for instance, in the more northern parts of the United States seldom appears before early April; and the "early April tulips" (presumably the single and double florists' varieties) need not be looked for here until late April or early May. This chapter therefore is somewhat inapplicable to the American climate. For its general interest and beauty it could not, however, be left out. L. Y. K.

of the April Tulips; but these are now lengthening rapidly with the rain, and everything promises well, if only we can now have some sunshine to warm the sodden ground. The winter was unusually trying for delicate plants, since the warmth of the earlier months forced them into growth, and then, when they had forgotten that there was such a thing as winter, there came a bitter spell in February, with not only frost, but cutting north-east winds. These do more harm than the frosts themselves, particularly to shrubs that are not quite hardy, and even to shrubs that will endure any amount of frost at the roots. Of twelve plants of *Lithospermum prostratum*, planted on the north-western slope of a rock garden, seven that were sheltered by rocks from the north-east wind are scathless; the other five, unsheltered, had nearly all their branches killed and are now only just beginning to sprout from the stock. The shelter was only slight, a rock rising a few inches above the soil, on the north-east side of the plants, but it was sufficient to protect them, and they will be covered with blossom in a few weeks, while the others will take months to recover. Thus it is that the gardener learns hard lessons from adversity. *Lithospermum prostratum* is often said to be a capricious plant. What it needs is protection from north-east winds, rocks to keep its roots cool if it is in a hot soil or situation, and a light rich soil quite free from lime. Then it will flourish and prove itself to be the finest of all rock plants.

The rock garden is already full of things to see.

The first irises are over; but *Iris orchoides* is out, rather late perhaps, since it was planted only last year; and so is its cousin, *Iris sindjarensis*, and the yet more beautiful *Iris Willmottiana*. *Narcissus nanus* is in full blossom on a northern slope, making a vivid contrast with the blue *Scilla sibirica*. This is the most useful of all, perhaps, of the small rock narcissi. It is larger than *Narcissus minimus* and flowers later, but it has a more graceful habit of growth, and it is not too large for the smallest rockery. It has not the delicate beauty of *Narcissus triandrus albus*, but it is far easier to grow; and in a light sandy soil on a northern slope it increases in numbers and in beauty from year to year. Unfortunately it is rather scarce, and many nurserymen sell *N. lobularis* under its name. *N. lobularis* is a pretty daffodil, but much larger, almost as large, indeed, as the English wild daffodil, and it is better suited to the grass than to a small rock garden. *Narcissus cyclamineus*, another rock daffodil of great beauty, is going over. It likes more shade than *N. nanus*, and, provided it is in shade, will thrive even on a dry rooty bank. It does not die out, like some small daffodils, but endures as well as *N. nanus*. *N. minor* is said to be superior to *N. nanus*, but there is not much difference between them, and *N. minor* is more expensive.

This spring of Alpine weather has favoured the rapid growth of Alpine plants, which is often checked and stunted by our March and April east winds. No amount of experience can abate one's wonder at

the swiftness with which plants that seem to be dead one week are in full leaf and even in bud a fortnight later. The *Aethionemas*, for instance, were all cut back by the bitter wind of February, after keeping their leaves fresh and green until then. Their branches seemed to be quite dead, and one could not but fear lest their roots were dead too. But then, one day, all those withered branches were covered with little green tufts, and a few days later with little green leaves, and then, as the tufts opened, there were pink buds in the heart of them; and now, if we have warm weather and sunshine, *Aethionema coridifolium* and *A. pulchellum* will begin to flower in a few weeks. No plant is more rapid in throwing up its flowering stalks than the little biennial *Androsace coronopifolia*. It is best to sow this plant where it is to flower; and even then it often seems to pine through our winters. But with the first warm weather slender stalks rise from the tufts as they change from bronze to green, and now these stalks have a starry crown of white flowers that will continue for several months. *Androsace lactea* is a perennial with much the same habit of growth and with flowers of even more delicate beauty, which is now in full bud after seeming to resent the freaks of an English winter as much as *A. coronopifolia*. *Androsace carnea* is in flower with blossoms of delicate pink, and is sending out green shoots in all directions among the leaf-mould with which it has been dressed. Nearly all delicate Alpines need to be dressed with leaf-mould when they start

into growth in the spring, and many will shrivel up and die when the east winds blow for want of it. *Gentiana verna* and *Dianthus alpinus* are now throwing out little shoots, just like *Androsace verna*, and but for the leaf-mould they would probably have made no growth at all.

Primula nivalis is in full bloom, and is certainly the best of the Alpine primulas, flowering more freely than any others, and surpassing them all in the beauty of its milk white blossoms. Though it looks to be the most Alpine of flowers, it is really a garden plant, being, we believe, a white form of *Primula pubescens*. It likes a westerly or north-westerly aspect, and is quite easy to grow even on level ground in light rich soil, but it shows its true beauty only among the rocks. It does not seem to suffer at all from our winters, and may be safely planted in early autumn. The mountain Tulips are, some of them, in flower, some in full bud, and some already over. *Tulipa Kaufmanniana* is really large enough for a border plant; but most people grow it on the rockery because it probably needs sharp drainage. It was introduced only a few years ago, and is almost the earliest to flower and the most beautiful of all Tulips. It is now over, but in the middle of March its blossoms began to open, at first creamy white and then flushed with pink on the outside, while the inside has a golden centre like that of a water-lily. It suffers little from any caprices of the weather, and its great blossoms, in their last glory, looked strange as they opened above

the snow-covered ground last Sunday morning. *Tulipa biflora*, a beautiful little species, with several white blossoms on a stalk, is also in flower now. There appears to be a dwarfer variety of this, called *Afghanica*, which is an excellent plant for the rock garden and very easy to grow, increasing in ordinary well-drained soil. *Tulipa lownei*, a dwarf Tulip with delicate pink blossoms, is passing over, and so is *T. pulchella*, a pretty red Tulip marked inside like a *Calochortus*. These are apt to suffer and even to die under severe frosts in March, unless grown in a warm protected situation. *Tulipa Batalinii* and *T. linifolia* come late enough to be safe usually from such dangers — they will not flower for some weeks yet — and they are the most beautiful, perhaps, of all the small mountain Tulips, the first having creamy yellow flowers edged with a thread of crimson, the second being all of a scarlet that seems to glow with its own fire. Both have leaves that spread out prostrate on the ground, and are curiously crinkled. *T. linifolia* is supposed to be capricious; but it is fairly sure to succeed on a southern bank in a rubbly soil. *T. batalinii* is as easily grown as most Tulips. They both look their best rising through a carpet of some close-growing stone-crop such as *Sedum glaucum*, whose roots are too shallow to interfere with the bulbs, and whose leaves are not thick enough to prevent them from ripening well in the summer.

The *Aubrietias* are fast coming into full flower. Such excellent strains of seed are now sold that it is

scarcely worth while to buy the named varieties, many of which differ but little from each other. A packet of seed selected from the newer sorts will usually produce plants of all sorts of colours, from deep purple through pale purple to pink and almost deep crimson. The plants vary in quality of course from seed, some having small and washy-coloured flowers; but these can be dug up if the seedlings are planted fairly close the first year, and the better plants will soon cover the blank spaces. No plant is more easily raised from seed than *Aubrietia*. If it is sown in boxes in April, hundreds of good-sized plants will be ready to plant out in the autumn. When the plants grow straggly they should be cut back, and they will spring up with renewed vigour. The spring Phloxes are just coming into bloom. These beautiful plants are still much less grown than they should be, although they are most of them very easy to manage. Of *Phlox subulata* there are now many varieties, some with long trailing branches, some closely tufted. These latter are apt to be a little more difficult than the former. *Phlox Nelsoni*, for instance, should be disturbed as little as possible, and grows best on a flat piece of ground in full sun. Its white flowers make a beautiful contrast with the bright pink ones of *Phlox Vivid*. The Trailing Phloxes, of which *Phlox G. F. Wilson* with very pale lavender flowers is one of the best, are very easy to propagate, as long-rooted trailers can be detached in the autumn and all quickly grow into strong plants. The tufted kinds are a little more

difficult. Cuttings often fail to strike, and the best plan is to put some leaf-mould round the plants in spring. The shoots will root in this, and they can be detached in early autumn, and, if protected from drought when planted, will stand the winter in the open ground. *Phlox amoena* is not so pretty in growth as the different varieties of *Phlox subulata*; but it flowers very early, and its pink blossoms are beautiful. It grows at a great pace, and can be propagated by simply breaking off pieces close to the ground and planting them in the open in early autumn. *Phlox divaricata* and *P. ovata* are fine species which flower later.

The rock garden at this time of year is more interesting than the border, since Alpine plants are more rapid in their spring growth than the plants of the lowlands that have a longer season of activity; but borders are, or ought to be, rapidly putting on their beauty. Pansies and Forget-me-nots are coming out — the early *Myosotis dissitiflora* is in full bloom — the April Tulips are beginning to flower, and the Wallflowers are in bud. Wallflowers this year are poorer than usual, since many gardeners were unable to shift their seedlings in the drought of last summer. This shifting of seedlings as soon as they are about three inches high is one of the most important details in the culture of Wallflowers, and the neglect of it is the chief reason why they are often poorly grown even in pretentious gardens. Indeed, there are some gardeners who can grow Orchids better

than Wallflowers, for the Wallflower, though a humble plant, requires a certain treatment a little out of the ordinary routine. The seed should be sown very thinly in the open border and in poor soil, about the beginning of May. The seedlings should never be allowed to get crowded. When they are about three inches high they should be shifted, so that they may not make long tap roots and be difficult to move later on. They should have their crowns pinched out a little later, so that they may break into compact bushy plants, and in early October they should be moved into their quarters for the next spring, and planted very firmly in the ground. If by this time they have made long tap roots and grown leggy and straggling, they will resent moving, and very likely die off in the winter.

Daffodils in the grass are now within a few weeks of their prime. Some of the earlier kinds, such as the Tenby daffodil and *pallidus praecox* are going over; and *Princeps* is now in full bloom. *Pallidus praecox*, the most beautiful of the earlier kinds, is rather capricious. It usually dies out soon in a border, but will often last for years in the grass on a northerly half-shaded slope. Even the Tenby Daffodil thrives better in the grass, though it is supposed to be a vigorous variety anywhere. *Princeps* is one of the easiest of Daffodils. Its flowers look rather commonplace when picked or in the border, but they have a peculiar beauty in the grass. There is no Daffodil, however, to equal the Queen of Spain as a grass flower. Bulbs

planted last autumn are now in full blossom. Since they are all imported from Portugal, they flower some weeks earlier than bulbs that have been some years in English ground. The Queen of Spain often dies out quickly in a border, particularly if the soil is rich. In the grass, in a northerly half-shaded slope full of the roots of trees, it flourishes as well as in its native home, and it surpasses nearly all the most costly new varieties in beauty. There is still a good deal of uncertainty about the question what bulbs will thrive in the grass and what will not. *Tulipa silvestris*, for instance, is supposed to be an excellent grass plant; but the present writer finds that it ceases to flower and dwindles away in the grass after a year or two. Tulips in this respect are peculiarly uncertain. It is probable that those which require great summer heat to ripen them off are kept too cool by a covering of grass; but this scarcely applies to *T. silvestris*, which is a native species. It is to be desired that some one should make large experiments with Tulips in the grass and should publish the results; but few gardeners would care to sacrifice a great number of bulbs for the public good. Grape Hyacinths of all kinds seem to thrive even in coarse grass, so do *Ornithogalum umbellatum*, *O. nutans*, and *O. pyramidale*. *Scilla sibirica* is apt to dwindle in coarse grass, and so are the *Chionodoxas* and *Pushkinia libanotica*. The more vigorous *Alliums* will thrive in grass not too coarse and in full sun. *A. neapolitanum* will soon be in flower. *Fritillaria Meleagris*, of course, is at home

in the grass. There appears to be a common idea that it will grow only in the Thames valley and other particular localities; but it is quite an easy plant in most places, where the soil is not too hot and poor. The Crown Imperial (*F. imperialis*) will grow in the grass only where the soil is rich and rather heavy. It dwindles after a year or two in a light soil and refuses to flower. It would be an interesting experiment to sow a patch of ground with some short mountain grass and plant several tufts of *Gentiana acaulis* in it. They might thrive; and then, again, they might not. This plant is one of the most capricious in existence. Last year it flowered profusely even in poor soils. This year it is more flowerless than usual. It will prosper like a weed in some places, and in others, with apparently the same conditions, it will do nothing. The old idea was that it ought to be left alone; but this treatment is of no avail where the crowns grow smaller and smaller. The best plan in such a case is to dig it up in wet weather, in spring, and to plant each separate crown with plenty of space to itself. It ought to be coming into flower now, and with some lucky gardeners perhaps it is. With the present writer it is not.

PINKS

PINKS are common enough in our gardens, yet they are not grown so much or so well as they might be, and the florists are so taken up with carnations that they have rather neglected the possibilities of the pink. No doubt carnations are worthy of all the pains that have been spent upon them; no pinks can compare with them in variety of colour, and few in duration of flowering period. But carnations exact much care and skill if they are to be grown really well, and need to be constantly renewed; whereas many pinks ask for nothing but a sunny place and a well-drained soil to thrive for years without attention. Carnations, too, often need to be carefully staked; and this is a grave defect in a plant of so low a stature, and one from which most pinks, especially the natural species, are entirely free. The chief beauty of the best pinks is their habit of growth. They are beautiful in winter as well as in summer, and they bear their flowers as if they were a joy and not a burden to them. Most of them will endure any amount of drought and can be propagated most easily by seed, cuttings, or division. All that they need to make them perfect garden plants is a longer flowering period, a greater variety of colour, and in some cases rather larger flowers. Now, different species or varieties have all these vir-

tues. What is needed is to combine them all in one plant; and, since most species hybridize very readily, there seems to be no reason why this should not be done. Already there are some new pinks appearing with large, single, and bright-coloured flowers; and there are others with double flowers that blossom almost as long as carnations. What we want is a new race of single flowering pinks, of compact habit, vigorous constitution, large brilliant flowers, and a long period of bloom. Vigour of constitution is a most important point, and one too often overlooked in the development of the carnation. Unfortunately, the pink which flowers longest and has the largest and most brilliant flowers, *Dianthus sinensis*, and its fine variety, *D. Heddewigii*, is not a true perennial; and varieties which have a strain of its blood in them are apt to be delicate. It has been conjectured that there is a strain of *D. sinensis* in the carnation, which may be the reason for its comparative delicacy, and also in some of the mule pinks, which are beautiful plants but need to be constantly renewed by cuttings. In time, however, the better qualities of *D. Heddewigii* might be combined with the virtues of the most vigorous natural species.

There are already, of course, many beautiful garden pinks; but most of them have double flowers and bloom for only a short season. The florists of the past took great pains to produce pinks very precisely laced or edged. They were dominated by the rules and standards of flower-shows; but, now that the

pink has ceased to be a fashionable show flower, there is some chance of its more rational development. The material out of which it can be developed is very varied. There is a great number of wild species of pinks, many of them most valuable garden plants, and most of them quite easy to grow. It is of these that we propose to speak in some detail, since they are less known to the ordinary gardener than they ought to be, and since the florist makes less use of them than he should. Unfortunately there is a great deal of confusion about their names, due, no doubt, to the extreme readiness with which they hybridize. It is difficult to distinguish species from varieties, and the same pink has often different names in different nurserymen's catalogues.

Dianthus plumarius is the best known of all the natural species and the parent of most garden pinks. It is very variable and hybridizes readily with other species. If a number of plants are raised from seed, very probably not two will be exactly alike in their flowers or in their habit. The type has fringed flowers of a pink colour slightly tinged with mauve. The best plan is to raise it from seed and to keep only the best plants. Seedlings are sometimes neat and compact in growth, sometimes straggling. Their flowers vary in size, colour, and shape. The amateur who will persevere in raising seed year after year from his best specimens may in time come to have some very fine plants. *D. plumarius* will thrive anywhere in full sun and well-drained soil, and is particularly use-

ful for covering dry, sunny banks. It can be raised from seed, sown either when ripe or in spring, with the greatest ease, and will usually seed itself profusely. For this reason, and because of its rapid growth, it is not a plant for the small rockery, but it can be grown just as easily in the border as the ordinary garden pinks.

Dianthus cæsius (the Cheddar pink) is also variable and hybridizes very readily with *D. plumarius* and other pinks. The type is very tufted and low growing. The leaves are glaucous green, the flowers of a bright pink, and irregularly indented. It is a limestone plant and thrives best among rocks in a rubbly soil or in a wall. It is apt to die in the winter on the level, but lives long and often grows to a considerable size in chinks of a rough stone wall. It is an excellent rock garden plant, as it does not spread too quickly. All it needs is a high and dry place in full sun. It can be raised very easily from seed; but seedlings usually vary a good deal, and, if the seed is bought, they often bear little resemblance to the type. Indeed, the species hybridizes so readily that it is not likely to come true from seed unless the seed is saved from plants isolated from other pinks. Some of the hybrids, however, are very beautiful, having the close tufted habit of the species and larger and even brighter flowers. With this plant, too, it should be easy to get some fine varieties by saving seed year after year from the best specimens.

Dianthus deltoides, the Maiden Pink, is a pretty

plant and a native of England. It has leaves that are not glaucous like those of most pinks, but bright green, and pink flowers with darker spots. There is a very pretty white variety, one with brighter flowers, and one with glaucous leaves. *D. deltoides* is very easily grown in any light soil, and seeds itself profusely. The white variety comes fairly true from seed. It should be grown in great masses in a large space to itself, where it can seed freely. In a small rock garden the seedlings encroach too much. The plant commonly called *Dianthus fragrans* is really a variety of *D. plumarius* with white, very sweet-scented, flowers. The double variety has a scent of overpowering sweetness, and is a very beautiful plant. The true *D. fragrans* is very rare. *Dianthus monspessulanus* is a closely tufted pink with dark glaucous foliage. It has large fringed pink flowers, very fragrant. It is easily grown among rocks in light soil with some leaf mould in it, and prefers limestone.

Dianthus arenarius and *D. petraeus* are plants about the names of which there seems to be some uncertainty, at least among nurserymen. The plants usually sold under these names have very narrow grassy leaves, a very tufted habit, and white fringed flowers. According to M. Correvon the species both have pink flowers, but the plants usually sold may be merely white varieties. In any case they are charming, and will grow in the driest and hottest places. In fact, they are suitable for the very top of the rockery, where they will spread into carpets as thick and even

as turf. The poorer the soil the better they flower. In a rich soil they are apt to run all to leaf and to damp off in the winter.

D. noeanus is a new and very pretty plant, growing in close tufts which do not spread to any great size. It has elaborately fringed white flowers, and is, perhaps, the only pink with a disagreeable scent. It should be raised from seed and grown among rocks in poor soil.

Dianthus alpestris is a pretty little pink, easily grown among rocks, with bright pink fringed flowers, not more than 6 in. high. The true *Dianthus suavis* appears to be a variety of *D. plumarius*, but a beautiful pink with very delicate white flowers is sometimes sold under this name, and also under the name of *D. gallicus*. The writer does not know its true name, but it appears to be a species, as both in growth and in flower it is very distinct from all other pinks. The true *Dianthus gallicus* has pink spotted flowers, and is usually not perennial in our climate.

Dianthus sylvestris is a fine pink, which, in spite of its name, likes full sun. It does not spread much like other pinks, but grows in a single close tuft of thin dark green leaves. The flowers are bright pink, and the stems are rather weak and apt to lie about on the ground. This is the only defect of the plant, which is easily grown in dry, hot gardens. *Dianthus superbus* has flowers unlike those of any other pink. They are pale flesh colour, with greenish-yellow spots, and most elaborately fringed and curled. The leaves

are rather broader than those of most pinks. *D. superbus* is not a true perennial, but is worth growing, as it can be raised very easily from seed, and will thrive on the north side of a rockery in a dry place. Unlike most pinks, it seems to like a certain amount of shade and grows in woody places in its native land.

There are several pinks with their flowers in clusters like those of the Sweet William, and some of them are well worth growing. *Dianthus atrorubens* and *D. cruentus*, both with small flowers of a very deep crimson, are among the best. They will thrive in any sunny place, and are rather border than rock garden plants. *D. carthusianorum* has paler flowers, and is not so pretty, though pretty enough. *D. giganteus*, the tallest of pinks, will grow more than a yard high, but the flowers are small in proportion to the height. It is scarcely worth growing except as a curiosity. *D. Knappii* is a pretty clustered pink with pale yellow flowers. It should be grown on the rockery, where its culture is easy. All of these are easily raised from seed, which can be obtained without difficulty. *D. cinnabarinus*, however, which has clustered flowers of a curious cinnabar red colour, is one of the rarest of all pinks, and at times goes out of cultivation altogether. It comes from Greece and is not very perennial in England. This fact, since it often fails to ripen seed, accounts partly for its rarity. Otherwise it is easily grown, and worth growing for its curious beauty.

None of the pinks which we have mentioned are at all difficult to grow. There are, however, one or two high Alpine species which require some care, and one, *D. glacialis*, which is so difficult as to be scarcely worth attempting in England.

The most beautiful of the higher Alpine species is, perhaps, *D. neglectus*. It can be distinguished from all other pinks by the pale yellow colour of the under-side of its petals, which are otherwise of an extraordinarily brilliant pink. The leaves are grassy and short and grow in close tufts; they also are not quite evergreen, like those of most pinks, but almost wither up in the winter. *D. neglectus* is not really difficult to grow. It should be planted tight in chinks between the rocks, in a soil consisting mainly of mortar rubble, with a little leaf-mould and sandy loam. It roots deeply, and when established does not suffer from drought, if rocks are all round the roots. It can be easily raised from seed, and this is the best way to grow it, as the plants become enervated if they are kept too long in frames. The seed should be sown when ripe or in spring in pans of light, gritty soil, and the seedlings planted out into their permanent homes as soon as possible. *D. neglectus* likes the fullest sun, and is the most brilliant coloured of all wild pinks, and one of the most brilliant coloured of all Alpines. It appears to hybridize pretty readily, and one sometimes sees seedling forms with all the beauty of the type, but more vigorous and larger in all respects. There seems to be no reason why a very

brilliant race of pinks should not be obtained by crossing it with other and stronger species.

Dianthus alpinus is a very distinct pink, perfectly prostrate, with green leaves rather broad for their size and more like those of *D. deltoides* than of any other pink. The flowers, which rise only about 2 in. above the ground, are bright pink, spotted in the centre, and very large for the plant. *D. alpinus* is more difficult to grow than *D. neglectus*, as it is impatient of drought in summer and also of damp in winter. It cannot be grown in a very narrow chink of the rocks, as it throws out runners and requires room to increase in. This makes it the more difficult to protect from drought. It should be planted on flat pockets rather low down in the rockery, with a south-west or south-east aspect and surrounded with small rocks half sunk in the soil, with a larger rock on the north side of it for its roots to run under. The smaller rocks around it will give it a certain amount of shade. The soil should be deep and should consist of one-third mortar rubble, one-third leaf mould, and one-third fibrous loam, all well mixed up together. It must be watered in hot weather, and top-dressed with leaf mould when first starting into growth in the spring. With these conditions it is not difficult to grow, though it is not a very long-lived plant. It can, however, be very easily raised from seed, which usually ripens in England, and should be sown as soon as ripe or in early spring. It can also be increased by cuttings. When plants appear to be failing they

will often recover if moved; and this should be done in spring. There is a pretty white variety, and the type appears to hybridize readily, but no valuable hybrids have been obtained yet.

Dianthus callizonus is, perhaps, only a local variety of *D. alpinus*, but it is a distinct and even more beautiful plant, with glaucous leaves and brilliant pink speckled flowers. It should be treated like *D. alpinus* and does not seem to be any more difficult. It is still very rare. *Dianthus glacialis* is too difficult, perhaps, to be worth growing in England. At any rate, it is scarcely ever seen in English gardens. It needs the same culture as *D. alpinus*, except that it will not endure lime, and must be even more carefully protected from drought in the summer. The true plant is seldom to be obtained in England; and hybrids or other species are usually sold for it.

D. Freynii is the smallest of all pinks, with little pink flowers. It should be grown like *D. neglectus*, and is not more difficult. There is a very beautiful minute mountain pink with large white fringed flowers, which is sometimes sold as *D. squarrosus*. The true *D. squarrosus*, however, is a much larger plant, of no particular beauty or interest. The present writer is ignorant of the true name of the white pink in question, and it is seldom seen in English gardens. It has very minute grassy leaves, and the flowers are borne about $2\frac{1}{2}$ in. above them. It requires the same culture as *D. neglectus*, but is easier to grow. There are many more species of pinks, but many of them are

much alike and probably only varieties. The whole genus requires to be thoroughly overhauled by a competent authority.

THE IMPROVEMENT OF GARDEN FLOWERS

THE first article upon this subject provoked some controversy, but it also elicited more expressions of agreement than the writer had expected. It seems to be clear that the taste in flowers is changing; that a great many gardeners are no longer contented merely with large blossoms; that we are learning to look at a plant as a whole, and not to think of it only as a flower-producing machine. A writer in one paper, disagreeing violently with the article in question, said that it was worse than useless to set up principles of taste, since they were sure to be wrong or else to be misapplied. It did not apparently occur to him that all selection or improvement of flowers must be based upon some principle of taste or other. Otherwise it would be quite random and objectless. The issue is not between principles of taste and no principles, but between one principle and another. Now, the development of a great many garden flowers has been controlled by the principle that a plant is a flower-producing machine and that every part of it except the flower is mere surplusage. The ideal of this development would be reached in a plant that came up like a mushroom, leafless, and

with a little stalk, and a huge flower at the top of it, and which continued to do this through all the flowering months of the year. This ideal has almost been reached in some double Begonias and in the dwarfiest Snapdragons, and if you wish to have your garden all flowers these are the kinds of plants you should grow. Now, there certainly are a good many people who wish to have their gardens all flowers; and the idea that a garden plant should be grown only for its flowers is very deep-rooted. The present writer has heard of a rich man whose orders to his gardener were that his beds and borders should never contain any plants not in flower. A vast army of plants in pots was kept in the background, and these were bedded out just as they were coming into blossom and removed as soon as their blossom was over.

Now, it is obvious that this kind of gardening is very expensive, and, further, that it prevents the growing of many beautiful plants which cannot be treated in this way, or which, if treated in this way, never show their true beauty. But that is not the point which we wish to make for the moment. Very expensive gardening may be beautiful, and there are plenty of fine plants which can be turned out of pots when about to bloom without spoiling their beauty. Our point is that a garden all flowers is not so beautiful as one in which there is plenty of greenery to contrast with the flowers. Most people agree with this up to a point, but they do not carry the principle far enough. Even the gardener who likes his beds to be all flowers

likes them to blaze against a foil of green turf. But he does not understand that the contrast of greenery is most beautiful when it is most closely interwoven with the flowers themselves, both by means of the intermixture of flowering plants with plants out of flower, and also by means of the leafage of a plant that is in flower. For it is only such a closely interwoven contrast that displays the full beauty of individual flowers and also of individual plants. In a bed of Geraniums or Begonias, grown for their blaze of colour, it is the colour alone that we see and think of. The individual plants, the individual flowers, are nothing. The beauty of the arrangement may be considerable—it is absurd to pretend that all bedding out is ugly—but it is a beauty only of masses of strong colour, without form and, above all, without character. Now no beauty interests us for long unless it has character. We cannot in pictures produce a beauty that satisfies by means of mere abstractions. The purely decorative picture, the picture that consists merely of an arrangement of forms and colours, as nearly abstract as the painter can make them and put together to make an agreeable pattern—a picture of this kind pleases at the first glance very likely; but our interest in it is quickly exhausted, because there is no character in its component parts. So there is no character in the individual plants of a flower-bed that is intended merely to produce a blaze of colour; and in the same way our interest in such a bed is exhausted after the first glance. A great

picture is full of splendid harmonies and contrasts; but the objects harmonized and contrasted are not mere abstractions. They are people and things which the painter has seen, and they are woven together into a pattern, without losing their own individuality, by the controlling emotion of the artist who uses them, not merely as pieces in a decorative game, but as a means of expressing that emotion. Now, gardening is, no doubt, a trivial art compared with painting, but still it is an art, or may be made one; and the same principles apply to it. The true art of gardening is based upon a profound interest and delight in plants, just as the art of the great painter is based upon a profound interest and delight in the things which he represents. The true gardener is concerned with the character of his plants as the great painter is concerned with the character of what he paints; and it is by growing his plants so that they display their character as freely and completely as possible that the gardener makes the most beautiful and interesting kind of garden.

Now it is obvious that this cannot be done by a gardener who regards a plant as a mere flower-producing machine; for the flowers are only part of the character of a plant, and they may be so developed as to obscure the plant's natural character altogether. Flowers may be, and in most gardens plants are, the most important element of beauty; but their beauty is not independent of the plant, and cannot be considered apart from it until they are picked. The gar-

dener who grows his plants only for their flowers thinks always of the flowers as if they were picked, and of his beds and borders as huge nosegays; and the kind of gardening which removes a plant as soon as it goes out of bloom is more like the arranging of flowers for the dinner table than like true gardening. It is a purely decorative art without the deep and satisfying beauty of character. This kind of beauty is what delights us so much in nature and what often seems to be utterly beyond the gardener's attainment. Wild plants, we should remember, do not grow for their flowers alone. They have to fight for their lives, and every part of the plant bears a part in the struggle. We are not suggesting that plants in a garden ought to fight for their lives. It is the gardener's first duty to eliminate the struggle for existence; but he must never forget that the character of plants has been produced by that struggle, and that their beauty is always dependent upon their character. He can often improve upon that beauty, because he has eliminated the struggle for existence. He can often, to begin with, grow his plants much better than nature grows them. He can in many cases enlarge their flowers with advantage, and brighten their colour. But while he does this he should always think of every plant as a whole, of its natural character, and of the right proportion between its leaves and its flowers.

At once, of course, there arises the question how are we to decide upon the right proportion between leaves and flowers; and here comes in the question

of principles of taste. If we are to grow plants for their flowers alone, the flowers should be as large as we can make them and the leaves as small. If the leaves are not to be seen for the flowers so much the better. But if we are to consider the natural character of each individual plant, then we should take care that the flowers are not so large as to obscure that natural character, and in particular to interfere with the plant's natural habit of growth. If a wild plant bears its flowers on strong upright stalks, we should not make these flowers so heavy that the stalks cannot support them without being staked. If a wild plant bears large flowers and has a compact habit of growth, we should not dwarf it till it looks like a hunchback. If the flowers naturally have great beauty of form, we should not double them so as to destroy that beauty on the chance of obtaining another beauty of colour. To object to all double flowers would be pedantic. There are many plants that depend for their flowering beauty upon a mass of blossom, and it may often be increased and prolonged by doubling as in the case of the double *Arabis*, the double *Genista tinctoria*, and the double *Silene maritima*. In other cases the beauty of the flower is in colour rather than in form; and the colour may often be intensified by doubling as with the *Dahlia*, the *Carnation*, many *Roses*, and most *Chrysanthemums*. There are certain forms of flowers that are obviously unsuited to doubling; others that can often be improved by it. Thus bell-shaped flowers, such as those of most *Campanulas*, or trumpet-

shaped flowers, such as those of most Lilies, are pretty sure to be spoilt by doubling — and, indeed, doubling, in the case of these, seems to be against nature. There is no reason in the nature of things why the bell of *Campanula persicifolia* should be stuffed up with inner layers of petals. On the other hand, the outer ring of florets of most composite flowers is often increased when they grow wild in favourable conditions, and such an increase does no violence to the whole structure of the plant. So a good many composite flowers have been doubled without spoiling their beauty. But, even in the case of composite flowers, the doubling has been carried too far. Thus double Daisies have a pleasant, precise, old-fashioned kind of beauty; we have all loved them in our childhood and, therefore, we continue to love them still. But in a batch of seedling Daisies, all intended to be double, there will often occur single forms more beautiful than any double ones. These are usually plucked up and thrown away, since the gardener regards the single Daisy as a weed and the double alone as a garden flower. But there is no reason whatever why the single Daisy should not be developed into one of the most beautiful of all spring flowers, with large white or pink or crimson florets and with a shining golden centre. Even then it would not probably be more beautiful than the wild Daisy, but it would be more conspicuous.

Thus in the case of doubling there are principles that could be applied pretty easily in most cases.

In some, of course, it would be difficult to say whether a plant would be the better or the worse for being doubled. Wherever there is a doubt it would be wise not to double it. There are so many other ways in which plants can be developed with a certainty of improvement. They can usually be made more vigorous; their colour can often be made brighter and purer. In some cases their habit is the better for being more compact. Thus some of the hybrid Larkspurs are finer plants in all respects than any of the species. The new garden varieties of *Phlox decussata* are infinitely superior in colour to any of the older ones; some of the hybrid Pentstemons have a beauty and variety of colour and a vigour of growth far beyond any to be found in the species from which they have been produced; and the Tufted Pansies or *Violas* as they are commonly called, have both combined and improved out of all knowledge all the good qualities of *Viola tricolor* and *Viola cornuta*, which were their far distant wild ancestors. But in all these cases there has been no attempt to pervert or to conceal the natural character of the plants. The flowers may have been enlarged, but not so that their stalks cannot support them. The habit may have been made more compact, but it has not, except, perhaps, in a few *Phloxes*, been dwarfed into deformity.

The eye may be trained in its appreciation of flowers, as of most other beautiful things; but it must be trained on a principle; and the only sure principle is that every plant be always considered as a whole, and

that its natural character be always borne in mind. It is a significant fact that the monstrous flowers have usually been produced in those plants which are treated in gardens in the least natural way — that is to say, in bedding plants, especially Begonias. On the other hand, in the case of plants which are usually grown naturally development has in most cases meant improvement. The florists have produced more new varieties of the Daffodil of late years than of any other flower. But their changes have been nearly all improvements, and the Daffodil is a plant that nearly every one grows in a natural way, except when it is forced or in the case of very expensive new varieties. Thus the improvers of Daffodils usually have the whole plant in their minds, whereas the improvers of Begonias think only of their flowers. There can be no doubt that the practice of rock gardening has improved the general taste in flowers, for tricks cannot be played upon Alpine plants; they have to be grown as far as possible in their natural conditions, and their beauty is peculiarly the beauty of character, a beauty produced by the strange conditions in which they maintain their struggle for life. The gardener who once learns to love this beauty gets a keener appreciation of the character of all other plants. He likes to see them growing as if they were self-sown seedlings, and he is impatient of any florist's development or of any system of culture which deprives them of character. Character, in plants as in men, is produced by struggle and by adaptation. In the garden both

the struggle and the need for adaptation are much lessened, the result of which is that astonishing changes can be worked upon many plants since they are relieved from the continuous even pressure of necessity. But if these plants are transformed so that they lose the character stamped upon them by their adaptation to natural circumstances, then they lose also the most significant part of their beauty, and look like manufactured rather than living things. There are some people, of course, who like a flower to look manufactured, and in its artificiality see a proof of their own power over nature. This desire to make a thing look different from what it is, just for the sake of showing the maker's skill, is the cause of much bad art of all kinds. It is the cause of nearly all bad art in the garden.

CHEAP GARDENING

CHEAPNESS is a relative term in everything, and particularly in gardening, since a Daffodil bulb may cost anything from a farthing to fifty guineas. There is no doubt that gardening can be a very expensive amusement, now that it has become fashionable and millionaires have their rock gardens as well as their motor-cars. Luckily, however, the expensive gardens are not always the best. Indeed, very often they are the worst. In gardening it is not the plant that counts so much as the gardener; and very often the plant that costs a guinea is no more beautiful than the plant that costs nothing. Gardening may be cheaper as well as more expensive than it has ever been, provided the gardener is ready to take a little trouble and to exercise a little self-denial.

Mr. W. P. Wright has lately published a book ("Beautiful Gardens") in which he makes it his object to show how a beautiful garden may be cheaply made and maintained, and in his preface he deploras the expensiveness of modern gardening. But, after all, it does not matter very much to the true gardener. He can console himself with the thought that all the costly novelties, if they are good for anything, will probably be cheap some day; and if it were not that there are people ready to give large sums for them,

these novelties would never, perhaps, be produced. Mr. Wright complains, too, that the writers of most gardening books assume the costliness of gardening. He will not assume it; and yet he mentions a good many costly plants in his book, or at least plants that will seem costly to the man who really wishes to garden cheaply on a fairly large scale. Mr. Wright may urge that he only mentions such plants in case his readers may wish for a few luxuries. But the gardener who wants an abundance of flowers, and wants them cheap, will not be able to afford even a few luxuries. Those who have only a slip of garden with one small border and one bit of rockwork on it may afford, now and again, to pay half-a-crown for a Lily or Daffodil bulb. But those who have two or three acres of garden and wish to make them all flowery at a small cost cannot do this even once in a way. Their first problem will be to get cheap plants. Their next to economize in labour and manure. There are plants which need a great deal of manure in most soils, and others which need careful watering in hot weather, even though they may in some cases be cheap to buy. There are bulbs which need to be lifted and dried off, and others which, however well treated, soon die out in most English gardens. There are shrubs, too, which must be protected in hard winters. There are carnations that must be constantly renewed by means of layers. There are bedding plants that need a greenhouse in the winter, and exact all the labour of shifting them into the greenhouse and out of it again. All of these

will have to be avoided, or very sparingly used, by the man who wishes to garden cheaply and who is not prepared to spend a great deal of his own time upon his garden. For him the labour problem will be more difficult, perhaps, than even the problem of stocking his garden; and yet both may be solved by means of a little knowledge and discretion.

In the first place, the man who wishes to have a cheap garden must take the line of least resistance. He must find out what plants grow well in his garden naturally; and he must confine himself mainly to these. If he lives on a light, sandy soil, he must not grow plants that need much moisture and nourishment, for it will cost him money to supply them. If he lives on a stiff clay, he must avoid plants that will only flourish in clay if it is lightened and made porous with grit and leaf-mould. Directly he tries to fight with nature he will find that his bill for labour and for manure goes up. He must make it his object to humour nature; and, if he is a true gardener, he will find a peculiar pleasure and interest in doing that. The rich man or the man who has plenty of leisure may delight in overcoming nature; yet just as much skill may be exercised by the gardener who is busy and not rich in obeying her. But he must exercise some self-denial; and in particular he must cure himself of that itch for novelties which attacks all keen gardeners at some time in their career, and from which many never recover. Mr. Wright is inclined to think that the love of novelties is a vulgar passion;

that the rich man buys a costly new plant only to show that he can afford it. But good gardeners are not apt to be vulgarians, and nearly all of them love novelties and, if they can, pursue them in spite of a hundred disappointments. And yet this passion can be tamed by philosophy, as the present writer has discovered; and other and, perhaps, manlier passions can be nourished to take its place. Philosophy, based upon experience, admonishes the gardener that some novelties are not novelties at all and that others have nothing but their newness and costliness to recommend them. It also comforts him with the thought that, as we have said, most novelties, if they are worth having, will soon grow cheap. There are, it is true, some bulbs which have to be collected in their native homes every year, and which, being rare even then, never become very cheap. But there is always a chance that some year the collector will find a multitude of them, and that they will suddenly drop in price. Very likely they will soon rise again; but it is chances of this kind that make catalogues more exciting to read than any novel, and catalogues cost nothing. Anyhow the pursuit of novelties is sure to cause as much disappointment as delight; for the writers of catalogues have sanguine imaginations that take fire at a hint. They are ready to believe all that the collectors tell them; and they do not spoil a tale in repeating it. Thus many novelties that flower so amazingly in the catalogues make but a poor show in the garden, and after one year's trial

are described as "suitable only for botanical collections"; which means that the ordinary gardener throws them on the rubbish heap if he cannot give them away to a friend.

It is by considerations of this kind that the hunger for novelties may be tamed. But even the poor gardener is not cut off from them altogether, for he can often buy their seeds cheaply enough; and then, if they turn out to be rubbish, he can throw them away with the consolation that he has spent little upon them except the labour of raising them. Seeds, indeed, are the mainstay of the poor gardener. If he will only raise his plants from seed, he can soon stock a large garden with beautiful flowers at the cost of a few shillings; and if he has a piece of spare ground which he can use for the trial of seedlings, in a few years by judicious selection he will be able to raise for himself specimens of many plants as fine as the finest florists' varieties, and even finer, for he will be able to consult his own taste in the development of them. It is strange, indeed, how few people raise perennial plants from seed; and the only explanation can be that it never occurs to them to do so. They are ready to spend time and trouble in raising annuals and biennials, because it is the custom; but they are in the habit of buying perennial plants, and they continue to do so, although many of them can be raised from seed just as easily as any biennial, and will flower just as soon after the seeds are sown. One could make a long list of perennial plants that every one ought

to grow from seed. But a few of them will suffice for examples. Larkspurs, Columbines, Hollyhocks, Pansies, *Campanula persicifolia*, *C. carpatica*, *C. lactiflora*, nearly all the perennial Flaxes, *Catananche*, *Lychnis Haageana*, *Oenothera macrocarpa*, *Anchusa italica*, *Coreopsis lanceolata*, *Geranium grandiflorum* and other Cranesbills, *Gypsophila paniculata*, *Pentstemons* and *Scabiosa Caucasica*. Many of these, if sown as soon as the seed is ripe, will flower the next year like biennials. All or nearly all will flower the next year, if sown in spring; and all can be raised from seed without any difficulty. But even those gardeners who do raise perennials from seed often take more trouble than they need, and with worse results than a simpler method would produce. It is common, for instance, for Hollyhocks to be raised from seed in frames and to be moved at least twice before they find their permanent quarters. The finest plants of Hollyhocks are those which have never been disturbed since the seed was sown in the ground. The best and easiest way of growing them, therefore, is to sow two or three seeds where the plant is wanted to grow, and when they are well up to pull up all but one of them. It is not easy to treat Snapdragons thus, because their seed is much smaller than that of Hollyhocks. But there is no need to raise them in boxes or frames. The best plan is to sow them out of doors towards the end of April. They will come up in hundreds, and can be shifted to their permanent quarters any time after a good downpour of rain. *Pentstemons*,

again, may be sown in boxes out of doors in May. They can be pricked out as soon as they are large enough into a reserve bed, and planted into their permanent quarters the next spring. Young plants that have not flowered will not usually suffer even from hard winters in fairly light soils, and, in any case, it is not difficult to give them a little protection. Of course, it takes more time to raise plants in this way than to start them in heat in early spring. Pentstemons, for instance, will flower the same year if raised in heat, and so will Hollyhocks and Snapdragons. But the open-air method produces healthier plants, and costs nothing except the price of the seeds. All the perennials mentioned above can be raised from seed sown in the open border; but the safest plan with most of them, especially where the soil is heavy, is to sow the seed in boxes and to place the boxes in a cold frame until the seedlings are strong enough to resist all caprices of the weather. If this is done it is best to sow the seed in April, so that the plants may be a good size before the hot weather comes. They should be moved into the open air, however, as soon as possible, and then put into their permanent quarters in the autumn, where they will flower the next year. When one considers that a single plant of *Oenothera macrocarpa* costs sixpence, whereas fifty plants may be raised from a penny packet of seed so as to flower the year after sowing, the advantages of raising plants from seed are obvious.

There are some plants, of course, that do not come

true from seed, so that if the gardener wants a particular variety he must buy a plant and propagate from it by other means to increase his stock. But this is usually the case only with plants that have been developed by the florists, such as Larkspurs, Carnations, and garden Pinks, and Violas or Tufted Pansies; and this variableness adds a new interest to the raising of plants from seed, if the gardener has some spare ground which he can use for trial beds for his seedlings. If he does this and selects his seed judiciously year by year, he will probably obtain some very fine varieties of any plants to which he may give particular attention. The trouble of an annual sowing of Larkspurs or Columbines or Violas will be very small, especially if the seed is sown in the open ground when ripe, and the expense will be *nil*. The gardener who saves his own seed will probably have so much of it that he will be able to afford the risk of a sowing in the open border if his soil is not too heavy; and if he sows there, he will be able to leave the plants alone until they flower.

There are some plants that can be so easily increased by other means that it is scarcely worth while to sow seed of them when once a few have been obtained; and there are also plants, as, for instance, most bulbs, which, if raised from seed, take years before they flower. But all means of propagation, even in the case of plants most easily increased, are strangely neglected by many gardeners. Nothing is easier, for instance, than to get a large stock from a

few plants of Tufted Pansies by simply taking off little rooted pieces and planting them in a cool place in light soil, keeping them well watered until they are established. If this is done as early as possible, and when the ground is thoroughly wet with rain, the offsets will soon make good roots and be strong plants ready to plant out in the autumn. This method may be employed with most plants that increase by means of rooted tufts or offsets, and it is often better than division, since it leaves the parent plant undisturbed. The main point for a gardener who cannot give much time to watering is to choose his opportunity when the ground is thoroughly soaked, and to plant his offsets where they are not liable to be shrivelled up by too hot a sun. The time for taking such offsets must vary, of course, with the habit of growth and the flowering season of different plants. Thus, if Tufted Pansies are cut back after their first flush of bloom they will throw up a number of fresh shoots which can be readily detached. Michaelmas Daisies, on the other hand, since they flower in autumn, and since most of them throw out rooted tufts of the greatest vigour in all directions, can be simply pulled to pieces and replanted in spring. If this is done every tuft will be a strong flowering plant by the autumn. In every case the gardener should observe the habits of the plant he wishes to increase, and should treat it according to these habits.

Bulbs, as we have said, usually take a long time to flower from seed, often about six years, but many

of them increase rapidly by means of offsets; and this means of increase also is often neglected, so that the bulbs become crowded and deteriorate. Bulbs that are to be increased in this way should be dug up when they die down, and the offsets separated from them. The main bulbs and the offsets may then be either dried off until the autumn or replanted at once. Some bulbs — as, for instance, many kinds of Tulips — are the better for being dried off every year; others, such as English and Spanish Irises and many Narcissi, like to be dried off occasionally. English gardeners, even those who do not care to spend much on their gardens, are apt to be very wasteful with bulbs, especially with Tulips used for spring bedding. There is a common idea that they will not last in English gardens. But if they are lifted when they die down and then dried off, they will not only last well, especially in light soils, but will often increase rapidly. The gardener who does not wish to spend much money on his bulbs can yet have a fine show of them, at least if his soil is fairly light, provided he is prepared to take a little care of them and to buy very cheap kinds; and luckily there is an abundance of cheap bulbs often as beautiful as the dearest. You can give ten shillings for a single Tulip bulb, but no Tulips are more beautiful than Picotee, which costs six shillings a hundred, or than Cottage Maid, which costs about four. You can give fifty guineas sometimes for a single Daffodil bulb; but Barri conspicuus, or Princeps, or John Bain, or the Tenby Daffodil cost about five shillings

a hundred, and they ought to be good enough for most people; while you can get a thousand of the old Pheasant-eye for fifteen shillings. You can get a thousand Spanish Irises or Crocuses for even less, and Squills of many kinds, Chionodoxas, Fritillaries, Allium, Dogtooth Violets, Galtonia, many kinds of Gladioli, Snowflakes, and of course Snowdrops, Muscari, and many less-known bulbs can be bought very cheap. There remain Lilies, and most of them are not cheap or easy to grow. The poor gardener must do without many kinds of Lilies; but he can grow the Madonna Lily, the Orange Lily (*L. croceum*), *L. Pyrenaicum*, yellow and red, *L. Davuricum*, *L. elegans*, the Martagon, the Tiger Lily, and, if he has a moist place in his garden, *L. pardalinum*, *L. superbum*, and *L. Canadense*. He can also get *L. auratum*, *L. speciosum*, and *L. longiflorum* quite cheap at sales; but he will probably have to renew them often, and this means labour as well as money.

We have said nothing about Roses or shrubs in general. Many can be bought very cheap; but if they are to prosper, the ground must be deeply dug and manured beforehand. This costs money, of course; but a little preliminary outlay in deep digging and manuring, though many people are apt to grudge it, will always save money in the end. Have your borders thoroughly well prepared before you put a plant in them, and you will have to spend less afterwards on plants and on labour.

COMMON SENSE IN GARDENING

GARDENING to the beginner seems to be all an arbitrary mystery. Some plants want this, he is told, and some that; and he can see no more reason for the diversity of their wants than for the diversity of their colours. He regards the expert gardener as a kind of magician, as one who can make all plants thrive by the very way in which he handles them, and who knows by instinct what they want. Now, it is quite true that the best gardeners do seem to have a way of their own with plants, and that they will often succeed with a plant they know nothing about where an inferior gardener, less ignorant, would fail. But they are not born with this gift. They are only born with the qualities and interests that enable them to acquire it. The best gardeners are those who love plants and who, therefore, are for ever looking at them; who never pass a cottage garden without peering into it, who are always learning something without effort or design in woods and meadows, on moors and mountain sides. In this they are like the born painter or like the poet in "How it Strikes a Contemporary," who watched men for the love of watching them. Without this kind of love there can be no profound knowledge of anything. Taking notes with an object is a useful practice, but it is not the

best kind of observation, any more than cramming for an examination is the best kind of learning. One forgets the notes as soon as one has used them; but the knowledge got by loving observation stays in the mind and makes pictures there. It is because children observe disinterestedly that they have such long memories; and so disinterested observation is the secret of the gardener's, no less than of the poet's or painter's, magic.

But there is reason and method in the magic of all arts; and the great gardener's love of plants only makes him a great gardener because he turns it into science. The passion of observation is what connects all excellent works of science and art. It makes the great artist something of a man of science, and the great man of science something of an artist; and gardening, in its humble way, is both an art and a science, and can only be practised well by the man who will learn it as an art and a science. He must not only be always observing, but also always experimenting; and it is experiment alone that can make his observation profitable just as it is only observation that can teach him how to experiment. And the more he does of both the more he will be able to use his common sense in gardening and to see the reason and the system of things. The great defect of most professional gardeners is that, however well they have been taught a right routine, they do not know the reason of it, and therefore cannot apply it to things outside their experience. They have learnt

what they know as arbitrary and isolated facts, just as children learn a number of dates from bad teachers of history; and these facts do not help them to learn anything new. The best gardeners are those who cannot endure that any fact they learn should remain arbitrary and isolated. Every plant is to them a living and a reasonable being, and they wish to understand it as the poet wishes to understand men. They like to know the conditions of its native home and to see how those conditions have made its character. They like to see how far it is adaptable to the ordinary routine of the English garden, and whether cultivation will improve it or injure it.

Now, plants seem to differ in their adaptability in the most arbitrary way. Speaking generally, one may say that plants which have adapted themselves to very abnormal conditions have usually exhausted most of their power of adaptation in the process. Plants which have learnt to grow among snow and ice cannot endure the prosperity of a rich border. What is meat to a Rose or a Pæony is poison to them. But this is not always so. Some plants that have learnt to thrive in adversity will also thrive in a prosperity not too gross; and in the same way there are plants which, preferring prosperity, will also put up with a good deal of adversity, while there are others that will not endure adversity at all. The reasons for these differences in adaptability are usually unknown. One can only lay down a general rule, that the more normal the natural conditions of a plant the greater

is its adaptability; and this is a rule of much value in practice, although it is broken by many exceptions that can be learnt only by experience.

Every good gardener likes to know the natural conditions in which all his plants grow. But he learns from experience that he will not always succeed by imitating those natural conditions as closely as possible, for very often he will not be able to imitate the most essential of all, and for lack of that, it may be that all his other imitations will be merely mischievous. There is, for instance, a little creeping plant called *Nierembergia rivularis*, whose native home is in marshy places in South America. Most books on gardening, therefore, say that it should be treated as a bog plant; some that it should be planted in shady places. Now it is a plant that comes from a much hotter climate than ours, where, no doubt, it likes all the moisture it can get. But in England it likes all the sun it can get, and has not the same need of moisture. In England, according to the present writer's experience, it will thrive in fairly rich soil, in a dry level place, provided it is watered in the hottest weather; but will not endure the cold of a damp place in winter. This is an instance of a plant with a considerable power of adaptation, which, since we cannot give it all its native conditions, would rather have none of them complete, but prefers that an average should be struck among them; and there are many plants like it.

We have always to remember that gardening is

not a natural process. There are very few plants that in most gardens can be supplied with exactly the conditions of their natural homes; and the aim of horticulture is to compensate for the lack of these conditions by artificial means. The skilful gardener, when he has observed the natural conditions of a plant, will always translate them, so to speak, into garden terms, when he proceeds to make use of his observations. He knows that most plants, fortunately, have a considerable power of adaptation to artificial conditions; but he knows, also, what are usually the limits of that power, and what artificial conditions are necessary to compensate for the lack of natural ones. Take, for instance, the case of manure, which is mainly an artificial aid to the growth of plants, and which, therefore, is used as a substitute for natural conditions and often as an improvement on them. Farm-yard or stable manure has more than one use. It is both a plant-food and a means of protection against drought. Now, there are many plants that like manure as a food; but there are also many, particularly among bulbs, that do not need it as a food but like it as a protection against drought. For such plants manure will be unnecessary where they are in no danger of suffering from drought. In a garden that lies low or has a heavy soil few bulbs need manure; in a garden that is high and dry many are the better for it. But manure, where it is used only as a protection against drought, must be applied much more cautiously than where it is used as a plant food, partic-

ularly in the case of bulbs. Most bulbous plants are apt to rot if manure touches the bulb itself, and to many of them manure is poisonous as a food. It should not, therefore, be mixed with the soil about the bulb, as it may be mixed with the soil about the roots of many gross feeding plants, such as Pansies or Pæonies, but should be placed well below the bulb, so that the roots will either never reach it or will only reach it when they have grown strong and when the manure has lost its rankness. There are many plants, usually supposed to dislike manure, which are the better for it applied thus in light, hot soils. It is a common belief, for instance, that all Lilies dislike manure, and so the most of them do anywhere near the bulb. But in light soils the Madonna Lily, *Lilium testaceum*, *L. Chalcedonicum*, *L. Szovitzianum*, *L. auratum*, *L. speciosum*, *L. pardalinum*, and *L. superbum* are all the better for a good layer of well-rotted manure placed well below their bulbs, to say nothing of easy Lilies like *L. tigrinum* and *L. croceum*. The manure benefits them not so much as a plant food, though some of them are even the better for this, nourishment in moderation, but as an artificial protection against drought, since it holds moisture, which is drawn upwards towards their roots and bulbs by the heat of the sun just when they need it most. Manure can be used in this way as a protection against drought for many surface-rooting plants which may not need it as a food. But the gardener, if he does not know for certain whether or not it may be poison-

ous to a plant, should be very cautious in his use of it. It is quite likely that many Alpine plants would be the better for a dose of manure underneath them as a protection against drought, if any one could be sure that their roots would not reach it. But unfortunately they are apt to root very deeply, particularly in search of moisture, and some of them, if their roots got down to a layer of manure, would quickly die of indigestion; for in their native homes they get very little nourishment, and so have come to need very little.

There are many surface-rooting plants, however, that like manure both as a food and as a protection from drought, and they can be fed with it from above as well as from below. Mulching is particularly good for surface-rooting plants, since the juices of the manure quickly reach their roots and since the manure itself on the surface protects them from drought. Most surface-rooting plants are the better for some kind of nourishment applied from above, especially if they are plants that resent being moved into fresh soil. Thus *Eremuri*, which throw out thick roots in all directions just under the surface of the soil, will often thrive wonderfully where they would otherwise seldom flower if they are top-dressed in autumn or early spring with rich loam or leaf-mould, or with old manure off a hot bed. And in the same way the hardy *Cypripediums*, particularly *C. spectabile*, the roots of which run like a network of whipcord over the surface of the soil, should be dressed with rich

loam and leaf-mould once a year. With them this is a natural treatment, for in their native homes they get a covering of fallen leaves every autumn, which no doubt, is the reason why their roots come above ground. Gardeners are too apt to think that plants which do not like manure do not need to be fed in any way; and shrubs like Rhododendrons and Azaleas often fail to do well in gardens because their soil is never enriched. In their native homes they too get an autumn mulch of fallen leaves, and they should have it in captivity. A good dressing of leaf-mould once a year will feed them and protect them from drought. Gardeners, for the sake of neatness, will often sweep all shrubberies clear of leaves and never remember that they are thereby robbing them of their natural nourishment. If the fallen leaves are removed they should always be replaced in the form of leaf-mould later on.

This is but common sense in gardening; and the whole business of feeding plants should be governed by common sense, that is to say, by an understanding of every plant's requirements. One of the first things that a good gardener seeks to know about a new plant is the nature of its roots, and when he knows this he can at least conjecture something about its treatment. He knows, for instance, that a surface-rooting plant is more likely to suffer from drought than one that roots deeply. He knows that a plant with a single crown and a thick fleshy root is more difficult to divide than one with a number of crowns and a

network of small fibrous roots. The character of a plant's roots will also tell him something about when it should be planted, a matter in which many gardeners are curiously unintelligent. As a general rule, deep-rooting plants are best moved or divided in the autumn, because then their roots have time to recover and strike down as soon as growth begins in the spring. Such plants cannot usually be moved without much damage to their roots, and before their roots have recovered they are apt to suffer much from drought. If they are moved in the spring and if a drought follows upon their moving, they will not recover before the summer heats, and then they will live but a miserable life until the next year. Yet one finds that many gardeners are just as ready to move Oriental Poppies in April as Pansies; and if the Poppies remain miserable, stunted, and half withered tufts all the summer, the gardener regards it as an "act of God," not as the result of his own stupidity. Of course, if a deep-rooting plant is not very hardy it should be planted in the spring, and if it is but a small plant that can be moved with little or no injury to its roots spring planting will not check its growth. On the other hand, surface-rooting plants can usually be moved in spring without checking their growth at all, and in heavy soils the spring is often the best time for planting them, so that they may be strong and well-established before they have to endure a winter. There are no arbitrary rules about the time for planting or dividing. Most plants can be

moved at any time of year if only they can be protected against drought or cold until they have established themselves. But since it is difficult to do this in summer and in winter, the spring and autumn are the favourite seasons for planting and division. There is a common idea that plants cannot be moved when in flower; but this is not always so. It is far better to move *Gentiana verna* or even *G. acaulis* in full flower than in late autumn, because they flower in spring, when they can be fairly easily protected from drought, and if they are well watered during the summer they will be well established before the winter comes again. But summer flowering plants suffer much if subjected to the double strain of flowering and moving in hot weather, especially if they have long roots. There are some plants that are best moved as soon as possible after they have flowered, so that they make good growth before the next year's flowering. This is the case with German and other Irises of the same class, which will usually flower well the year after moving if they are moved about a month after they have flowered and are well protected from drought until they have recovered. The reason of this is that they begin to make their growth for next year soon after they have flowered, and that this growth is interrupted by a move in autumn. Bulbs, of course, should be moved when they are at rest; but some of them are only at rest for a very short time. The Madonna Lily, for instance, begins to make new growth in a few weeks after it has died down.

Therefore, if it is to be moved at all, it should be moved as soon as it has died down; otherwise it will receive a check from which it may never recover.

There are some plants which need to be moved pretty often if they are not to deteriorate, and the reason for this can generally be found in their habit of growth and rooting. Plants which have deep roots can often be left for years undisturbed, and often suffer for a time even from the most careful shifting. On the other hand, plants will increase rapidly with a network of surface-rooting runners or suckers, such as *Sidalcea* or most Michaelmas Daisies, are apt to exhaust the soil in which they grow, and often need to be moved every two years at least. Again, plants such as Primroses and Polyanthuses, and many other Primulas, which start with a single crown and in a year or two break up into several crowns, are usually the better for frequent division, as the different crowns are really different plants, and crowd each other. A plant like *Primula denticulata* needs to be divided every year when it grows strongly, otherwise it will soon produce only poor flowers; and this division should be done as soon as possible when it has more than one crown, so that the plant may recover in time to form its flowers for the next year. We have chosen, almost at haphazard, a few instances of the application of common sense in gardening, with the object of showing that there are obvious reasons for all the diversities of treatment which seem so arbitrary to the beginner. If he tries to understand the reason of

everything that he does, and if he also has a natural love of plants, he will in time acquire that habit of treating plants rightly which is called the gardener's instinct.

LILIES

LILIES are perhaps the most capricious of all garden plants. Some are familiar to our gardens and easy enough to grow; but even the most familiar of all, the Madonna Lily, fails unaccountably sometimes. Others will thrive in one place, but not in another quite near it which seems to offer exactly the same conditions. Others, again, will do well enough for a year or two, but then are pretty sure to dwindle away or die off suddenly; while a few have hitherto baffled all the skill of experts. Writers upon lilies are apt to make them out to be less difficult than they are, and to suggest that we have a more certain knowledge of their requirements than we really have. The consequence is that enthusiasts are often tempted into experiments that can only end in disappointment. The object of this article is to state what lilies can be grown in certain conditions with a fair certainty of permanent success, what lilies will do well for a year or two in English gardens, and what lilies still baffle all efforts to establish them. It is not possible, in the present state of our knowledge, to write with any certainty about the cultivation of the more difficult lilies, and, therefore, we shall not pretend to any certainty about them. There are some difficult plants that are difficult for obvious reasons. There are Irises

that need more sun than our summers usually provide. There are high mountain plants that suffer from our wet winters. We know what these want, even if we cannot supply it. But we do not know with any precision what it is that a good many lilies want, or what kills them off so quickly in our climate. Many experiments have been made with lilies, such as *Lilium Krameri*, *L. Washingtonianum*, and *L. Philadelphicum*, and these experiments, whether failures or successes, have not led to any certainty. It is likely that most of the hardy lilies which annually fail in our gardens are very impatient of disturbance and never recover from it when they are imported to England from distant countries. We have heard it said that some of the North American lilies, like some of the hardy *Cypripediums*, never flourish in captivity even in gardens close to their native homes. They are not likely, therefore, to recover from the shock of disturbance when they have made a voyage across the Atlantic. Sometimes, very likely, these lilies are moved more carefully and at more favourable seasons than at others, and this would account for occasional successes. But the ordinary gardener cannot count upon such precautions. He must take what bulbs he can get of the rarer kinds of lilies, and he must expect to fail with them. The only chance of success with lilies that are very impatient of removal would seem to be to grow them from seed in England; and this has been done in some cases with excellent results, though not yet, perhaps, with any of the most

difficult lilies. Some of the finest plants of *Lilium Szovitzianum* at the Royal Horticultural Gardens at Wisley were raised from seed by the late Mr. G. F. Wilson, and were either not moved at all from the seed-bed or were moved with practically no disturbance. *Lilium Szovitzianum* is not a difficult lily, as lilies go; but there are very few probably in England to equal those at Wisley. This experiment of raising lilies from seed would be too slow, and perhaps too difficult a business for most amateurs, but it might be tried on a large scale by lily specialists and might result in the acclimatization of some of the most difficult lilies. Unfortunately, many of the most difficult lilies are abundant in their native homes, and so are imported in large numbers and sold fairly cheap in England, with the probability, and in some cases almost the certainty, that they will disappoint those who buy them.

Before we proceed to speak of particular lilies, it will be well to say something about the culture of lilies in general. It has been said that no two kinds of lilies should be grown exactly alike, and certainly lilies vary more than most genera of plants in their wants. But one or two general rules may be safely laid down about them, and the first of these is that they all like a soil full of the roots of trees or shrubs. The reason of this is not quite clear. It cannot be merely that they like sharp drainage, since drainage supplied by other means will not make up for the want of a rooty soil. Some lilies will do well enough without

a rooty soil; but those who fail with any particular kind should try it in a rooty place, and they will often meet with immediate and inexplicable success. Lilies also all like good drainage, even if they need plenty of moisture. Their bulbs, with their loose scales, are more apt to rot in stagnant moisture than bulbs which are better protected, and it is well, in the case of bulbs, such as those of *L. Leichtlini* or *L. Krameri*, which are very sensitive to damp, to plant them sideways, so that the wet will not settle into their crowns and the interstices between their scales. Lilies vary as to the depth at which they should be planted, because some of them throw out roots from the stalk, and, therefore, must be planted deep enough for these roots to form, whereas others throw out roots only from the base of the bulb. *L. candidum*, *L. testaceum*, *L. giganteum*, and most of the Martagon division of lilies, except *L. Hansoni* and *L. Leichtlini*, root only from the base of the bulb. *L. auratum*, *L. speciosum*, *L. Browni*, *L. longiflorum*, *L. croceum*, *L. elegans*, *L. Henryi*, *L. Krameri*, *L. tigrinum*, *L. Hansoni*, and *L. Leichtlini* all root from the stalk. The beginner should ascertain in each particular case whether the lilies he wishes to plant are stalk or only bulb rooting. There are no lilies that like a very hot place, although some, such as *L. Chalcedonicum* and *L. pomponium*, need a good deal of sun; nor yet will any flourish in very heavy shade. The greater number do well among low-growing shrubs which will protect them from late frosts and also from the extreme heat of the sun-

mer sun. A great many lilies suffer very much from late frosts, and lilies such as *L. auratum*, *L. speciosum*, *L. Leichtlini*, *L. giganteum*, and in particular the early *L. Hansoni*, should be protected from them with heather or other branches placed lightly about their young shoots. Lilies differ so much in the soil they require that no general rules can be laid down on this point. None, however, like a very stiff clay unless it is well drained and lightened with grit and leaf-mould. They differ also as to the time at which they should be planted; some are best planted in early spring, others in early autumn or late summer.

The lilies that will usually do well in the ordinary herbaceous border and are of such easy culture that even the beginner may attempt them with confidence are the following:—

L. candidum, the Madonna Lily. The chief enemy of this is the notorious lily disease, and it can be best prevented by a right system of culture. In heavy soils the Madonna Lily should be planted in a sunny, sheltered place; and the soil should be lightened with mortar-rubble. It has been said that this lily objects to chalk, but we have seen it growing magnificently in a very chalky soil, and in our experience it likes lime in all forms. It also likes a very rooty soil; and in light soils it may be planted in a north border sheltered by shrubs, but not shaded by them. In light soils also it likes a good layer of well rotted cow manure well under the bulbs. In all cases the top of the bulb should be only an inch or two under the

surface of the soil. The Madonna Lily starts into growth again a few weeks after it has died down, and it is always injured by disturbance when in growth. It should, therefore, be planted as early in autumn or late summer as possible, and should only be disturbed, if at all, as soon as it has died down. When it is doing well, it should be left alone; and gardeners should not be allowed to disturb the soil anywhere near it. The forking and hoeing of gardeners is a frequent cause of failure with all lilies. When the Madonna Lily suffers badly from the disease the safest plan is to dig all the bulbs up at once and burn them, taking care not to plant new bulbs in the same place. They sometimes recover if they are dug up as soon as they have died down, and if the bulbs are well dusted with sulphur and placed in full sun on a shelf in the greenhouse to bake for some weeks. It is well always to dust the bulbs in sulphur when they are planted. When the disease first appears, it may sometimes be cured if the leaves of the plant are sprayed with Bordeaux mixture. This should be done at intervals of a week or so, several times. *Lilium tescaceum* is said to be a natural hybrid between the Madonna Lily and *L. Chalcedonicum*. It is, after the Madonna Lily, perhaps the finest of all garden lilies, and it is easier to grow, although it also suffers sometimes from the lily disease. It grows very tall and has beautiful flowers of an apricot yellow with bright scarlet anthers. It should be treated like the Madonna Lily, but does not suffer so much from distur-

bance and remains dormant for a longer period. Indeed in most gardens it is best moved into fresh soil every three years or so. It should be planted in early autumn. In some soils it increases rapidly.

L. croceum, *L. Davuricum*, and *L. elegans* are all good easy lilies and can be grown in the same way; *L. elegans*, a dwarf lily with many varieties, needing rather more sun, perhaps, than the others. They are all plants for the ordinary border, liking a good dose of manure well under the bulbs in light and poor soils, and some protection from surrounding plants in very hot places. They are best planted in the autumn and should all be at least half a foot deep, as they make stem roots.

L. tigrinum, of which there are several good varieties, is equally easy and needs much the same culture. It sometimes suffers if too much crowded or overshadowed by other plants, and also if it is grown in too exposed places, or where the summer sun strikes full upon it. *Splendens* is, perhaps, the best variety.

L. Hansoni is a fine lily of the Martagon division with stout yellow spotted flowers. It will grow in any good border soil, but the flower buds are often killed by late frosts and should be protected from them. It does very well among low-growing shrubs, provided they do not overshadow it.

L. Batemannieae is a beautiful lily sometimes classed as a variety of *L. elegans*. It flowers later, however, than the other forms of *L. elegans*, and the flowers are of a glowing but soft orange scarlet colour.

It is a little more delicate than *L. elegans*, and likes a warm sheltered place and light rich soil. *L. Pyrenaicum*, a yellow lily of the Martagon division, and its scarlet variety are both easy lilies that should be planted in the ordinary border in early autumn and then left alone. They like manure under the bulbs in a light or poor soil, and will do well both in sun and in half shade. *L. Martagon* is a little more capricious perhaps, and prefers half shade. It should not be disturbed when well established. The variety *Dalmaticum* is a much finer plant, and not more difficult to grow. The beautiful white variety is certainly more capricious. It likes a slight slope with a northerly aspect, and a rooty, stony soil. It must also be sheltered both from strong winds and from the extreme heat of the sun. It is, unfortunately, rare and rather expensive, although an old plant. It sometimes thrives wonderfully in old cottage gardens without any attention whatever, and fails when it is given every luxury.

We have now to speak of lilies which need more care and more or less peculiar conditions, and of these we will deal first with those which can usually be permanently established in English gardens without much difficulty. *Lilium Chalcedonicum* is a fine lily with bright scarlet flowers and a near relation of the Martagon or Turk's-cap lilies. It comes from the south of Europe and Asia Minor, and therefore requires a good deal of sun to ripen the bulbs. It should be grown in a warm place very well drained, and sel-

dom thrives without a strong dose of lime in the soil. In stiff soils this should be given in the form of mortar-rubble about the bulbs. It is supposed to be a capricious lily, and often suffers from disease; but this usually happens when it does not get enough sun or when it is injured by late frosts or stagnant moisture about the roots. It suffers less than most lilies from drought. It likes a rich soil, even a stiff loam if well drained and mixed with mortar-rubble, but it should be sheltered from cold winds. Such shelter may be given by Lavender or Rosemary bushes placed so that they will not overshadow it too much or screen it from the south. It looks its best growing among these southern shrubs, and it likes a soil filled with their roots. It should never be disturbed when thriving, and is best planted in early autumn. It flowers towards the end of July.

Lilium pomponium, a smaller lily, but very like it, should be treated in the same way, but is easier to grow and less subject to disease. It also likes mortar-rubble, especially in heavy soils, but lime is not essential to it. The red variety of *L. Pyrenaicum* is sometimes sold for it, but is an inferior plant. Neither *L. pomponium* nor *L. Chalcedonicum* should be planted deep, as they do not make any stem roots. The soil should be stamped hard about the bulbs, and should never be forked or disturbed when they are growing.

Lilium Szovitzianum is a splendid lily, tall and robust. The flowers are pale yellow with dark spots.

Well-grown plants are 4 or 5 ft. high and bear a dozen or more flowers. It likes a good loamy soil mixed with leaf-mould, but is said to thrive in stiff clay if well drained. It suffers from drought if exposed to the full heat of the sun, and should be grown among low shrubs or herbaceous plants. It will seldom thrive on a bare patch of ground. It is best planted in early autumn and takes some years to reach its full beauty; so it should not be disturbed when once well established. It grows very well in the grass in half shade at Wisley, and can be raised from seed, though this is a slow process. It is often called also *L. monadelphum*, but this is really a distinct species with flowers of a darker yellow.

Three North American lilies — *L. Canadense*, *L. pardalinum*, and *L. superbum* — grow well and increase in a moist soil rich in humus, if they are protected both from cold winds and from the full heat of the sun. They like peat well enough, but prefer it enriched with loam and humus. *L. pardalinum* and *L. superbum* will grow also in fairly dry shady places if they are well watered in dry weather. They do well among shrubs, such as azaleas, rhododendrons, kalmias, &c., but they must not be smothered by them. When the soil is not naturally moist it is well to plant them in a slight hollow where the water will be collected and drain down to their roots. Their chief enemy is drought, and they will not usually thrive in the ordinary border. They should not be disturbed when established, and if grown in a suit-

able place will increase in beauty and also in numbers year after year. *L. Canadense* grows about three feet high, and has usually orange yellow flowers. *L. pardalinum* and *L. superbum* will grow 6 ft. high or more, and their flowers are bright orange scarlet. *L. Grayi* is a beautiful lily with crimson drooping flowers which is said to be a variety of *L. Canadense* and also to be not much more difficult to grow.

Lilium giganteum, the tallest of lilies, grows over 10 ft. high. Its flowers are relatively small and not particularly beautiful in themselves, though the whole effect of a plant in flower is very fine. It should be planted in April in a deep soil half loam and half humus, with the top of the bulb uncovered by soil, and it must be protected from late frosts and from drought. When this lily flowers the flowering bulb dies and throws offsets, which should be taken up and replanted separately, and which will then flower in a year or two. It is best to start with small bulbs and not to expect flowers for a year or two. *L. giganteum* is a lily for woodland glades or the wild garden rather than for the herbaceous border.

Lilium Henryi was only introduced a few years ago, and is a most valuable lily, perhaps no more difficult than *L. tigrinum*. In the shape of its flowers and in its growth it is like *L. speciosum*, but the flowers are deep orange yellow, and it grows to a great height. It is not particular about soil, but does best perhaps in deep loam and leaf-mould in a half-shaded place among low shrubs. It will stand sun, however, much

better than *L. speciosum*. The bulbs have a remarkable habit of travelling underground.

Lilium Brownii is a magnificent lily, close to *L. longiflorum*, but with white flowers stained on the outside with brown. It is also much more lasting than *L. longiflorum* in our climate, and will often live for years in a soil of light sandy loam and leaf-mould and in a sheltered half-shaded place. It will not do well in cold soils or climates, and cannot endure stagnant moisture. It may be grown with care in the border, but is always a little capricious. There are several varieties of it.

We will pass now to lilies that are usually short-lived in our climate, though some of them can be easily grown for a year or two. Of these *L. speciosum* is the easiest, and in some places will thrive for a good many years. It likes a deep soil of leaf-mould, peat, and loam, and a sheltered situation among low-growing shrubs. It should be protected from late frosts, from the extreme heat of the sun, and from drought. There are a good many varieties of *L. speciosum*, of which *Kraetzeri*, with pure white flowers, is one of the best. *L. speciosum* flowers late in the year, and should be planted, if possible, with a southerly aspect, as otherwise the flowers may be spoilt by early autumn frosts.

L. auratum requires the same culture, but is apt to die out sooner than *L. speciosum*. Its variety *platyphyllum* is more robust, and will sometimes last for years in English gardens. The chief reason why *L. auratum* and *L. speciosum* die out is probably

that our summers are not warm enough for them; and, since they cannot be exposed to the full heat of the sun, it is difficult to give them enough warmth. They do best in warm, sheltered half-shady places, and should never be planted with a north aspect, except in very warm parts of the country. They require a good drainage, and in dry soils it is a good plan to sink drain-pipes vertically into the ground among the bulbs to such a depth that water poured down them will come immediately to the roots at the base of the bulbs. As they make large stem roots, they should be planted deep.

Lilium longiflorum, of which there are several varieties, seldom does well for more than a year or so in the open. The flowers also suffer much from heavy rains. It should be treated like *L. auratum*, but endures sun better. The variety *Takesima* is perhaps the best for outdoor culture. *Lilium Krameri* is a magnificent lily with flowers like those of *L. longiflorum*, only pink. It is very delicate and should be grown in a warm, half-shaded place in a soil consisting mainly of rubble, sand, and leaf-mould. The drainage should be as sharp as possible, and it is well to surround the bulbs entirely with rubble and sand. It will sometimes endure for several years if very carefully grown. *L. rubellum*, a very small pink lily, requires the same kind of treatment, but is perhaps more robust. It does best on a dry, rooty bank, half-shaded.

Lilium concolor and *L. coridion* are also small lilies that often die out in our gardens. They do best

in loam and peat or leaf-mould in a sheltered and half-shaded place. *L. Leichtlini* is a pretty yellow-spotted lily that should be grown like *L. speciosum*, but is very impatient of stagnant moisture. *L. tenuifolium* is a most beautiful little lily with scarlet flowers somewhat like those of *L. pomponium*, but more delicate. It is easy enough to grow for one year in a well-drained, half-shaded place, and in a soil of loam and leaf-mould. Unfortunately it almost always dies out after it has flowered once. It is probably short-lived by nature, but it can be raised quicker than most lilies from seed; and, since it is one of the most beautiful of all, this is worth attempting.

A good many North American lilies, though occasionally cultivated in English gardens, are either very capricious or apparently impossible to grow. Thus *L. Humboldtii* and *L. Parryi* occasionally do well for a time at least, but they are plants only for experts. *L. Humboldtii* appears to thrive in loam sometimes in the milder and damper parts of the country, *L. Parryi* seems to do best in a rather dry, half-shady place. Other North American lilies, such as *L. Washingtonianum*, *L. Philadelphicum*, and *L. maritimum*, have not yet, we believe, been grown with permanent success anywhere in England, even by Mr. Wilson at Wisley. It is well to surround the bulbs of all the more delicate lilies with silver sand and to place a lump of peat under them so as to encourage root action.

THE THEORY OF GARDEN DESIGN

I

THE fact that a third edition of Mr. T. H. Mawson's "Art and Craft of Garden Making" has lately appeared is a sign that the old naturalistic ideas of garden design are losing their hold upon the public; for Mr. Mawson, both in precept and example, is altogether against naturalism in gardening. This does not mean that he is altogether against nature. His advice, put shortly, is — Never imitate nature with intent to deceive; but, where there is natural beauty already in a garden, make use of it. It is mere pedantry, he says, to condemn all combinations of nature and art. "Even in prosaic manufactures many successes depend upon nature's assistance and supplies wisely applied by man, notably in dyeing and fermentation and many others. An illustration of frequent occurrence is to be found in the combination of terrace walls built on the natural rock which crops out of the ground; a combination which is most effective when skilfully done. Assisting or touching up nature is more a question of the spirit in which it is done, rather than the principle which calls forth criticism." This is not very well expressed, but the meaning is clear and the il-

illustration apt. Both naturalists and formalists are apt to be pedantic in the application of their principles. The naturalist forgets that in ninety-nine gardens out of a hundred nature cannot be plausibly imitated, even if such imitation were the right aim of gardening. The formalist forgets that the material of a garden is for the most part living material and that there is no necessary incongruity between it and the living things of nature. A great part of the beauty of good formal gardening comes from the contrast between the limited and unchanging forms of things that are made by man and the variety and unceasing changes of plant life. The most familiar example of such a contrast is to be found in ivy or any other creeper growing up a house or a church or a bridge. But the beauty is lost or much diminished when the contrast disappears with any overgrowth of the plant. If a building is beautiful in itself, it should not be smothered in creepers; and, even if it is not beautiful, it has an air of desolation and neglect when so smothered. There is, of course, a modern fancy for desolation and neglect, which is, no doubt, a reaction against extreme artificiality of life and the result of a disgust for the ugliness of most modern things made by man. It is, in fact, a kind of Byronism of taste; and, as Byronism was the result of unhealthy living, so this is the result of unhealthy art. In great ages of art men have never wished to make their gardens look like wildernesses or their houses like overgrown ruins. They have been pleased with their own handiwork,

and confident of their power to improve nature in subduing her to their own purposes.

In a garden man subdues nature to his own purposes, and to pretend that he is not doing so is mere affectation. But, at the same time, there is no reason why he should make an arrogant display of his conquest, why he should not use all beautiful accidents of nature that will not conflict with the aims of his art. There are some formal gardeners who want all their plants to look like architectural ornaments, mere vegetable repetitions of stonework conventions; and it is an unfortunate piece of luck for them that nature has produced some trees and plants that look as if man and not she had made them, and others that can be easily cut into any shape that takes the designer's fancy. The use of these, or the misuse of them, deprives formal gardening of one of its chief beauties, that contrast between the forms of architecture and the forms of natural growth of which we have already spoken. It is just as absurd to attempt to make plants look like architectural ornaments as to attempt to make a garden look like a piece of wild nature, and in each case the absurdity comes from the same desire to make things seem what they are not, the desire that produces so many modern kinds of ugliness. A garden is not a piece of wild nature, and a plant is not an architectural ornament. All make-believes of this kind do violence to the essential character of the material which they use; and, whether they run into excess of naturalism or excess of formal-

ism, they are wrong, because they are unnatural. But this is not to say that trees or shrubs should never be clipped. Their treatment must depend upon the uses to which they are put; and this is the fundamental principle of all good garden design. If a plant is used as an ornament in the garden, then it should be allowed to grow to its fullest natural beauty. But, if it is grown for use, then it should be treated in any way that will make it more useful. Thus, if May-trees are grown for ornament, they should be allowed to grow freely, and not be clipped into any artificial shape, since no artificial shape can be so beautiful as the natural form of the tree. But, if they are used as a hedge, they should be clipped to make them serve their purpose. There is no make-believe in a hedge. It is, what it professes to be, a vegetable wall or enclosure, and there is no reason whatever why living vegetables should not be used for such a purpose as much as dead vegetables or as minerals. Also, there is no reason, of course, why trees of all kinds should not be cut back to enhance the beauty of their natural growth and blossom, or to prevent them from growing where they are not wanted. The only rule about clipping trees or shrubs is that it should always be done not as unnatural ornament, but for some good practical reason, and when the reason is obvious the clipped tree very seldom looks ugly, and often has a peculiar charm of its own, because it gives evidence of human care and pains intelligently applied. Thus a clipped yew pleases us in a narrow cottage garden,

because it is clipped to give space, and even topiary work in such places is often pleasant enough, since the clipping is necessary, and the elaborate forms which it takes are merely expressions of the cottager's fancy and of his delight in his work. But there is no such reason for clipping a yew on a wide expanse of lawn, and topiary work there is not an expression of the gardener's delight in his work, but a mere task to which he is set by the whim of his employer. Therefore, we think only of the labour that has been wasted on it, and take no pleasure in it. The principles thus applied to the treatment of trees and shrubs should be applied to all matters of garden design. In laying out a garden we should consider not what are the rules of formalism or naturalism, but what is our object in making a garden and each particular part of it, and also whether our object is the best possible. The object of many modern gardeners is purely horticultural, and often it is not even to grow beautiful flowers, but merely curious or difficult ones. When that is so, the garden cannot be beautiful, for, if the gardener does not aim at beauty, he may be sure that he will not attain it. But, assuming that the gardener wishes to grow beautiful flowers, we may further assume, if he has any intelligence, that he wishes to display their beauty to the best advantage, and he cannot do this without some grasp of the principles of garden design. If he thinks that he has only to imitate nature, let him remember that nature produces her own beauty in conditions quite different

from those of any garden. One condition which the garden eliminates is the struggle for life, with all its reckless profusion. The gardener is not content that a plant, when it has flowered and seeded, should take its chance of being smothered by other plants that flower later; and all that conflict and smothering, which delight him at their most beautiful moments in woodland and meadow as evidences of the prodigality of nature, would vex him in a garden, as mere signs of idleness and neglect. Also, the plants in a garden are not, like wild plants, all natives of one country and harmonious either by association or by some natural law. They come from many different countries and natural conditions, and, unless arranged with care, often look incongruous together. Therefore, even if the gardener's one desire is to grow beautiful plants and to display their beauty to the best advantage, he must, at any rate, design his arrangement of them on some principle both horticultural and æsthetic, and he will often find it difficult to draw a sharp line between the horticultural and the æsthetic problem. Both the health and the beauty of a plant are spoilt if it is smothered; and a plant which grows naturally in some peculiar conditions will often neither thrive nor look well in ordinary conditions and among plants that grow naturally in such conditions.

Directly the gardener begins to consider not merely the beauty of the plant in itself, but the question of its environment as affecting that beauty, he is drawn into the whole question of garden design, at least in

so far as it concerns the arrangement of plants, and then at once he finds that the naturalistic theory fails him. He cannot imitate nature in the arrangement of plants that have their native homes in different continents and may never have made each other's acquaintance until they meet in his garden, and, if he attempts no arrangement at all, he will find that he has produced a chaos far uglier than the worst failures of nature, which are often ugly enough — the kind of chaos which is found in the ordinary mixed shrubbery of a suburban garden. It is plain, therefore, that even the gardener who cares for nothing but his flowers, and thinks of his garden only as a place to grow flowers in, must yet consider design, if he is to display them to the best advantage. The original and true meaning of design is merely purpose. The gardener who designs his garden has an æsthetic purpose, and therefore goes further than nature, which, in the arrangement of plants, so far as we can tell, has no æsthetic purpose at all. But directly he begins to consider the design, even if he consider it only from the point of view of his flowers, he will find that he can have no design without some degree of formality. He wishes, for instance, for some contrast between two plants of very different character, so that the beauty of both may be enhanced. That contrast will probably be insignificant in only one example. He must either, therefore, repeat it at intervals along a border, or else emphasize it by the use of a good many plants of the two contrasting

kinds, arranged together in one place. In either case there will be some formality in his arrangement. Some of the most eloquent advocates of natural gardening have devised the most elaborate and often excellent schemes for the planting of borders, and, the better their schemes are, the more formality there is in them. They protest against the word formality, because it makes them think of carpet bedding and ribbon borders; but these are only coarse and artless examples of formality. A fine formal design does not catch the eye and drag it along a long line of discordant colours. It has its splendours and its quiet places, its multitudinous and solitary beauties, its contrasts and its harmonies both of form and of colour, like a picture by Titian. It may not look formal, but, if it is both restful and exciting to the eye, raising expectations only to gratify them, we may be sure, and we shall discover by a little analysis, that it has a formal basis, like a great piece of music that at a first hearing may seem to be a wilderness of beautiful sound. The present writer has always found that any arrangement of plants which has struck him by its beauty has been based upon the repetition of certain dominant features, and such a basis is formal, although it is also found in the best effects of nature. Nature supplies motives for design as she supplies material, but because they are accidental in her we are not to suppose that they will come by accident in the garden. So far we have spoken only of design in the arrangement of flowers, on the assumption

that the garden is to be considered only as a place for plants. In another article we will speak of design on the assumption that the garden is also a place for human beings, an assumption which must, of course, have a considerable influence on the treatment of flowers in it.

II

It is only in modern times that the garden has come to be thought of as a home for flowers and not for human beings. Mr. Mawson in his "Art and Craft of Garden Making" says that the medieval and Renaissance gardeners regarded the garden as a "becoming setting to the mansion." The landscape gardeners, beginning with Capability Brown, ignored the home altogether in their designs, and also its inhabitants. Civilized human beings were anachronisms in their gardens, though Adam and Eve, in fine summer weather, might have harmonized with them. They were realists, Mr. Mawson says, and the older designers were idealists. But in this case, as in many others, common sense was with the idealists, since their idealism was based upon plain facts. Gardens, they knew, were meant to be inhabited, so far as our climate would allow, by civilized human beings; and they tried to make them as convenient as possible for that purpose. The landscape gardeners, forgetting this fact, made their gardens as unhomely as they could. They also had far less interest in horticulture than the earlier designers. They were in-

clined to leave that, like everything else, to nature. But, in spite of them, the deep-rooted English delight in flowers persisted and increased all through the nineteenth century; and since it was no longer controlled by the old principles of garden design, the cultivation of flowers became the chief purpose of pleasure gardening, until at the present day most people would stare if it were suggested to them that pleasure gardening ought to have any other purpose. And yet it is plain enough that a pleasure garden is meant to give pleasure to human beings and should be designed with that object. Let it be as beautiful as it can be made, since beauty is one of the main elements of pleasure, but let its beauty, like that of a living room, be controlled by use. Have as many flowers as you like, but think of them, not as the reason for the garden's existence, but as its ornaments, as you would think of the ornaments of a living room. A museum may be interesting, but it is not a place to live in; nor yet is a garden that is a mere museum of plants. If garden designers would forget the quarrel about formal and realistic gardens and design only for pleasure and comfort they would avoid many of the errors into which they commonly fall. If pleasure and comfort were their main objects they would always make the best of existing conditions. They would not try to turn a suburban slip of ground into a wilderness or a wild hillside into a tea garden. Their problem would be simplified, because it would become concrete instead of abstract, just as the painter's

problem is simplified when he has to decorate a given space instead of painting pictures at large.

Æsthetic problems are always most successfully solved when they are not purely æsthetic; and it is because the problem of garden designs has become purely æsthetic that it now seems so difficult. If the designer, instead of asking himself where he should place his herbaceous border and where his rock-garden or his rosary or his plantations of flowering shrubs, were to consider how best he could contrive places of coolness and shade for the summer and sheltered sunny walks for the winter, he would find that his æsthetic and horticultural problems were beginning to solve themselves. Flowers he would use as decoration and, using them so, he would soon discover a principle for their arrangement. Trees and shrubs he would employ mainly for use, to give shelter and shade; and therefore he would avoid the random planting of them now so common. He would also avoid excesses of formalism, since he would not clip those trees or shrubs that were planted for shade, but only those which needed clipping that they might grow close for shelter. He would be very sparing in his use of what are called "ornamental conifers," now so often misused by formalists and naturalists alike. He would not plant a row of Thujas in front of a yew hedge because he wished to advertise the fact that he was a formalist; nor would he dot them anyhow about a lawn for no reason whatever. Monkey Puzzles he would leave for gardens where there are monkeys to

puzzle. It is in the treatment of trees and shrubs that naturalistic gardening has failed most completely, since it has forgotten their uses and treated them as mere instruments of illusion. As Mr. Mawson says, they should be employed for use, and there should be no concealment of the fact that they are so employed. "The various flower gardens or tennis lawns . . . would have their divisions, whether hedges or other arrangement, so treated as to express at once their use. To get shade, instead of creating it entirely by means of loose masses or clumps of trees, he (the designer) would obtain it by means of alleys, covered bowers, pergolas, or avenues, each of which would show at once the designer's intention." The ordinary mixed shrubbery certainly does not show at once the designer's intention, since as a rule he has no intention whatever, except to find a place for shrubs; nor does it usually serve any useful purpose, since it provides neither shelter nor shade. Its purpose, in fact, is purely æsthetic, and in ninety-nine cases out of a hundred it fails entirely in that purpose, as a mere hotch-potch of decorative objects must usually fail.

Mr. Mawson insists that the main lines of a garden should usually be straight, or as straight as they can be made; and this is a safe rule to follow, provided the designer does not make a fetish of it. They should be straight, not because we are growing tired of the fashion of curving lines, but so that they may express the designer's purpose as simply and plainly as possible. A path, for instance, if it is a means of

providing a dry passage from one part of the garden to another, should be straight so that it may be short. But when a garden is designed to be a mere assemblage of decorative features, flower-beds and shrubberies and rosaries and rock gardens, then naturally the paths will wind about from one feature to another, expressing by their wanderings the designer's lack of purpose. In the same way a hedge will be straight if it is meant to provide a sheltered, sunny aspect, and trees will be planted in an avenue or an alley if they are meant to provide shade. But if they have no such definite purpose they will be arranged according to the whim of the designer or the fashion which happens to be in favour with him. Straight walks, straight hedges, and straight avenues may be ugly enough, and are always ugly when they are designed without any purpose or coherence; and it is certainly true that a want of purpose can be better concealed with curving lines, which is, perhaps, the true reason why they have become so popular. But the use of straight lines is a wholesome discipline to the designer, since, if he lacks purpose, they will never conceal the fact from him or from any one else, and his design will look silly, if it is silly; whereas, we are now all so used to naturalistic designs without use or purpose that we never even ask ourselves what their meaning may be. We are inured to misplaced shrubberies, but we are not inured to misplaced hedges or avenues, and can still apply some principle of criticism to them.

To design with purpose, therefore, and to express your purpose clearly in your design, is in one way much more difficult than to make an arbitrary arrangement of flowers, grass, trees, and shrubs; but in another it is much easier. It is more difficult because the main lines of the design must be clearly thought out and fixed before a sod is turned, and because there must be a good reason for all of them. It is easier because, when once these main lines are determined, the details of decoration will be more or less clearly suggested by them, and so the problem of flower and shrub arrangement will be very much simplified. In a garden well planned for use and pleasure there will be room for flowers of all kinds arranged in many different ways. If, for instance, there is a nut walk for shade or any kind of alley made by deciduous trees, there may be Bluebells or Solomon's Seal, or any other suitable flowers, planted naturally under the trees. There will be no incongruity in them merely because the trees are regularly arranged.

When there is a straight path leading to a summer-house it will be natural to have a border on each side of it, since it is one of the pleasures of a garden to walk between flowers. According to the principles of naturalistic gardening, summer-houses were designed to be homes for earwigs rather than for human beings, and, considering their ugliness and inconvenience, it was only right that they should be hidden away, as they usually were, where no one could see them. But if a garden is to contain a summer-house

at all, that summer-house should surely be both useful and beautiful, and should be placed where its use and beauty will be greatest. There is something prosaic and superfluous about a summer-house close to a house. It should, if possible, be at the other end of the garden and where it will command a good view of the garden. Then the path connecting it with the house will be one of the main features of the design. Perhaps there may be a border on each side of this path for its whole distance, so that there shall be a vista of flowers all the way from the drawing-room window to the summer-house. The summer-house itself, also, should have its front, at least, thickset with flowers, just as there should be flowers close round the house. It is a common defect of purely horticultural and naturalistic gardens that flowers are seldom placed in them where they can be most easily enjoyed by the inhabitants of the house. Flowers should be concentrated, if possible, where they can be seen and smelt from the drawing-room windows, and in places arranged for the comfort of human beings. Sunk Dutch gardens are such places; and their formality is the result, not of mere fashion, but of the desire to make a pleasant outdoor home both for flowers and for human beings who wish to enjoy them. Their clipped yew hedges give shelter to both, and the fact that they sink in regular stages ensures different conditions to suit different plants. It provides sharp drainage above and moisture below. In fact a sunk Dutch garden is only a kind of formalized sunk rockery;

and it is formalized because it considers human beings as well as plants. A great many rock plants may be grown in it so that their beauty will show to the greatest advantage. In fact, now that we have so many rock plants, unknown to our ancestors or neglected by them, Dutch gardens may be made more beautiful than ever before, with sheets of *Lithospermum prostratum* interspersed with *Arenaria montana*, with contrasts of *Silene alpestris* and *Campanula muralis* or of *Veronica prostrata* and the yellow *Helianthemum*. All these will harmonize with the blind bow-boy or the dancing fountain just as well as the customary duller plants; and their flowers will shine as much against smooth masonry as against rough-hewn rocks. A Dutch garden is intended for the display of flowers in detail, and no better place has ever been contrived for that purpose.

There is one great advantage which the modern designer has over his predecessors, and that is in the use which he can make of steep banks and slopes. These, since they are obviously inconvenient resting-places for human beings, should be treated by the designer as spaces to be decorated. The older designers, apparently, despaired of decorating them with flowers, and therefore built them up, when they had the money, with walls — a very costly process. The naturalists usually covered them with turf or with the few varieties of shrubs, usually ugly and uninteresting, that would thrive on them. But now, luckily, we know of many beautiful flowers that will

thrive on them; and therefore it is only right and natural to cover them with such flowers, using rocks where they are needed, to protect the plants from drought and to prevent the soil from washing away. The rock garden is always a difficult problem in garden design, and many people who cannot do without the beauty of Alpine flowers make no attempt to solve it. They place their rock garden in any place horticulturally convenient without considering whether it has any congruity with the rest of their design. In some cases this cannot be helped. If your garden is all flat, and if you must have a rock garden, no art will make it agree with formal surroundings. But if there are any steep slopes in your garden, some wildness in the planting of them will appear natural even if everything else is formal; and, even if they seem suitable to the growth only of the easier rock plants, they can usually by a little contrivance be arranged so as to provide homes for the more delicate Alpines. Yet this obvious use of natural slopes is often neglected where there are rock gardens placed in the most unnatural and incongruous positions. Garden designers, in spite of the naturalistic movement, are still unwilling to take the line of least resistance, and would rather do violence to nature, even when professing to imitate her, than adapt her to their own purposes and coax her into the service of man.

SOME DETAILS OF SUMMER GARDENING

AT the end of June the garden is in its prime, and the gardener is supposed to enjoy the fruit of his labours. Yet there is plenty for him to do if he cares to do it, and he can find for himself a hundred little tasks besides weeding and watering, the performance of which will make all the difference to the future beauty and even well-being of his plants. This is the time, for instance, for attending to spring flowers that have now gone out of bloom. The gardener should seize the opportunity of wet weather to divide all spring flowering plants which need dividing, for it is much better to do this now when the plants have the whole summer to recover in than in the autumn, when they have no time to make new growth. There are a great many Primulas, such as *P. denticulata*, *P. rosea*, *P. Sikkimensis*, *P. Japonica*, and even Primroses and Polyanthuses, which deteriorate quickly unless they are divided when their crowns begin to multiply; and it is only safe to divide the more delicate of these soon after they have flowered. Auriculas, too, and many kinds of Alpine Primulas are the better for occasional division and replanting, and this is the time to do it, provided they can be protected from drought afterwards. This applies also to many spring-flowering plants which flower best

from a single crown, as, for instance, to the double Daisies, which need to be divided and replanted every year, especially in light soils, if they are not to deteriorate quickly, and to the delicate little *Morisia hypogæa*, one of the best early-flowering plants for the rock garden, and one which many gardeners complain that they cannot keep long in health. The reason usually is that they are afraid to disturb it, since it is a deep-rooting plant. They therefore allow it to form a number of crowns, which it does very quickly, and which crowd each other in a narrow interstice between the rocks, with the result that it grows feebler every year. It should be taken up as soon as it has gone out of flower, and after all the crowns have been carefully divided they should be planted separately in cool places between the rocks and in fresh deep compost of loam and leaf mould. There are many spring flowering plants which need the same treatment especially in light or poor soil, and the gardener can usually discover which they are by observation. When he sees that a plant breaks up into a number of crowns after a year or two and begins to flower poorly, then he may be pretty sure that the only possible remedy for its deterioration is division. Division, of course, may kill the plant, but it is always worth trying when the only alternative is deterioration. *Aquilegia glandulosa* and its beautiful hybrid *A. Stuartii* are plants which often die out or cease to flower after a year or two in the south of England, and the only remedy for this is

careful division as soon as they have gone out of flower. By this means they may often be perpetuated and a good stock of plants may be obtained; but division or any kind of disturbance in the autumn usually results in their death. It may seem strange that plants should need such artificial means to keep them in health in gardens, when they flourish in a state of nature without any help except from nature; but it must be remembered that they grow wild only in conditions naturally most favourable to them, and that many of them have very short lives and never reach that perfection which we demand of them in gardens. Nature's chief object is that they should reproduce themselves, and, provided they do this, she is careless what becomes of them afterwards. But in the garden we do not always wish them to reproduce themselves. We may have enough of a particular plant, or we may have a particular variety which will not come true from seed, and we may therefore wish it to spend its energy in making new growth rather than in ripening seed. The ripening of seed is the most exhausting process that a plant undergoes, and there are many plants that kill or permanently weaken themselves by profuse seed-bearing. Such plants may often be saved from death by the removal of their flowers as soon as they wither; and even true perennials are often much benefited by such removal. There are a great many evergreen plants that soon grow straggling and unkempt if they are never cut back, and the time to cut them back is when they

have just gone out of flower, so that they may be freed from the strain of seed-bearing. If this is done, they will usually soon make a vigorous new growth and look fresh and green again by early autumn; some of them, too, will flower a second time. Among such plants are *Aubrietia*, *Saponaria ocymoides*, *Veronica prostrata*, the *Helianthemums*, many kinds of pinks, the smaller *Achilleas*, *Alyssum saxatile*, the *Cerastiums*, the *Creeping Phloxes*, and *Iberis sempervirens* and its varieties. Cutting back is not necessary for any of these plants, as they are all fairly vigorous perennials; but they are greatly improved in vigour and appearance by it, and some of them, such as the *Helianthemums*, will live much longer for it. Pansies and *Violas*, too, are the better for cutting back as soon as they grow leggy. If they do not suffer from drought after the operation they will soon make vigorous new growth, which will prolong the life of the pansies; and, in the case of the *Violas*, will provide an abundance of cuttings.

But there are no plants that benefit more by cutting back than profuse flowering shrubs, and many of them often suffer much in our gardens from the want of it. This is particularly the case with shrubs which are not very hardy, such as the *Cistuses*. These will often survive a hard winter if they are cut back as soon as they have flowered and never allowed to grow straggly. The cutting back not only saves them from the exhaustion of bearing seed, but also seems to concentrate their vigour. There are many shrubs, too,

like most of the brooms, that are not very long-lived by nature, but live much longer if they are cut back after flowering. Cutting back is particularly useful in a poor soil, when shrubs are always apt to get straggly, especially if it is accompanied by a mulching of manure or leaf-mould to encourage new growth. When a shrub seems to be doing badly, it will often take a new turn if it is cut back and mulched in early summer, and this is particularly the case with Rhododendrons and Azaleas. If they are cut back at all hard they will probably not flower the next year, but they may be transformed into sturdy compact plants, and one year's blossom is a small price to pay for that. Roses, too, especially in a light soil, may often be much benefited if they are cut back after their first flush of bloom, but the gardener must not hack at his Roses, or, indeed, at any shrubs or plants, blindly. He must always be quite clear in his mind before he does anything as to the reason why he proposes to do it. His object in trimming a shrub may be merely to prevent it from seeding, in which case he will only cut away all the heads of the flowers. Or it may be also to promote a vigorous new growth by the removal of shoots which have done the duty for the year by bearing flowers, in which case he will cut away not only the flower heads, but also the shoots which bear them, so far as they seem to be exhausted by the process. Or he may wish to thin a shrub that is getting crowded by the removal of the older and weaker wood. The first of these operations may be

performed on all roses after their early summer bloom; the second on roses, such as the dwarf polyanthus, which throw up shoots bearing crowded heads of bloom; the third on the many roses that flower only once in the summer. These roses should not be pruned at all except when they are first planted, or if they seem not to be thriving; but all roses that are not pruned at all, or are pruned but little, need to have their older wood cut away at intervals. Those who grow roses as flowering shrubs and not as mere flower-producing machines will naturally prune them as little as possible, since a rose that is cut hard back every spring will never have time to grow into a shapely plant, unless it is a very vigorous variety in a very rich soil. Luckily, most roses will flower well enough for garden purposes without very severe pruning. But when roses are little pruned there is the more need to trim and to thin them, and judicious trimming and thinning, done not only in the spring or autumn, but also after their first flush of bloom, is one of the chief secrets of success with them and with many other flowering shrubs. There is no routine about such trimming and thinning. In each case the gardener must exercise his common sense and be guided by observation and experiment. It is always safe to cut out old wood that seems to have lost its vitality, or even younger shoots that seem exhausted by an excess of blossom. But some roses throw up new growth much quicker than others; and some throw up shoots bearing only masses of bloom which,

as soon as the bloom is over, seem to have fulfilled their use. Such shoots may be treated like the flowering shoots of herbaceous plants and cut down as soon as their flowers are all withered, to encourage the production of new flowering shoots. Other roses make new wood more slowly and their wood is more enduring, bearing several crops of blossom in the same year, or year after year. But in nearly all roses the wood deteriorates in time and should be cut away to encourage new growth; and this operation is best done after the blossom is over.

There is some difference of opinion about the cutting back of herbaceous plants and the extent to which it should be carried. No one, of course, would cut a shrub back hard except in the early spring or late autumn, since the spring is the time at which it makes its new growth, and if it is cut back hard in the summer it may make no new growth and suffer for want of leaves to absorb food from the air. Whatever cutting back is done in the summer must leave enough growth to perform this function. This precaution must also be taken to some extent with herbaceous plants. But most of them throw up new growth much more quickly than most shrubs; some, indeed, such as Oriental Poppies, throw it up so quickly that they suffer very little if they are cut back very hard after flowering. Others, however, are slower in growing afresh and are weakened if they are cut down to the ground, especially if all their growth has been thrown into flowering stems, so that few or no leaves remain

when these are removed. Such plants as, for instance, Larkspurs should only be cut down to within about a foot of the ground, so as to leave them with some leafage to absorb food from the air, just as bulbous plants ought not to be cut down until the bulbs are matured for the next year. Many herbaceous plants, if they are thus carefully cut down, will throw up new shoots and flower again in the autumn, since the cutting down relieves them of the strain of seed bearing. But this second bloom puts a yet greater strain on them, and they must be well fed if they are not to suffer from it. It is, therefore, a good plan to give a mulch of some rich material, such as manure or vegetable matter, to all plants of which a second crop of bloom is expected after the first crop of bloom is over. Such a mulch will also protect them from drought through July and August. Mulches, especially of manure, are often applied at the wrong time. Thus in a light soil all the nourishment of a mulch applied in autumn often drains away before it can benefit the plants; while a mulch of manure applied in early spring, especially on heavy soils, often does more harm than good if the weather is cold and damp, since it holds the moisture and cripples the young spring growth of the plants, and also harbours slugs and snails. The best time for a mulch, therefore, is when the plants most need immediate nourishment and protection from drought — that is to say, in the height of summer and during or just after their blooming time. Such a mulch, especially on light

soils, is better than liquid manure, since it gives protection from drought as well as nourishment; and, if it consists of spent manure from a hotbed, it will not be disagreeable either to the nose or to the eyes.

THE RIGHT USE OF ANNUALS

ANNUALS are always apt to be a difficulty in the garden, especially for those who attempt to solve the real problems of gardening. Many of them, such as *Nemophila*, Shirley Poppies, and *Love-in-a-Mist*, are so beautiful that one cannot do without them; yet they flower but a short time, occupy a good deal of space, and leave an unsightly blank when they cease to flower. They are not like some perennial plants, such as the Pinks, which are beautiful even after their short flowering season is over. They have their little period of beauty, and then they give themselves up to business, the business of seeding. They seem to know that their lives must be short, and, therefore, to be utterly taken up with the task of the moment. When the time comes for them to think of posterity, they think of nothing else. They are like poor young mothers who grow haggard quickly in the nursery; and in the garden one has no room for haggard things. One does not wish to be reminded of autumn and the shadow of death in full summer, and therefore one is inclined to clear annuals away as soon as they go out of flower. But if a great bed of Poppies is rooted up in August, what is to take their place? Blank spaces at that time of year are a reproach to the gardener, a proof that he

has failed in the chief problem of his craft. They do not matter so much in a very large garden, where you can have a series of displays for different seasons of the year; but in a small one, where they cannot be ignored, they matter a great deal. In a small garden the problem of annuals may well seem insoluble, and, indeed, it is insoluble if they are grown in the ordinary way. The great mistake which most people make with annuals is that they treat them too seriously, as seriously as Roses or Carnations, or any of the main and permanent ornaments of a garden. There has lately appeared an excellent book upon the culture of annuals; indeed, one of the best gardening books of our time.¹ The author of it, Mr. C. M. A. Peake, has obviously a great knowledge of his subject, which he imparts very clearly and concisely. There is no fault whatever to be found with his book except that he takes annuals too seriously. True, in his preface he says that the main use of annuals, at least of hardy annuals, is to fill a garden quickly with bloom, where for some reason or other the gardener cannot wait for the slower glories of perennials; and in such a case, no doubt, it is right to take annuals very seriously. But there are some annuals that one cannot do without even in permanent gardens, and yet few can give them either the space or the labour which would be necessary on Mr. Peake's system of cultivation. He advises that a bed be prepared by deep digging

¹ "A Concise Handbook of Garden Annual and Biennial Plants." By C. M. A. Peake.

and manuring in autumn, that if the soil is sour it be dug out to a depth of 3 ft., and that a 6 in. layer of stones be put in for drainage, with better soil to fill up, and so on. Now, all his advice is very good, and, if it is followed, the result, no doubt, will be very fine flowers. But there are few gardeners who will be ready to take all these pains over annuals. If they prepare a bed thus elaborately, they will look for some permanent reward for their preparations. And yet Mr. Peake is right when he says that annuals need kind treatment, and that without it many of them are not worth growing. The problem, therefore, is to give them kind treatment and yet not to waste all that treatment upon a display of a few weeks in the summer; and this problem is not insoluble.

To solve it we should observe the manner in which annuals grow naturally. Nature does not sow them in spring and in masses all by themselves. Their seed falls as soon as it is ripe, in summer or autumn, and it is scattered about among other and perennial plants. Now we must not attempt to imitate the recklessness and uncalculating profusion of nature in our gardening; we must not, like her, sow seed in stony places or where thorns will spring up and choke it; our annuals should be sown, as all our plants should be planted, in borders properly prepared, so that we may have as little waste and failure as possible. But the gardener's business is to imitate the successes of nature as well as to avoid her failures. There is no reason whatever why, with a little calculation and

contrivance, we should not grow our annuals among other plants as nature grows them, why they should not fill up blank spaces just when they are needed, and why they should not be overgrown as soon as their flowering time is over. It is true that by growing them on this plan we cannot have the great masses of one single kind of flower which the present taste approves. But the present taste is a little too timid about mixtures and contrasts of colour. Few of those who advise upon the colour arrangement of flowers seem to be aware that nearly all colours go well together in a garden, if only they are thoroughly mixed up. It is the half-hearted contrasts, where only two or three colours are employed, and those the wrong ones, that are really ugly. The Orientals know more about colour than we do, and in their colouring they imitate the audacity and profusion of nature. It is true, also, that if we mix up annuals with other plants, some of the annuals will probably be smothered. But this cannot be helped. Annuals are cheap, and the gardeners who take them most seriously thin them out most relentlessly. If we can leave it to nature to do the thinning, so much the better.

Now nature will do the thinning for us thoroughly enough, sometimes too thoroughly, if we sow our annuals as she does, in the late summer or autumn. There is always a risk in doing this — a risk so great as to be scarcely worth running on very heavy soils. But on fairly light ones it is worth taking, since annuals are cheap. Gardeners are curiously timorous

about sowing in the autumn, and it is commonly supposed that only a few kinds will survive the winter if this is done. Yet the present writer has found that even *Phacelia campanularia*, commonly supposed to be a rather delicate annual, will often live through the winter, if it is sown early enough, on a fairly light soil and in a light place. Indeed, it will flourish in a garden year after year from self-sown seedlings; and so will *Love-in-a-Mist* and *Collomia coccinea*, an excellent and little known annual, and *Linaria Maroccana*, to say nothing of *Nemophila* and *Bartonia aurea*, and *Eschscholtzia* and *Cornflowers*, and other annuals which are often left to seed themselves in our gardens.

It is always risky, however, to trust to self-sown seedlings. They may not come up when you want them, and you do not know where they are until they germinate. Yet many people who observe that self-sown seedlings always do better than seed which they have sown will not make the obvious deduction from that fact. They think that there is some mystery in the process of natural sowing; whereas the fact is merely that nature sows at the right season, and that her seedlings, thinned out by her winter severities, have time to grow strong and root deeply before the summer heats.

It is worth while, therefore, to experiment largely with autumn or late summer sowing, especially on light soils, since the experiments will be cheap in any case, and failures can be easily remedied in the spring.

There are some annuals, such as *Nemophila*, which become spring flowers of the greatest value if they are sown in autumn.¹ There are others, such as Cornflowers, Sweet Sultan, *Eschscholtzia*, Poppies, and the annual *Saponarias* and *Silenes*, which very seldom do so well from a spring as from an autumn sowing. But the sowing must not be too late. The plants must have time to get some strength before the winter comes, and, therefore, most of them should be sown in September as early as possible. It is, of course, but little use to sow them when the weather is hot and dry, unless they can be thoroughly and frequently watered. Therefore, when there is a September drought, it is best to wait until it breaks up. Then sow annuals, not in great masses where they will leave a blank space when they die, but in any vacant patch in the border, and particularly in places occupied by dormant bulbs, such as Tulips, Daffodils, Spanish and English Irises. The lower growing annuals will do no harm to these, and, if the bulbs in their spring growth overshadow them a little, it will not matter much. Then, again, those annuals which are best sown in spring, such as *Nasturtiums*, can also be sown among bulbs, and the bulbs will often give them protection from late frosts, while afterwards their flowers

¹ Autumn sowing of annuals is not generally to be advised in the United States. In an interesting experiment, however, near Chicago in the spring of 1916, seeds of the following autumn-planted annuals were highly successful; *Delphinium*, *Hunnemannia fumarifolia*, *Calendula*, *Calliopsis Drummondi*, *Antirrhinum*, *Brachycome iberidifolia*, *Candytuft*, *Erysimum Perofskianum*. L. Y. K.

will take the place of those of the bulbs. Or these spring-sown annuals may be placed among autumn Crocuses if the Crocuses are not too thickly planted, and then their season will be over and they can be cleared away just when the Crocuses begin to throw up their bloom. When annuals, such as *Nemophila*, *Silene*, and *Saponaria*, are sown so as to flower in spring, their places can be taken in turn by the more delicate half-hardy annuals or bedding plants that are put out at the beginning of June. It seems to the present writer that these half-hardy things are often unjustly decried, because they are nearly always misused. The common practice is to plant them in masses, so that large spaces of the garden have to undergo violent changes and the ugliness that must result from such changes, often when the garden ought to be in its prime. The real use of half-hardy things, whether perennials or annuals, is to fill up blank spaces in the border, caused by the dying down of spring bulbs or by any mischance. There is no reason whatever why you should always plant fifty Cannas, or ivy-leaved Geraniums, or Tobacco plants, where you plant one, or why one part of the garden should be filled only with hardy and another with half-hardy plants. There is no necessary incongruity between plants that are hardy and plants that are tender. It is merely convention that keeps them apart, as we may see from the *Dahlia* and the *Gladiolus*, which are half-hardy plants usually treated in a rational way and placed among hardy plants in the border. If we treat other half-hardy

plants thus, especially the best half-hardy annuals, we shall find them most useful, and we shall avoid the awkward intervals of ugliness inevitable with the ordinary bedding system. There are gardeners who have a nervous fear of growing anything near their Roses, even if they do not grow Roses for show. Therefore, they keep the soil about their Roses bare, with the consequence that their Rose beds look ugly for most of the year. But Rose beds can be covered with low-growing plants without injury to the Roses, if the soil is well fed; and annuals, especially half-hardy annuals, are particularly suited to this purpose, because the soil can be thoroughly enriched before they are planted out and after they are removed, and also because their roots usually have not time to grow deep and thick and to impoverish the ground seriously. Half-hardy annuals can be combined with spring bulbs, such as Tulips, and in such a case bedding, both spring and summer, has a very good reason for its existence. But annuals bedded out in this way must not be too tall or strong-growing, lest they keep light and air from the Roses. Excellent ones for the purpose, both because they are low-growing and because their colours can usually be arranged to harmonize with those of the Roses, are *Ageratum*, *Dianthus Heddewigii*, *Nemesia* in pink and white shades, *Phlox Drummondii*, and *Verbena*. No doubt the gardener who shows his Roses is right to grow nothing else near them; he regards the Rose, not as a beautiful flowering shrub, but as a flower producing machine. Those for whom the

Rose is the chief of our flowering shrubs should grow it in beautiful surroundings, and they can do this only if they cover the ground about it with other beautiful plants.

We have given a few suggestions for the use and treatment of annuals, and they are all based upon the idea that the annual should be employed as a stop-gap, not as a main feature of the garden. Since it is a transitory thing, it should not be treated as if it were permanent. It has its peculiar advantages, and it should be employed so as to make the most of these, and also so as to make the least of its peculiar disadvantages. It is quick to come and also quick to go. Therefore, use it for emergencies. It takes some skill and experience to do this cleverly, but the gardener who can learn how to do it will add a new pleasure to gardening and a new beauty to his garden.

LATE SUMMER AND AUTUMN IN THE ROCK GARDEN

MOST mountain plants flower in spring and early summer. In the higher altitudes, of course, they begin late, as "the spring comes slowly up that way," and last well into August. But our rock gardens are not in the higher altitudes, and Alpine plants in them usually flower earlier than in their native homes. A rock garden may have many flowers in March, and its greatest profusion of bloom will probably come about the middle of June with the flowering of the Pinks. Then a decline will set in, gradual at first, but rapid in July; and in August many rock gardens contain but few flowers except the last of the Campanulas, especially if the summer is hot and dry. This is certainly a defect; and it is one which cannot be altogether overcome, though it may be lessened with a little contrivance. It is in the later months of the summer that one begins to appreciate the value of those plants and shrubs which do not lose their fresh colour and compact habit after flowering. There are many rock plants which spend all their energy and beauty for the year in blooming, and when their bloom is over look weedy and dishevelled. A rock garden filled with these is a dull sight by August, however splendid it may be in June. Such plants

are often the better both in health and in appearance for being cut back; but even then they have an ugly cropped look for some time; and one wants a rock garden to look always both neat and natural.

There are luckily a good many plants, often not very conspicuous in their flowers, and some of them apt not to flower at all, which look both neat and fresh all the year round. One may, perhaps, grudge them the space which they occupy in the prime of the year and when all the plants are at their best; but afterwards they more than pay for their places. Every large rock garden should contain a good many of such plants, and particularly of the smaller and more prostrate shrubs, such as the prostrate Juniper, the Prostrate Rosemary, *Cotoneaster congesta* and *Cotoneaster thymifolia*, *Santolina incana*, and its dwarf variety, *Berberis dulcis nana*, the dwarf Lavender, and the creeping *Artemisias*, especially *A. sericea*, which is the most vigorous and easily grown, and the more upright *Artemisia argentea*. There are also shrubs which have brilliant flowers in their season and yet never lose their beauty of foliage and habit, such as the Alpine rhododendrons, *Helianthemum formosum* (usually called *Cistus*); the varieties of the perennial Candytuft (*Iberis sempervirens*), especially "Little Gem," and the large flowered *Iberis correæfolia*; and several species of broom such as the prostrate *Genista pilosa*, the double variety of *Genista tinctoria*, and the beautiful *Cytisus purpureus*.¹ Some

¹ Not hardy in northeastern United States. L. Y. K.

of these are too large for a small rock garden, but others are not out of scale even in the smallest; and besides these shrubs there are many little plants that never deteriorate after flowering. Among these there is no need to do more than mention the Mossy Saxifrage, the different varieties of *Thymus serpyllum*, especially *albus* and *lanuginosus*, the dwarf *Alyssum saxatile*, *Lithospermum prostratum*, which often flowers intermittently in the late summer and autumn, *Veronica repens*, *Veronica pectinata*, *Arenaria tetraquetra*, several species of *Draba*, *Achillea rupestris* and *A. huteri*, *Tanacetum argenteum*, and *Saxifraga apiculata*. All of these are beautiful in their habit of growth for long after they have ceased to flower, and most of them remain beautiful all through the winter, keeping the rock garden fresh and green when borders are all desolate.

But still there remains the problem of flowers; for greenery is well enough, but we want something besides greenery in August and September, and in many rock gardens we do not get it. Yet there are a good many rock plants that bloom well up into the autumn, and a few which, if not rock plants, are yet well suited by their habit to grow among them and which are autumn blooming by nature. Most of the Pinks flower in June, though some of them continue to throw up blossoms intermittently until the frosts; but *Dianthus noeanus*, a little-known species from Asia Minor, flowers in August. It has a very neat tufted habit, and pretty white and curiously fringed

flowers, and may be easily raised from seed and grown in any dry sunny place among rocks. Another late flowering plant of the pink tribe is *Silene schafta*, which also blossoms in August and September. It is not one of the most beautiful of the silenes, but easy to raise from seed and to grow; and its pink flowers are very useful, if a little dull in colour. *Sedum Ewersii* and *S. Sieboldii* are both late flowering plants with pink flowers and neat grey leaves. They thrive in any dry place, but sometimes suffer from severe frosts. Their foliage dies down in the winter. *Polygonum vaccinifolium* is a most valuable late-flowering plant for the rock garden. It has a creeping habit and soon covers a good deal of space. It is deciduous, and its leaves appear rather late; but they remain fresh and bright until the autumn, and it bears its delicate pink flowers up to the frosts. It does well on the north side of the rock garden in rather poor soil if it gets plenty of light and air. In rich soil and shady places it often refuses to bloom. The beautiful *Polemonium confertum mellitum* flowers both in spring and in autumn; in fact, it is apt to flower itself to death. But it is easily raised from seed, and does well with a north-west or west aspect in sandy loam and leaf mould. *Erodium reichardi*, the smallest of the *Erodiums*, flowers into late summer, and so does *Erodium macradenium*. In a large rock garden *Nierembergia rivularis* is a most valuable plant for the later months. It makes a bright-green carpet, which keeps its freshness well up to the frosts, and continues to throw up

its large white flowers to the end of September, if it is grown on the flat in full sun, and top-dressed with leaf mould in the spring. It spreads so fast where it prospers that it is a dangerous plant for small rockeries. *Oenothera marginata* and *O. taraxacifolia* again are only plants for large rock gardens. *O. marginata* continues in bloom till September, and, where it thrives, increases at a great rate by underground suckers. It is easy enough to grow in full sun and light soil. *O. taraxacifolia*, which often dies in the winter but can be easily raised from seed to flower the same year, blossoms up to the frosts. Both of these plants are prostrate in habit, and have large and beautiful white flowers. *Zauschneria Californica* is an autumn flowering plant with brilliant scarlet blossoms. It also increases rapidly and needs plenty of room. It thrives and flowers best in a hot, dry place. *Plumbago Larpentæ*, also an autumn flowering plant, with fine cobalt blue blossoms, may be grown with it. *Aplopappus Brandegei* is a little known but valuable composite from America. It is like a minute sunflower, but low and bushy in growth. It flowers from the beginning of July to the autumn, and thrives in any sunny dry place. Most of the *Androsaces* are spring flowering, but *Androsace lanuginosa* is at its best in August, and often continues to bloom until the frost. It is also one of the easiest to grow, as well as one of the most beautiful. It likes a deep soil, 2 ft. at least of fibrous loam, leaf-mould and mortar rubble and a fairly cool situation, where its roots can run

under one rock and its stems trail over another. When the stems get long they should be pegged down just under the surface of the soil, and they will soon root and grow into a large patch. *Geranium subcaulescens*, a fine mountain species from Greece, a little larger and more vigorous than *G. argenteum*, also remains long in bloom, so does *Lychnis lagascae* when the plants are young, and so does *Bellis caerulea*, a pretty little daisy from North Africa which requires a warm place.

But the best way to ensure flowers in the rock garden in the late summer and autumn is to retard the blossoming season of certain plants by treating them as annuals. This is really nothing else but bedding out, and pedants who object to bedding out anywhere will probably consider it impiety in the rock garden. But bedding out is wrong only when it is contrived so as to make plants look ugly; and there is no reason why they should look ugly when bedded out in the rock garden any more than in the border. There are certain beautiful rock plants which will flower the same year from seed, but later than if the seed is sown the year before. Among these are *Papaver alpinus*, *Linaria alpina*, *Calandrinia umbellata*, *Campanula caespitosa* and *C. pumila* (the same plant for garden purposes), and *Antirrhinum asarina*. *Papaver alpinus* and *Linaria alpina* will usually flower the same year if treated as hardy annuals; but their flowering may be ensured if they are sown in boxes in a cold frame about the end of March and planted

out as soon as possible. This applies also to the other plants mentioned above. They are all very easily raised from seed, and if treated as annuals will come into flower in July and often blossom up to the frosts. *Papaver alpinus* is a plant so beautiful that it has moved M. Correvon to write a very pretty poem about it. It is like a small and more delicate Iceland poppy. The flowers are white, pink, orange, or yellow, and often delicately fringed. It must be protected from drought and often flowers itself to death, but reproduces itself freely by self-sown seedlings. *Linaria alpina* is almost more beautiful. The type has brilliant purple and orange flowers. There is a variety all purple and one pink and orange. It does well in most situations when it has plenty of light and air. It also often flowers itself to death, but seeds itself almost too profusely. Both of these plants should be transplanted with care and when they are very small. This also applies to *Calandrinia umbellata*, which likes the hottest, driest places and has flowers of a very brilliant crimson magenta colour, which might be ugly but for their shining silky texture. It should be treated as an annual, as it is apt to die in our winters. It does best in very hot, dry summers. *Antirrhinum asarina* is a prostrate Snapdragon from Spain with pale yellow flowers. It also likes a very hot place, and will usually survive the winter if planted in a crevice between the rocks and in a soil mainly consisting of rubble. It is a curious and beautiful plant, but not suited for a wet or cold climate. Cam-

panula caespitosa, the most familiar of Alpine Harebells, will thrive almost anywhere, especially if its roots and long suckers can run under a rock. It should not be placed near any delicate Alpines, as it is very encroaching. There are white and pale blue varieties. It is, of course, a true perennial; but seedlings flower later than old plants, and remain in blossom until the frosts. Therefore it is particularly useful when treated as an annual. *Campanula carpatica* will also flower the same year from seed; but it is rather a large plant for a small rockery.

Of all these plants that can be grown as annuals *Linaria alpina* is the most useful, since it will scarcely smother the most minute Alpines when growing in the poor soil which most small Alpines like, while in better soil and on the north side of the rock garden it grows much stronger and will give the right amount of shade to plants such as the Alpine primulas, *Saxifraga apiculata*, and *Morisia hypogaea*. It multiplies so quickly by means of self-sown seedlings that it becomes almost a weed, but its growth is so slight and delicate that scarcely any plant can be harmed by it. There are also some true annuals that can be used to brighten the rock garden in autumn, such as the dwarfest form of *Alyssum maritimum* and the delicate little *Ionopsidium acaule*, which, if sown early in the spring, will seed and flower again from self-sown seedlings in the autumn. Nor is there any reason in the nature of things why *Lobelia*, a beautiful plant made unpopular by misuse, should not be employed in this

way. These annuals and others as small in their growth should be sown or planted in the bare places left by early flowering bulbs, such as *Chionodoxas* and the spring and winter *Iris*s and the dwarf *Daffodils*. But there are also bulbs well fitted for the rock garden which will flower in the late summer and autumn. One of the best of these is *Anomatheca cruenta*, a plant like a miniature *gladiolus* with bright crimson-scarlet flowers, which grows about half a foot high, and which should be planted in spring and lifted for the winter. There are also the autumn flowering *Crocuses*, such as *Crocus speciosus*, *C. zonatus*, and *C. pulchellus*, all with delicate lilac-coloured flowers, the autumn flowering *Cyclamens*, and the beautiful autumn *Snowflake*, *Acis autumnalis*, which likes a cool place and very sandy soil. The *Colchicums* are not so suitable for the rock garden, as they throw up very large leaves in the spring; but *Sternbergia lutea* is a fine plant for large rock gardens, and will flower from the end of September almost up to Christmas. It is sometimes rather a shy bloomer, but seems to do best in warm sheltered places and light soil with a good dose of manure well below the bulbs. It also likes lime. All of these bulbs, except perhaps *Acis autumnalis*, are the better for a covering of one of the smaller *Stonecrops*, so that the ground they occupy need never be bare.

THE PROBLEM OF THE HERBACEOUS BORDER

GARDENERS often write and talk as if it were quite easy to keep a herbaceous border full of flowers for six or seven months of the year. Now if it were easy, the bedding-out system, with its obvious disadvantages, would surely never have come into vogue; and as a matter of fact it is not easy; indeed, it is probably impossible; and gardeners of the greatest skill and taste do not attempt it. The real problem of the herbaceous border is not to keep it in full flower from April to October, but to prevent it from looking like a spent firework after the first flush of summer bloom is over. Some of the noblest herbaceous plants, such as Larkspurs and Oriental Poppies, have this grave defect, that they become ugly and ragged as soon as they go out of flower, and even with the best cultivation remain ugly and ragged for some time. During this period, since the better grown they are the more space they occupy, they are an ugly blot upon the border, and a border that is filled with plants of this kind may be very splendid for a while, but when half the summer is over it will begin to look autumnal. It is easy enough to have some flowers in blossom in the border so long as there is sun and warmth enough to bring flowers out at all; but a

border will not look beautiful unless it has that air of prosperity which is attained without difficulty in June, but not in August.

Now many borders lose this air of prosperity too early, just because their owners are too eager for a profusion of bloom at the time when flowers are most plentiful. They fill the border with the flowers they like best, Larkspurs, Irises, Madonna Lilies, Poppies, Pansies, Columbines, and so on, and do not consider what is to happen when these are spent. Even if they vary these with later-blooming plants, such as Phloxes and Michaelmas Daisies, they forget the gaps that will remain when their favourites go out of flower.

There is a fashion just now for the herbaceous border; but that fashion will not last unless gardeners arrive at a clear understanding of what can be done with the herbaceous border and what cannot, and unless they evolve sound principles for its treatment. Otherwise, sooner or later there will be a reaction in favour of bedding-out, with its long succession of bloom and its persistent neatness and air of prosperity. We are apt at present to think that there is no need for a border to look neat; in fact, that the desire for neatness is a proof of perverted taste. But that desire is a natural one, and has always existed. It is quite a modern idea that gardens should emulate the wildness of nature, and one that could only arise among a people to whom the wildness of nature is becoming an unwonted luxury. It is, in fact, the most artificial form of a nature worship that is itself

a reaction against excessive artifice; and, like all artificial things, we may be sure it will not last. The desire for neatness will revive again; indeed, it has never died in those who care for the art as well as the craft of gardening; and they should make it their business to solve the problem of the herbaceous border, to combine its variety and profusion with neatness and order. Only if they do this will they secure it against a reaction which will lead to the old excesses, to the foolish neatness of carpet bedding, the dull monotony of ribbon borders.

There are some gardeners with large gardens who keep different borders for different times of year; and this is an excellent plan if the garden is large enough to make it possible. Indeed, it is the only method that will bring the full glory of every season into the garden. But it is not a method for every one; and most people, even if their gardens are large, have borders near the house which they wish to be beautiful during all the months in which the garden can be enjoyed at all. Such borders should be planned systematically and with foresight, and, above all, with a clear understanding that they cannot be all full of flowers from April to October. It is the desire for too many flowers that has produced the worst abuses of bedding out; and only those who have rid themselves of this desire can solve the problem of the herbaceous border. They must also rid themselves of pedantic prejudices against all plants that are not hardy perennials. No doubt the herbaceous border,

if we are to make a fetish of it, should be filled only with herbaceous plants — that is to say, with hardy plants that die down in the winter. But this would mean the exclusion of German Irises, Yuccas, all shrubs, Pinks, and, indeed, all plants that give the garden beauty and interest in the winter; and no one would carry fanaticism so far as that. We will assume, then, that our herbaceous border is not to be all herbaceous; indeed, that it is to contain any plants that we can grow and that will contribute to its beauty. The essence of the herbaceous border, for those who are not the slaves of a name, consists in its variety, continuity, and permanence. The best herbaceous borders are full of contrasts both of colour and form; their beauty persists from spring to autumn, and some of it remains even in the winter; while they look as if they had been long established and long cared for.

This air of permanence is not easy to impart to a border; indeed, it cannot be imparted by means of herbaceous plants alone or without orderly and systematic arrangement. It can only be attained by the use of shrubs and other plants which keep their beauty, or some part of it, throughout the year, or at least through the spring, summer, and autumn. These shrubs and plants should be regarded as the permanent part of the border design, as the framework to be planned and determined first, after which the more ephemeral details can be filled in. But if shrubs are planted in a border they must be in character with

the idea of a border, and they must not interfere with the health of the other plants in it; for, after all, a border is not a shrubbery. There are luckily a good number of shrubs, compact in their growth as well as beautiful, not too wide rooting, and so long associated with herbaceous plants that they will not look incongruous in a herbaceous border. The best of these are the most familiar, such as Rosemary, Lavender, Lavender Cotton (*Santolina*), some of the *Cistuses*, some of the Shrubby *Veronicas*, and Southernwood, which, however, has this disadvantage, that it does not keep its beauty through the winter. All of these shrubs not only have a quiet beauty of their own, but also serve as excellent foils to more brilliant plants; while some of them, of course, are worth growing for their flowers alone. They should, as we have said, be arranged systematically and so as to make the framework of the border's design. If they are dotted about at random, a great part of their effect is lost. But while he is planting them the gardener must consider how he can best combine them with the more ephemeral plants, and he must not arrange them so regularly as to suggest hedges. Their chief purpose is to "pull the border together," to make a kind of permanent pattern that is distributed all over it. This pattern, therefore, must be contrived so that no part of it will be obscured at any time by tall-growing herbaceous plants. There is no use in a well-rounded clump of Lavender if a great Larkspur grows up in front of it. Rather the Larkspur should

be masked by the Lavender, so that it is only seen rising behind it in its prime. Those shrubs will make the best pattern and the best contrast with herbaceous plants which are conspicuous for their glaucous leaves; and these should not be used in too great variety. Three different kinds of shrubs, such as Lavender,¹ Rosemary, and the tall *Cistus cyprus* behind, are quite enough for any border, even the largest. Indeed, if the tall and dwarf Lavender are used in combination, they, with the *Cistus*, will make an excellent framework for any border. They should be planted regularly, the dwarf Lavender in the foreground directly in front of the *Cistus* in the background, and the taller Lavender half-way back in the intervals. Shrubs so used should never be allowed to grow straggly, but should be kept symmetrical and compact by clipping. If the reader fears that such a regular arrangement of only two or three kinds of shrubs would look monotonous, he should remember that it can be combined, not only with an infinite variety of herbaceous plants, but also with plants of lasting beauty, such as Pinks, Yuccas, some of the Sea Hollies, and the German Irises, which will help to diversify the permanent design.

When a border is planned and planted in this manner, the gardener should not be in too great a hurry for an abundance of flowers. His first object should be to get the plants forming his permanent design well

¹ Lavender in the United States needs protection, and *C. cyprus* is not hardy in the Northern States. L. Y. K.

established and well grown. He should not, therefore, crowd and smother them while still small with quick-growing herbaceous plants. If he has patience enough, he will do well to give his shrubs two years start of the larger herbaceous plants, for the shrubs will be worse than useless in the border unless they are thoroughly shapely and well grown; and it is very easy to spoil a young plant of Lavender amid the rank summer growth of a rich border.

There is, of course, less need to mask the later flowering herbaceous plants with permanent shrubs than the earlier. Indeed, plants like Dahlias, Michaelmas Daisies, and Chrysanthemums may be employed to hide the Larkspurs and Poppies when they have ceased to be beautiful; and the gardener in planning his border should place his tall early-flowering plants behind his tall late-flowering plants, not, of course, in monotonous rows but in a broken though regular order. An ordered diversity is the secret of composition in a border as in most other things. The eye should not be drawn from end to end by straight lines of the same plants all flowering together, nor should it be bewildered by a mere confusion. It should be conscious of a framework in the design provided by the repetition of certain prominent plants and relieved by diversity of detail. Parts of this framework must, as we have said, be permanent. Other parts may depend upon the flowering season of different conspicuous plants, such as Larkspurs, Pæonies, Phloxes, and Dahlias, placed at regular intervals. But the design

must always be made up of plants conspicuous in some way or another, either in their foliage or in their habit of growth, and the less conspicuous plants should be used only for diversity and contrast.

The front of the border, since all of it is always visible, is more difficult to plan than the back, and has an even greater need of permanent features. Many gardeners overlook this fact. They aim at a continuous blaze of flowers in the front of their borders, even when they are content with alternations of flower and leafage behind; and the result often is untidiness just where the border ought to be most tidy. It is also a mistake in design to have an unbroken line of bright colour in front of a more varied background, as the eye is then absorbed by the foreground, and can only get away from it by an effort. There is, therefore, an even stronger reason for alternations of flower and leafage in the front of a border than behind, and these alternations should be carefully planned. No plants are more useful as permanent features in the front of the border than the Garden Pinks; and these should not be planted in monotonous rows, but at regular intervals and alternating with other plants such as Pansies, which will remain longer in bloom and will contrast with them both in flower and in leafage. If the ordinary Pansies are used they may be removed after their first flush of bloom and replaced by bedding plants such as Verbenas or Ivy-leaved Geraniums, or any beautiful and low-growing half-hardy annuals. But if the gardener wishes to avoid

the trouble and expense of bedding out he can alternate his Pinks with Violas or Tufted Pansies, which will, if well treated, blossom for most of the summer and can be cut back when they are spent and straggly. Behind these low-growing plants he can arrange another alternation of more or less permanent plants, such as the dwarf Lavender, Santolina, the dwarf Alyssum, *Campanula carpatica*, Pentstemons, *Aquilegia caerulea*, and many others. Here, too, he may replace spring with summer flowering plants; and here will be the place for many bulbs, such as the dwarf early flowering Gladioli, the varieties of *Lilium elegans*, the May Tulips, *Camassia esculenta*, English and Spanish Irises, and Montbretias, which should be planted near the more permanent shrubby plants and will be an admirable contrast to them both in growth and flower. Indeed, the secret of the right use of bulbs in a border is to contrast them with plants of a different and more permanent growth. They should never be relied on for the main effect, as they are usually insignificant when out of flower and do not flower very long. So they should be planted in clumps and not in lines, and their position should be determined by that of the plants with which they are intended to contrast. These are only notes upon a large and difficult subject, but it is hoped that they may illustrate some of the principles of border design.

THE TREATMENT OF BULBS

WRITING lately upon the use of bulbs in the border we said that the secret of that use was to contrast them with plants of a different growth. This is also true, we think, of their use in every part of the garden. The beauty of monocotyledonous plants is usually altogether different in character from the beauty of dicotyledonous plants; more simple, fugitive, and strange. Now the term bulb is a vague one, especially as it is used in nurserymen's catalogues, where it is often applied to any kind of tuberous or fleshy root, whether of a monocotyledonous or a dicotyledonous plant. But in this article we shall use it, not in the narrowest possible sense, but only of monocotyledonous plants with bulbous roots which are dormant for a certain period of the year; and we shall use it thus, not for any scientific reason, but because we wish to suggest certain principles for the treatment of such plants in the garden, based both upon the character of their beauty and upon the habit of remaining dormant for a certain period of the year.

The purpose of the old-fashioned treatment of the best known bulbous plants, such as Tulips, Hyacinths, and Narcissi, was to produce a great blaze of blossom for a short time. They were planted by themselves

in regiments; and when they were out of flower they were taken up to make room for other plants. This treatment took no heed of their individual beauty of form. Each plant was considered only as contributing to a great mass of colour, and certainly these masses of colour were very splendid. But a great part of the beauty of a Tulip consists in its form, in the shape of its flower, the manner in which it carries its flower, and the contrast between the shape and carriage of the flower and the shape and carriage of the leaves. All this beauty was lost when Tulips were arranged in regiments. But, on the other hand, it must be admitted that a single Tulip is too small and too simple in its form to produce much effect in any arrangement of flowers; and this is true also of most bulbous plants; besides this, their flowering period is usually short. Therefore, if we are to make the best possible use of their beauty, we must arrange them so that a great part of that beauty may not be lost in a blaze of colour, but also so that it may not be frittered away by too scattered planting. The best way to do this is to combine them with plants of a very different habit of growth and character of flowers; and of such combinations there is an infinite variety. We have spoken of the difference in the beauty of monocotyledonous and dicotyledonous plants. That difference is a fortunate fact in Nature, by means of which she produces some of her most exquisite contrasts; and it is the gardener's business to observe such contrasts and to base his own ar-

rangements upon them. We have said that monocotyledonous plants are apt to be more simple, fugitive, and strange in their beauty than dicotyledonous plants; and the gardener should attempt to contrast simplicity with complexity, fugitiveness with permanence, and strangeness with familiarity. This he may do in many different ways. He may, to take one of the most obvious, plant his Tulips among Pansies or Forget-me-nots, so that they will rise through the contrasting carpet of less simple leaved flowers, as Daffodils rise through the grass. A hundred Tulips all of the same kind so planted will not lose any of their beauty of form, since it will be emphasized by the contrasting beauty of the carpeting plants; and it is only by means of an arrangement of this kind that the true beauty of Hyacinths can be seen. Many people condemn them as stiff; and, indeed, when they are planted out in rows by themselves they are as stiff as a row of Lombardy Poplars. But as the beauty of the Lombardy Poplar only shows itself in contrast with trees of a more spreading growth, so the beauty of the Hyacinth only shows itself in the same kind of contrast. No one would think of growing Bluebells in regiments, because we are all familiar with the manner in which Nature grows them. But the regimental system is even more fatal to the beauty of the garden Hyacinth.

This plan of carpeting bulbs with other plants of a very different habit is now very general, but not so universal as it should be. Many people who are de-

lighted with the beauty of bulbs in the grass will yet grow the same bulbs in beds or borders on the old regimental system, and they do this, probably, because they think it saves trouble to the gardener. It is so easy to fill a bed with Tulips in the autumn and then to lift them when they have gone out of flower to make room for summer bedding. But it is just as easy to combine them with plants such as Pansies, Forget-me-nots, the double Arabis, and many early flowering annuals, which may be removed at the same time to make room for the summer bedding. In the herbaceous border, however, the problem of the right use of bulbs is less easy; and yet it is not very difficult. True, there are many bulbs which are best lifted as soon as they die down, and there are others which resent disturbance at the very time when the border may need to be dug over. But both these difficulties may be overcome with a little contrivance and foresight. Take, for instance, the case of bulbs such as Tulips and Hyacinths, which usually should be lifted at least every other year. These may be planted in considerable masses among carpeting plants or in clumps of eight or ten surrounded with plants that will contrast with them; and they may be taken up without difficulty when they have died down, and without injuring the plants about them. The arrangement in clumps is best suited to the taller May flowering Tulips and to other tall bulbs such as the Camassias, Gladioli, English and Spanish Irises, Crown Imperial Lilies, most of

the true Lilies, and Galtonias. Some of these, especially Madonna Lilies, resent disturbance, and it is the bulbs which resent disturbance that we have learnt to grow in the most beautiful and rational way. No doubt, if Madonna Lilies could be treated like Tulips, they would often be bedded out like Tulips, and all their beauty would be spoilt. As it is, we grow them in the border and treat them like herbaceous plants, with excellent results. We should extend the same treatment to other bulbous plants, so far as their needs will allow. Thus, the May flowering Tulips should be planted in clumps of eight or ten at regular intervals along a border, and if a hundred or more of the same kind—say, of Gesneriana or Picotee—are then planted in the same border, they will produce a brilliant effect of colour just when it is most needed, whether in contrast with flowering plants about them such as Wallflower or Forget-me-not, or with shrubs not yet in flower, such as Lavender or Santolina. And, if necessary, they may be lifted when they die down, just as Wallflowers and Forget-me-not are taken up when they go out of flower, and other plants or bulbs may be put in their place.

The contrast between the grey foliage of shrubs, such as Lavender or Santolina or Southernwood, and the brilliant flowers of bulbs, such as Gladioli, English and Spanish Irises, and some of the smaller Lilies, is always most effective; and the beauty of the contrast depends as much upon the difference of character in the plants as upon difference of colour. The

bulbs, with their fugitive brilliance, seem to have sought the protection of the more enduring shrubs. And this is not altogether fancy in some cases; for Lilies never thrive so well as when they are close to shrubs, not only because the shrubs protect them from frost when their growth is young and tender, but because they like a very rooty soil. Thus, both for horticultural and æsthetic reasons, it is well to grow Lilies such as *L. Chalcedonicum* and *L. pomponium* close to shrubs such as Lavender or Santolina or Rosemary; and both the beauty and the health of the Lilies will be improved by the association. Among such shrubs also may be grown the different kinds of Gladioli, particularly the early flowering ones, which should be planted in the autumn and which will get valuable protection from the shrubs when their growth first appears in the winter. The later Gladioli, if so treated, may take the place of Tulips when they are lifted, and shrubs will be much less dangerous neighbours to them than herbaceous plants which, especially in wet summers, often grow with incalculable rapidity. If bulbs are associated with herbaceous plants the best effect will be obtained where there is the greatest contrast of growth. Thus bulbs which throw up tall straight spikes of bloom should not be planted among herbaceous plants which flower in the same way, but rather among plants of an altogether different habit—for instance, Gladioli among Gypsophilas; Madonna Lilies among the lilac flowered Goat's Rue (*Galega*); Orange Lilies (*L.*

croceum) with *Erigeron speciosus*; *Lilium elegans* with *Linum perenne* or *Nepeta mussini* (Catmint); Tiger Lilies with *Eryngiums*; Galtonias with the pink *Lavatera trimestris*, and so on. But in all such combination care must be taken not to place bulbs too close to some herbaceous plant that will make a strong growth before they do, and so smother them before they have a chance of asserting themselves.

The later and larger growing bulbs are much easier to deal with in the border than the many little bulbs that flower early in the spring and then die down and remain dormant until autumn. It is possible, of course, to lift bulbs like Crocuses, *Scilla sibirica*, *Scilla bifolia*, the *Chionodoxas*, the *Puschkinias*, and the *Muscaris* as soon as they are dormant, and to plant them again in the autumn. But it is a troublesome business; and many of them do better if left undisturbed. Yet, though they make the border beautiful in early spring, they leave blank spaces just when it is expected to be fullest. If they are to be grown in the border they can be covered with *Sedum album*, which will not interfere with their growth, and which is green all the winter and very pretty when in flower. In this case they must be planted well in the front of the border as the *Sedum*, if it is to do well and flower, must not be overshadowed by other plants. But, indeed, these smaller bulbs always do best in the front of the border, as they are apt to be forgotten and dug up if they are among large herbaceous plants, and also they do not get the summer sun which most of them need to ripen

them. It is also possible, of course, to sow some low growing hardy annual over them, especially over the Scillas and Chionodoxas, which like to be planted deep in a light soil. But this is not so easy to manage with Crocuses, which like to be planted just under the surface. The best plan of all, perhaps, with these little bulbs is to plant the Crocuses and Muscaris in the grass, where they will thrive, and the Scillas and Chionodoxas and Puschkinias on some sunny bank which they can have to themselves. Such a bank may be carpeted with Sedum with excellent effects. *Scilla sibirica* may also be grown in the grass, where it is not too thick and coarse; but it usually thrives better under a Sedum.

There are the same difficulties to be dealt with in the case of the smaller autumn flowering bulbs, such as *Crocus speciosus*, *Crocus zonatus*, and *Crocus pulchellus*, *Sternbergia lutea*, and the Colchicums. The last of these will usually do well in the grass where the soil is good and not too dry. The others are best grown like the Chionodoxas in places which they can have to themselves. The autumn Crocuses can be mixed with Scillas and Chionodoxas, so that there may be flowers in the same spot both in spring and autumn. They are of the easiest culture. *Sternbergias* are not so easy, and in some places they refuse to flower. They seem to require a light soil and a warm sheltered place, and they are the better for lime in the soil. A carpeting of Sedum will protect them in the winter.

In most gardens there are odd places too dry or

poor for ordinary herbaceous plants in which most of these smaller bulbs will thrive, and where they should be planted in large numbers. Even if such spots are flowerless in summer, it is a great pleasure to have them covered with flowers in spring or autumn, and one which is very easily obtained.

ENGLISH IDEALS OF GARDENING

GARDENING in England, like music in Germany, is a national and popular art; and just as music in Germany is based upon folk song, so gardening in England is based upon the cottage garden. German music, when it has tended to become artificial or exotic, has been simplified and quickened by a return to folk song, the lasting affection for which has protected the German taste in music from those perversities to which it is subject in other arts. It has provided a standard of simplicity and sincerity by which even the most elaborate compositions are judged, just the kind of standard which Tolstoy has tried to set up in his "What is Art?" And the English cottage garden has provided the same kind of standard for the art of gardening, and in the same way has redeemed that art from exotic perversities. When the bedding-out mania was at its height, it was the spectacle of cottage gardens, with their beauty that seemed as natural to the English countryside as the very meadows and hedgerows, which gave people a disgust for their rows of *Calceolarias* and *Geraniums* and *Lobelias*. But for the cottage gardens they would never have been even aware of the existence of all the beautiful old plants which had been banished so long from the gardens of the rich;

still less would they have been aware of the right manner of growing them. It was because gardening was a national art practised by the poor for love, and not as a fashionable amusement, that it recovered so suddenly from those perversities of taste which infected nearly all arts in the nineteenth century. But it would not have so recovered unless the tastes of rich and poor had been really alike, unless the rich had found in the gardens of the poor what they desired in their own gardens. This is the great difference between gardening in England and in other countries, that in England the cottage garden sets the standard, whereas in other countries the standard is set by the garden of the palace or the villa. And the reason for this is that, though circumstances have made us herd together in towns, we remain at heart a country people, unlike the French or the Italians, and more even than the Germans. This may be clearly seen in our architecture, with which, of course, our gardening, so long as it remains an art, is closely connected. Even in the Middle Ages the great French Cathedrals were designed as town buildings, and made to tower above the houses close about them. But the more lowly English Cathedrals were intended to be seen in broad closes, and half of their beauty is lost without a close, just as half the beauty of a French Cathedral is lost when it is isolated. But the peculiar genius of the English builders has been shown more in village churches and tithe barns and country houses even than in Cathedrals; whereas the peculiar genius

of the French has been shown in Cathedral and chateaux, and of the Italians in palaces. These inveterate country tastes of ours are, no doubt, the chief reason why our towns are so incoherent and ugly. Our hearts are never in the town, even when we are forced to live in it, and our idea of improving it is to make it as much like the country as we can. Thus our town architecture is always apt to be freakish and incongruous, putting on airs of rustic simplicity or medieval romance, trying to make us believe that we are anywhere rather than in a modern city; and thus the gardens of our squares are desolate parodies of woodland and meadow. The foreigner, who has heard of the English passion for gardening, must suppose that passion to be extinct when he looks through the railings of a London square at the thickets of privet and the grass worn bare with the drip from grimy and disconsolate trees. He cannot know that in these dreadful places the Englishman has attempted an impossible task and given it up in despair; that having an open space in the heart of a town he has tried to persuade himself that it is a still surviving piece of the country which he loves. A Frenchman would treat such a space as an annexe to the houses around it, as a kind of outdoor parlour common to the inhabitants of all those houses, and he would decorate it like a parlour with ornaments, which, whether they were shrubs or statuary or flowers, he would keep in their proper place. Perfectly content with town life, he would have no wish to make believe that he was

in the country. Indeed, he would be more inclined when in the country to make believe that he was in the town. Thus his gardening, and also the Italian gardening, is seen at its best in the town and at its worst in the country, unlike ours which is country gardening and will not acclimatize itself to the town. It is true, of course, that the gardening of our parks is excellent, better indeed than any in Paris; but that is just because those parks are large enough to admit of country gardening, because flowers can be well grown, and trees and large shrubs are not mere nuisances in them. The gardeners of our parks have managed with admirable art to make their flowers seem at home where they are planted, an art which the Paris gardeners, skilful as they are, have not acquired. Even in towns we are supreme in the management of flowers, wherever flowers can be well grown; and the reason is that we think of a garden as a place for flowers, whereas for the Frenchman or the Italian it is an outdoor parlour which may be ornamented with flowers or with other things according to the taste of its owner.

This love of flowers is part of our love for the country, and consequently it is a love of flowers growing rather than picked. We may compare it with the Italian love of painting, not merely in the form of pictures, but as a decoration to walls, which still persist although the great masters of fresco have long passed away and although it is often put to absurd uses. Those who have only seen Italian pictures in

galleries can never understand the purpose and full beauty of Italian painting; they can never know what a natural growth it was, until they see the frescoes and altar-pieces where they were meant to be. Such works in galleries are like picked flowers, still beautiful indeed, but robbed of half their original beauty because they have been severed from their native soil; and just as an Italian of the fifteenth century would feel if he saw the altar-piece of his native Cathedral in the National Gallery, so we feel when we see the flowers of our gardens picked and arranged in bouquets in shop windows. Foreigners do not usually seem to have this delight in the beauty of growing flowers. They like them just as well picked as growing. Indeed they are apt to grow them so artificially that they have no more beauty when growing than when picked. For them flowers are always mere ornaments, whether of the house or of the garden. But for us they are living things with a beauty dependent upon the whole of their life. This love of flowers as living things, and therefore not only of flowers but of plants, is the basis of English gardening, the cause both of its virtues and of its faults. It was overcome for a while in the last century and in the gardens of the rich; but it persisted all the while among cottagers; and it is from cottagers that the rich regained it. There are beautiful cottage gardens everywhere in England, because the Englishman loves growing flowers for their own sake, as the German loves music; and it is this love of growing

flowers which has made gardening a popular art in England.

In other countries, where there is not the same love of growing flowers, the palace and not the cottage garden sets the standard, and therefore gardening is not a popular art; for the poor man cannot hope to compete with the rich in the way of palatial gardens, any more than in the way of palatial architecture. But he can compete with the rich in the growing of plants since he can grow his plants for himself, whereas the rich man must hire a gardener to do it for him. Thus in England many a rich man has envied the beauty of a cottage garden, and tried to imitate it in his own; but abroad little gardens, when there are any, are apt to be imitations of the gardens of the rich; and in Italy or France it is the sumptuous gardens that delight us with their terraces and avenues and cascades, whereas in England we get most pleasure from the little flowery patches and clipped yew hedges and arches by the roadside. Foreigners sometimes wonder how it is that, with all our great poets, our common life seems to be so prosaic. The poetry of the English nature expresses itself in gardens as the poetry of the German nature in folk-song; and by means of gardens it is intimately connected with our common life. Once it expressed itself also in building, and more directly and clearly in the homelier kinds of building than in great cathedrals or palaces. Once we had a true folk-art in our cottages and farmhouses as well as in our gardens.

That is almost lost, although there are now some signs of its revival; but it still persists in our gardens and through them it may some day return into our architecture; for the persistence of the cottage garden proves that the spirit which produced the beautiful cottage of the past is still alive, even though the cottage garden may grow up about a white-brick and blue-slatted villa.

The love of growing plants is the cause both of the virtues and the faults of English gardening. One instance of the faults may be noticed in the desolate gardens of our London squares. These must be failures, as they are attempts to do what is impossible. But in our larger country gardens are often to be found errors of the same kind, though not so fatal. The rich man, who admires a cottage garden and who tries to imitate its beauty in his own grounds, is apt to forget that a great part of that beauty depends upon the fact that the cottage garden is planned to suit its own small scale, that the art of cottage gardening has grown up through centuries and has adapted itself perfectly to its own conditions. The conditions of the large garden are different and require a different and more difficult kind of design; while its traditions have been broken by several violent changes of taste, such as the landscape mania of the eighteenth century and the bedding-out mania of the nineteenth. It is certainly possible for our larger gardens to have some of the beauty of the cottage garden; but they must attain to that beauty in their own way, and, in aiming at

it, they must not lose sight of the different kinds of beauty that is proper to large spaces. It has often been remarked that, in certain details, such as their porches and west fronts, our cathedrals were designed as if they were little churches; and, in the same way and for the same reasons, our modern large gardens are often designed on a small scale suggested by the cottage garden. The borders are not long enough, the lawns not large enough, the paths too often broken and curved, the shrubs dotted about without any system or purpose. There are other reasons for these defects besides the cottage garden ideal. One is the landscape fashion which has not yet passed away; another is the new fashion for having different kinds of gardens, rock and water and rose, or gardens for different seasons of the year; and another, closely connected with the last, is the growing interest in the more difficult kinds of horticulture, in the culture of plants that require special conditions. The ambitious gardener nowadays is apt to lose sight of design altogether in his attempts to solve different horticultural problems; and he is the more ready to lose sight of design because he does not understand that a large garden will not look as well as a cottage garden, unless its design, like that of the cottage garden, is adapted to its scale. A large garden can no more imitate a cottage garden than a large house can imitate a cottage. Just as the irregularity which is pleasing and full of character in a cottage becomes incoherent and absurd in a large house, so the ir-

regular planting and planning of a cottage garden, which are pleasing when they are made necessary by its smallness, become merely chaotic when they occur in a large space where there is no need for them. Our older garden designers of the fifteenth and sixteenth centuries knew this thoroughly. At their best they could design gardens that were both stately and simple, perfectly suited to the noble houses which they surrounded, and with no pretence to be either wild or palatial. Then, as there were houses fitted for every station of life, so there were gardens fitted for every kind of house. The first invasion of this happy state of things was made by the Dutch fashion of over-elaboration and formality against which Marvell protested in some beautiful verses. Then came the French and Italian palatial ideals, which, however, never got much hold in this country; and then the violent reaction of landscape gardening, which ended in a chaos, from which we have not yet emerged. The cottage garden has delivered us from the minor, but most disastrous, fashion of bedding out. It has given us back some of our old delight in gardens, but it cannot by itself give us back the true principles of design. These, probably, can only be recovered with the true principles of architecture. It is certain that garden design deteriorated and fell into chaos just as architecture deteriorated and fell into chaos, also that the present improvement in domestic country architecture has been accompanied by an improvement in garden design. The English

love of the country has already delivered us from the worst errors of gardening. It may once again give us beautiful houses, and perfect gardens to suit them.

THE NORTH SIDE OF THE ROCK GARDEN

IT is one of the advantages of a well-planned rock garden that it provides a great variety of conditions in a small space. But it requires some knowledge of the habits of rock plants to profit by this variety. Most rock plants, and particularly those which grow high up in mountains, are not so adaptable as the plants of the lowlands. Their power of adaptation seems to have exhausted itself in suiting them to the peculiar conditions of their native homes; and, the more peculiar these conditions are, the less power they usually have of adapting themselves to others. In this they are very like human beings; like the Eskimo who pines away from his native ice and snow, and the mountaineer who is homesick in the plains. Thus, when a rock garden is well placed, planned, and built, there yet remains the further problem of finding exactly the right positions for the plants that are to be grown in it; and the success of a rock garden will depend upon the nicety with which this is done. It is true that there are many rock plants which will thrive fairly well in any open position; but even these will usually do better in one place than in another; and the gardener's aim should be to have all his plants doing their best.

Now, of all differences of conditions which affect

the well-being of rock and mountain plants, the most important are those of aspect. Of the more difficult Alpine plants, many will thrive on one side of a stone and not on the other, because of the difference of aspect; and even to rock plants which are not difficult aspect usually makes a great difference. It is, unfortunately, impossible to lay down hard and fast rules about the aspects most suitable to particular plants, because the general conditions of rock gardens vary so much. Some are in warmer parts of the country than others. Some are fully exposed to the sun, others shaded from it to some extent by the lie of the ground or by trees or shrubs. Some are in gardens with a north aspect, others in gardens with a south. Thus a plant that would prefer a full south aspect on a rock garden in a cold climate, might do best with a south-west, or even north-west, aspect when the rock garden was very hot and sunny. There is much that the gardener can learn about his own rock garden only by experience and observation; and whatever general directions are given should be taken as referring only to average conditions, and should be modified where the conditions are not average. But, if a rock garden is well placed and planned and built, not too dry and not too damp, and in particular not overshadowed by trees, there are certain directions about aspect that may be followed without much fear. Thus a south-west or south-east aspect is usually the best for the more delicate plants of the higher Alps, and a full south aspect for those which

come from Asia Minor and other hot countries. But, as mountains have their northern slopes as well as their southern, there are many mountain plants that will thrive better on the north side of the rock garden than on the south; and, since many gardeners seem to have some difficulty with the northern slopes of their rock gardens, we propose to give a list of these north-loving plants.

First we will speak of those which, although they thrive on a northerly slope, yet require an open situation free from any kind of shade or drip. Some of them also, although they like a northern aspect because it is turned away from the full power of the sun, do not like our north and north-easterly winds particularly in early spring, when they are just starting into growth. There is a great difference between a north aspect that is sheltered by a bank to the north of it, and one that is quite unsheltered. We shall therefore first mention the plants which require shelter, or, at any rate, a north-easterly aspect rather than one facing north-east or full north; for there are many plants that will endure an unsheltered north-westerly aspect but require shelter if they are facing full north or north-east. Of these, one of the most valuable is *Lithospermum prostratum*, perhaps the most valuable of all rock plants. It will do well on the south side, but even better on the north when it is sheltered from the wind; but it must have light, rich, and deep soil free from lime, and should be placed so that its roots can run under a large stone. It must also have very

good drainage, and not be overshadowed by any other plant. It may be interspersed with *Arenaria montana* which thrives in the same position, or with *Saxifraga pyramidalis*, which, unlike most of the rosette Saxifrages, prefers a soil free from lime. Most of these rosette Saxifrages will do well on the north side, especially the great *Saxifraga longifolia* and the little *S. valdensis*, both of which dislike a very hot place; but for both of these north-west is better than north-east. Many also of the smaller *Campanulas* like a north aspect. Indeed, *C. pulla* always does best on the north side, especially if it is split up and replanted in fresh soil every two years or so in the spring. *C. muralis* with its larger variety is an excellent plant for a north aspect, and it may be mixed with the beautiful *Silene alpestris* with the best effect. Other *Campanulas* that do well on northern slopes are *C. turbinata*, the dwarf form of *C. carpatica*, *C. Tommasiniana*, a most delicate little Harebell, so small that it must not be put near any large plant, *C. Scheuzeri*, *C. pumila* or *caespitosa*, and *C. garganica* with its varieties. This likes a north-west aspect and a very open situation; and it may be mixed with the little *Silene acaulis*, a native of the Welsh mountains, which is apt to burn up in a very hot sun. Another delicate little plant that will do well with a north-west aspect is *Asperula hirta*, a Woodruff with pale pink flowers, which roots deeply and spreads fairly rapidly in a well-drained place among the rocks. This also may be mixed with *Campanula garganica*, or with

its more vigorous variety *hirsuta*, with excellent effect. One of the most valuable plants for covering a large space on a northern slope is *Polygonum vacinifolium*. It is quite prostrate and flowers in late summer and autumn. It grows very quickly, the stems rooting in the ground, and no small plants should be put near it. It flowers best in a rather poor soil and open situation. It should be planted in spring and not disturbed afterwards. Space also is needed for *Dryas octopetala*, a lime-loving plant, which grows into a large prostrate mass, bearing white blossoms rather like those of a strawberry throughout the summer. Many of the smaller *Drabas* do well on the north side, especially *D. Aizoon*, *D. aizoides*, and *D. bruniaefolia*. Of these *D. Aizoon*, a native plant and easily raised from seed, is the best. It grows in little rosettes with a head of yellow flowers rising from the centre of them. It is quite easy, but does not like a hot sun. The other two are more mossy in growth and cover a larger space. Another little crucifer with yellow flowers that thrives on the north side is *Morisia hypogæa*. It blossoms very early in the spring and should be planted in a deep crevice, between rocks. When it has formed several crowns it should be divided, and replanted in fresh soil just after flowering. It is a plant to associate with the smaller Alpine *Primulas*, most of which like a north-west aspect and the same deep crevices. The best of all these, perhaps, is *Primula pubescens alba* (or *nivalis*), a small but vigorous plant with pure

white flowers in very early spring. Others well worth growing are *P. viscosa*, *P. auricula* with its varieties, *P. auricula marginata* and *P. marginata*, both of which like lime; *P. calycina*, also a lime-lover, *P. glutinosa*, and *P. minima*. They all like to be closely surrounded with rocks, and the soil should be deep, light, and fairly rich. *Atragene alpina*, the Alpine Clematis, will do well in a sheltered place on the north side, but it must have a good space to grow in. It likes a fairly rich soil mixed with humus and lime. Near it may be placed *Polemonium confertum mel-litum*, which has sweet-scented white flowers and grows about 9 in. high. This plant often dies out after a year or two, but it is easily raised from seed and is one of the most beautiful flowers of the Rocky Mountains. *Aquilegia pyrenaica*, the smallest of the Columbines, also does well on the north side. It is a rare plant, growing only a few inches high, and a form of *A. vulgaris* is often sold for it. The true plant is well worth growing.

Where there is an excavated rock garden many beautiful plants may be grown upon its lower northern slopes. It is in such a position that *Ramondia pyrenaica* does best, placed between rocks so that its roots run almost horizontally backwards, and so that the sun never strikes upon its leaves. It likes a fibrous soil of loam, peat, and leaf-mould, with a good dose of lime. It is always finest near to water, but will do well without it, provided it gets no sun. Its true beauty is only shown when it is flourishing. Plants

that may be grown near it are *Anemone alpina*, a lime-loving plant, and its variety *sulphurea*, which dislikes lime, *Anemone verna*, several Himalayan *Primulas*, such as *P. rosea*, *P. involucrata*, and *P. Sikkimensis*, *Chamaelirion carolinianum*, the smaller *Dodecatheons*, and the *Soldanellas*. A little above these, but where they will never suffer from drought, should be placed *Saxifraga apiculata*, *S. sancta*, and *S. oppositifolia*, all plants with a mossy habit of growth and very beautiful flowers in early spring. *Saxifraga burseriana*, with its varieties and hybrids, likes a rather sunnier position and must not suffer from damp in the winter; but, as drought in the summer is equally fatal to it, it should be given carefully-chosen places among rocks with a north-west or west aspect. It is worth a great deal of trouble.

Hitherto we have dealt mainly with the choicer or less familiar plants that like a north aspect. There are, of course, many common plants that will do well on any side of the rock garden; but even of these some are better suited to the north than others. The plants most commonly grown on the north side are the mossy *Saxifrages* and those of the London Pride section. These are so well known that it is unnecessary to enumerate their species and varieties. It may be mentioned, however, that the fine *S. Wallacei* (or *Camposii*) is more impatient of drought and sun than most of them. It is therefore suited for the lower northern slopes. *Saxifraga tenella*, which is mossy in growth but belongs to another section, does well

in the same situation. It is a very pretty plant. Rocks on the northern slopes may be clothed with *Arenaria Balearica*, a minute plant, which will cling to them as *Ampelopsis Veitchii* clings to a wall, and which in early summer is covered with small white flowers. Near it may be grown *Linaria hepaticifolia* (of Kew), a pretty plant, for which a variety of *L. cymbalaria* is often sold. Among easy and vigorous plants particularly suited to the north side are *Waldstenia trifoliata* and *W. fragarioides*, the *Acenas*, particularly *A. microphylla*, *Margyricarpus setosus*, a pretty shrub with white berries, *Borago laxiflora* (this only for large rock gardens), *Saponaria ocymoides alba*, and those smaller flowered Tufted Pansies that are called *Violettas*. These are plants of garden origin, but the best of them are very well suited for the north side of the rock garden. They should be given rich, well-manured soil, and left undisturbed for some years, where their roots can thrust deep under a rock. Then they will endure a good deal of drought and remain long in flower. When they get straggly they should be cut back. Nearly all the hardy *Cyclamens* do well on the north side of the rock garden, and do not mind a dry place provided it is not too sunny. Among those which flower in the autumn may be planted some of the smaller *Daffodils*, such as *Narcissus minimus*, *N. triandrus albus*, *N. cyclamineus*, and *N. nanus*. These will flower just when the *Cyclamens* are at rest, and the plants will not interfere with each other.

Among plants usually grown on the south side, but well fitted for open situations looking north, are *Aubrietia*, which does not flower quite so freely with such an aspect, but looks more green and glossy; the creeping *Phloxes*, *Veronica prostrata*, *V. pectinata*, and *V. repens*, *Dianthus superbus*; and in open dry situations most of the stronger *Pinks*; *Alyssum saxatile compactum*; many of the larger *Sempervivums*, *Thymus serpyllum*, *Arenaria tetraquetra*, *Codonopsis ovata*, *Erinus alpinus*, *Globularia cordifolia*, *Gypsophila repens*, *Hutchinsia alpina*, *Iberis sempervirens* and its varieties. *Papaver alpinum*, *Linaria alpina*, *Saponaria ocymoides*, and *Silene Schafta*. We have now mentioned enough plants to show that there can be no difficulty in covering the northern slopes even of the largest rock garden, and yet we have said nothing of shrubs, many of which will thrive with a north aspect, and scarcely anything of bulbs.

GARDENERS

THE relation between gardener and employer is not an easy one, especially if the employer is a gardener himself. There is apt to be a conflict of tastes; and the better the gardener the more acute that conflict is likely to be. Every good gardener is sure to have his own taste in flowers and their arrangement, and in these days it is not often the taste of his employer. The amateur in gardening is a revolutionary, the professional a conservative. He has learnt the mid-Victorian routine when he was a boy; and if he has learnt it well it has brought him triumphs plain for every one to see. His ribbon borders have been the talk of the place, and he has won many prizes at the local flower show, the certificates of which he nails up in his conservatory. Naturally he wishes to persist in his ribbon borders and his prize winning. But his employer, if he is a gardener himself, has other ideas which to the professional seem merely the result of ignorance. The consequence of this conflict in tastes may be some real unhappiness to the gardener. He has his duty to his employer, of course, and he can only keep his place by doing it. But he has also his artistic conscience. This he cannot satisfy on herbaceous borders or bulbs in the grass or rock gardens. Other gardeners have been

accustomed to admire the florid health of his Begonias, the contrasting glare of his Geraniums and Lobelias, the precision of his carpet bedding, and the enormity of his Chrysanthemums. The revolution takes place, and instead of these proofs of his skill what has he to show his friends? Daffodils in the grass which, they know, will grow of themselves. Great lumbering Larkspurs and Phloxes fit only for cottage gardens, not for a gentleman's place; and, worst of all, diminutive Alpines, which may be troublesome but are certainly not worth any trouble.

His employer takes no pride in his flower-show triumphs; but rather discourages them, grudging the time that is necessary for their achievement. Indeed, he takes no pride in anything that is worth doing; and has no appreciation of real knowledge and skill. He is all for experiment and for growing weeds where there ought to be flowers, and flowers where there ought to be weeds. In fact, he seems not to know the difference between a weed and a flower. Very likely he will waste good ground and manure upon single roses, and will have no eye for the perfections of Frau Karl Druschki. In taste he is a mere anarchist. In knowledge he is altogether wanting; at least, whatever he knows he has got from silly books written by people like himself. Yet he presumes to have opinions and, what is worse, to enforce them. He ravages the garden and no one can stop him, because it is his own according to the law. Even the gardener who has been a conservative all his life, in

politics as well as gardening, must feel the iniquity of this. He must feel that there is a higher law which gives him some property in what he has made beautiful; and the less he reasons about it the more deeply he will feel it.

But to the employer who is an enthusiast for the new horticulture these tastes and ideas of his gardener will seem the result of mere arrogant stupidity. He will assume that the gardener wants to grow Geraniums and Calceolarias, because he can grow nothing else. It is his business, as a gardener, to produce whatever his employer asks for. He has been gardening all his life, yet he knows nothing about Alpines, not even their names, and refuses to take an interest in them. "The worst of him is," cries the employer, "that he will not learn. He thinks he knows everything and he knows nothing." And all the while that is what the gardener is whispering to himself about the employer. It would not matter if the employer would attend to his own business, whatever it may be, and leave the garden to its proper master. But this he will not do. For some unknown reason he must try his hand at a business for which he is constitutionally unfitted. He blunders about the garden, botching jobs which he has paid others to do for him and demoralizing the under-gardeners with his messy habits. It is impossible to see him at work without despising him in your heart; and then precious time has to be spent in repairing the damage which he does. Meanwhile the employer is also watching his

gardener at work and despising him in his heart. He is the slave of a brainless routine. When there are things of real importance to be done, he is clipping edges because it is Thursday, or sweeping up leaves because it is Saturday. He forgets that it is also autumn and that grand new schemes are to be executed for the winter.

Gardeners have a great power of passive rebellion. They take your orders and seem to be carrying them out, and yet nothing comes of it. You may have a fanatical dislike of bedding plants, and think that you have extirpated them, yet all the while there are Geraniums and Calceolarias and even Echeverias lurking through the winter in some secret frame; and in due season they will appear in the garden again, and the gardener will say that he had to fill up with something. If you are a ruthless man, perhaps you will have them pulled up. But you will find that for some reason nothing else will grow where the gardener thinks they ought to be. It is a place ordained by nature for bedding plants; year after year they will come there unless you turf it up; and if you do that they will break out somewhere else. There is also a curious difficulty about the planting of bulbs in the grass. You tell your gardener that he is to arrange them in a natural disorder, you may even make a plan for him with dots for the bulbs on a piece of paper, and he will seem to listen and observe, and will say that he understands. But in the spring the bulbs will come up in orderly rows, or, worse still, in

geometrical patterns. Perhaps the gardener does not listen. Perhaps he thinks you cannot be really so foolish as you seem; or, perhaps — and this is the most probable explanation — the habits of a lifetime are too strong for him, and as he plants he obeys unconsciously his instinct for symmetry and order.

Whatever the explanation may be, these incidents make pleasant relations difficult; and, for the enthusiast, unpleasant relations with his gardener are intolerable. They must be even worse for the gardener, since he cannot openly rebel except at the risk of losing his livelihood. It is his business, you may say, to please his employer; but he is human, and the more his heart is in his work the more eager he will be to do work after his own heart. Every good gardener is something of an artist, however perverse his taste may seem, and he needs to be humoured like an artist. But then his employer too, if he is an enthusiast, is also something of an artist, and probably not content with mere humouring. It may be a point of honour with him to have no bedding plants in his garden. It may be a point of honour with the gardener to have some. When this is the case the humane employer usually makes some concession. He sees that if there were no bedding plants his gardener would lose all interest in his work and pine away. Therefore he gives him a piece of the garden to play with and does not grudge the time he spends upon it, provided he will do as he is bid elsewhere. This compromise is not perfectly satisfactory to either party.

The employer has to explain to his friends that the bedding plants are not his taste. The gardener has to explain to his friends that only in one little part of the garden has he been given a fair chance. Some employers, perhaps, will say that they see no reason for a compromise at all. The garden is theirs to do what they like with. But the gardener, though they pay his wages, is not altogether theirs. They can, of course, get rid of him, and look for one who will do exactly as they like; but they will find it difficult to get him. The good gardener always has tastes of his own; if he had not he would not be a good gardener; and his tastes are usually conservative, not merely because he has been trained in an old-fashioned school, but also because all men, except the most able, are apt to fall into routine in any difficult work that is the main business of their lives. In the difficult work of a Government office this tendency produces red tape. In the difficult work of the gardener it produces the bedding-out system; for gardening is very difficult work, much more difficult than the irresponsible amateur is apt to suppose. He plays with just the parts of it which amuse him, and he finds them easy and delightful. He forgets that the gardener has to do many things which are not amusing — that he has to mow the lawn and sweep the paths; to produce fruit and vegetables as well as flowers; and, above all, that he is expected not to fail in what he attempts. It is this consciousness that he must not fail which makes the professional

averse from experiment. It is the consciousness that he can fail if he chooses which makes the amateur so eager for experiment. We wonder why the presentation portraits which we see in the Academy are so dull and unadventurous. We should remember that the artist who paints portraits for a living has to produce good likenesses. If he does not, he is held by his customer to have failed. He cannot begin on the portrait of an alderman, and then, if the whim seizes him, turn it into a picture of light. If he does, the alderman will not buy it. So a gardener has to produce a certain amount of cabbages in the year and a certain amount of flowers; and if he knows one sure way of producing them, he sees no reason for trying another. Thus there is a cause, much deeper than mere perversity of taste, for horticultural routine; and many an eager amateur who rails at it would soon slip into it if he were in his gardener's place. The free play of the intelligence and the consideration of first principles are excellent things; but very few of us have enough energy to combine them with practice, and this is the reason why practice is usually so much less clever than criticism. It is the business of criticism to be clever. It is the business of practice to produce results; and practice will usually take the line of least resistance towards that object.

These are general considerations; but they have a very particular application to gardeners, who have much more difficult work to do than most men of so little general education. It is only genius that can

combine efficient practice with a free play of the intelligence and a consideration of first principles; and even genius must be educated before it can do this. Genius, of course, is as rare among gardeners as among other men, and educated genius still rarer. Even the most accomplished amateur, if he has the luck to catch an intelligent gardener young, if he can teach him all that he knows himself and train him in his own taste, will yet probably fail to teach him that certainty of practice which is required of most gardeners. His pupil may know a good deal about Alpines; he may be able to plant and maintain a beautiful herbaceous border; but the chances are he will be rather disappointing with his spring greens, and no good at all at grapes. Men trained in this way may be invaluable in very large gardens, where there is much division of labour; but they are not so useful as the ordinary routine-trained gardener in a place where they have to do or supervise everything. Amateurs often wonder at the certainty of the results produced by the great florists. That certainty comes from a division of labour impossible in the ordinary garden. The man who has only one thing to do learns to do it excellently, not only because he is always doing it, but because he has nothing else to think of. The ordinary gardener has a great many different things both to do and to think of. He has to plan as well as to execute; and it is only natural that he should plan according to a routine and should be very unwilling to break through it. Thus, it is not

sheer vice in the gardener that he likes bedding out, but the natural tendency of even conscientious men to simplify their tasks. Their minds flinch from the insecurity and bewilderment that await them as soon as they leave their routine, and the more conscientious they are the more they prefer a narrow and obvious success to an ambitious failure.

These reflections are not intended to dishearten the enthusiast. Their purpose is that he shall make the best of his gardener by first learning to understand him. When he does that he may teach his gardener to understand his own aims and to see that they are not merely the results of ignorance. Gardeners are apt to think meanly of all information got from books, for they know that books are usually written by amateurs. It is no use, therefore, to try to impress your gardener with your knowledge, for he will assume that you have got it from a book written by some one who has never grown a cabbage. The only way to convince him that you know something is to prove it by results. Then he will respect you, even if he disagrees with you. You may, by persuasion and artifice, even induce him to agree with you to some extent in time. At any rate, that is the object to aim at; otherwise you must be always at odds with your gardener, or else always changing him until you find a paragon; an event which may never happen.

THE HOUSE AND THE GARDEN

THERE is a close connexion between the art of gardening and the art of house-building, and that connexion persists even when deliberate efforts are made to break it. Beautiful houses made the beautiful formal gardens of the seventeenth and earlier centuries. Ugly houses made the landscape gardens of the eighteenth and nineteenth centuries. It is characteristic of the Englishman that, when he despaired of making his house beautiful he should not have despaired of making his garden beautiful; or, rather, that when he was content with an ugly house, and persuaded that in some way its ugliness was appropriate to his own wants and expressive of his own ideas, he should not have been content with the same kind of ugliness in his garden. About the house he was ready to believe what architects told him; but he would no longer trust them with his garden, and thus there came into being the landscape garden designer, whose aim it was to make his client forget the existence of his house the moment he walked into his garden. Here, of course, there was a divorce between the art of gardening and the art of house-building; but it came about because the art of house-building ceased to express any of the true feelings or better qualities of the householder, because it misrepresented him to

himself, and because he was not content to be so misrepresented by his garden. The natural tendency of men who are pleased with their houses is to plan their gardens to suit them. Thus in other countries ugly formal gardens came with ugly houses; and even in England the man who likes a suburban villa will surround it with a villa garden. If he prefers the pretence of a villa to the reality of a cottage, he will prefer an iron railing, Calceolarias, and Geraniums to a yew hedge and a border of Larkspurs and Roses and Lilies. But in England there are few who really like suburban villas, and even the artificial taste for them is found chiefly among those whose education has been carried only so far as to make them distrust all their natural tastes. A very little more education gives an Englishman confidence in his natural taste for countrified houses, and gardens to suit them.

But in the eighteenth century, for reasons which we still find it difficult to understand, the English mind reacted in most things against its natural tastes and instincts. In other ages we have excelled more in poetry than in prose, but then our prose was better than our poetry. We are a country rather than a town people by nature; but then we aimed at a town rather than a country civilization, and built town houses in the country, whereas at other times we have tended rather to build country houses in the town. But all through the eighteenth century the English mind was uneasy under the ideals which it had imposed upon itself, and it was always revolting

in different directions against those ideals. Most of these revolts, before the great revolt of the romantic movement came, took the form of some kind of make-believe. Landscape gardening was one of those revolts, and pastoral poetry was another. But, whereas pastoral poetry was almost killed by the revival of the real poetry of nature, landscape gardening persisted, because the continual decline of the art of house-building made a revival of the true art of garden design impossible. You cannot design a beautiful garden to suit an ugly house; and therefore, since houses grew uglier and uglier, few efforts were made to design gardens to suit them. Thus gardens did not advance beyond the pastoral poetry stage of revolt against ugliness and dulness. They expressed no beautiful realities in human life, but only a dislike of ugly realities. So far they were a sign of grace; but it was a negative and impotent kind of grace. Men, despairing of expressing in these gardens their own minds in terms of beauty, requested nature to express herself, and did all they could to get out of her way. Mr. Mawson, in his book on "The Art and Craft of Garden Making," calls this helpless falling back upon nature realism; but in seeking to condemn it with a word he does it too much honour. It is a kind of realism that will not face realities, the realism of conscientious make-believe. The reality was this, that men could no longer build houses in which they could take any rational kind of pleasure, or which expressed any pleasant facts about their

lives. They were content with such houses as they could build, but not with gardens to suit them. Now, instead of seeing that the true remedy was to build better houses, they called upon nature to help them to forget their own ugliness. But, in matters of art, as in other things, nature helps those who help themselves. Landscape gardening has had its successes, where there is space enough to make a landscape. It has brought nothing but chaotic ugliness into those gardens which are so small that they must be all foreground, and must bear signs, open or disguised, of the occupation of man. But now we are once again beginning to build houses in which we can take a rational pleasure, and which do express some pleasant facts about our lives; and it is significant that with these houses the taste for formal gardens is reviving.

But in these days every revival of art is immediately endangered by fashion. Fashion is essentially brainless; it understands nothing about principles, but seizes upon some external feature of a reviving art, reduces it to an absurdity by blind exaggeration, and so quickly gives us a disgust of the art itself. The revival of formal gardening, like the revival of house-building, is in some danger from this cause. The best houses that are built now must be a little conscious of their goodness. There are so many things which an architect must learn to avoid that even when he manages to avoid them he still leaves us aware of their absence. In the same way a good modern formal garden, planned to suit a good modern

house, often seems conscious of its formality, and to be a protest against the idea of landscape gardens. This kind of self-consciousness, an inevitable though undesirable characteristic of a reviving art, is sure to be seized upon and exaggerated by fashion. The more enterprising suburban builder suddenly discovers that straight paths and rows of Thuyas are the thing; and, since they are as cheap as winding walks and shrubberies, he provides them, just as he provides houses with a fashionable air of austerity about their porches and chimneys. But this fashionable formality is no more satisfying than the fashionable austerity; and people whose taste is made by fashion will soon tire of both. There could be no more signal proof of the close connexion between garden design and house-building than the fact that a sham art in house-building has immediately produced a sham art in garden design to go with it. The essence of good house-building is that the facts about the house shall be pleasantly expressed. It must make no pretensions to be anything more than it is, and it must also make the best of what it is, like a well-mannered man. In the same way the essence of good garden design is to make a piece of ground both pleasant and useful without attempting to conceal its nature, its limits, or its uses. The worst excesses of landscape gardening have come about from a desire to make gardens seem larger than they are; and landscape gardeners, in the vain attempt to imitate nature, have too often forgotten that gardens are ever used for any

purpose by human beings, or else they have assumed that nothing useful can be beautiful, and have ignored use in their pursuit of beauty.

The proper problem of garden design, as of house-building, is to make the useful beautiful; but it is easier in garden design, because the uses of a garden are all pleasant. Pleasure is its purpose; and so its very ornaments, the flowers, are objects of utility in it. But we shall not learn how to arrange them or any of the other things proper to a garden until we regard them all as objects of utility meant for the enjoyment of human beings, and not as means of making the garden look like something other than what it was. Trees should be in a garden to give shade, hedges to provide shelter or to serve as boundaries, paths to provide a dry passage from one place to another; lawns for many purposes — for games, or to sit on, or to serve as a foil to flowers; and flowering plants for ornament. If once a garden is thus conceived, so to speak, in terms of utility, just as a house is conceived by a good architect, a design formal in the best sense of the word seems to follow as a matter of course. But, just as there is all the difference in the world between formality in architecture that is based upon utility and formality that is the result of a desire to be formal, so it is with formality in gardens. The one is living, the other is dead; the one rational, the other irrational. A straight avenue of pollarded limes is an instance of rational formality. It is intended for a shady walk; and it is straight be-

cause limes so arranged give the most continuous shade and because straight walks are the most direct. An avenue of Thuyas is an instance of irrational formality. They serve no useful purpose. They are mere ornaments, as tiresome in their meaningless repetition as the obelisks of a pompous Baroque building. The motive is always the test of formality in garden design as in architecture, and of informality as well as of formality; and in both cases irrational or vulgar motives betray themselves at once to the expert, and produce some vague discomfort even in the inexpert. There should be a reason, and a good one, for every feature in a garden as for every feature in a house — meaningless irregularities are as offensive in the one as in the other; and so are meaningless formalities. Reasons, of course, must depend upon the designer's purpose; and some purposes make more for beauty in gardens than others. We may rule out all purposes of mere ostentation, which are as sure to produce ugliness in the garden as in the house. We may also rule out the purpose of imitating nature, as being, except on the outskirts of very large gardens, both misguided and impracticable. There is also the purely horticultural purpose, very common now, which may produce much beauty of detail, but will not produce a beautiful design. Lastly, there is the purpose of making the garden a pleasant habitation in hours of ease and fair weather, just as there is the purpose of making the house a pleasant habitation at all times.

Only with this purpose can a garden be made con-

sistently beautiful both in design and in ornament, with a beauty that seems to ennoble the pleasures that it serves. There is something in the order and quiet of a beautiful formal garden, in its perfect reconciliation of nature and man, which gives one a greater love of life, and this is just the same feeling that one gets from the enjoyment of a beautiful house. Both seem to prove that man is not a mere defacer of the world, that if he chooses he can add beauty to it, even in fulfilling his own wants, like the flowers themselves. The best art is nearer to nature than any attempt to imitate her, because it comes into being, like her beauties, for some purpose outside itself.

THE RIGHT USE OF FLOWERING SHRUBS

IT is often said that flowering shrubs are too little used in our gardens; and, indeed, considering their number and beauty, we may wonder that more is not made of them. Yet there is some reason for their neglect, for of all the ornaments of the garden they are the most difficult to place rightly. We are uncertain whether to treat them as shrubs or as flowers. Many of them cannot be used, like other shrubs, as a foil or background to flowers, since they have too strong an interest of their own when they are in flower; and when they go out of flower they often lack the neatness and flourishing air of other shrubs. They have made their great display, beautiful while it lasts but often short-lived, and when it is over they have a spent look like herbaceous plants after their flowering time. On the other hand, it is difficult to treat most of them as flowering plants and to place them among other flowering plants in the border, because of their size and because their roots rob the ground of nourishment and moisture which the other plants need. In a large garden, of course, they may be placed by themselves in great shrubberies; but these are seldom satisfactory, especially when they consist of many kinds of shrubs. It is far more difficult to make a pleasant arrangement of different flowering shrubs

than of different herbaceous plants. The units of the arrangement are so large that any intricate interweaving of colour is almost impossible; besides, shrubs cannot be put close together like smaller plants without suffering from overcrowding. Most of the plants of the border can be divided when they grow too thick and the soil may then be redug and enriched. But shrubs, to flourish, must be left alone. You cannot be always experimenting with new combinations or removing the smaller shrubs when they are overshadowed. Your planting must be made once and for all; and without the power of frequent experiment how are you to get the experience necessary for skilful arrangement? You cannot even be sure of profiting by the experience of others, unless their conditions are exactly the same as yours; for some shrubs grow apace in one kind of soil and others in another; and a combination that succeeds in a rich loam may be a failure in a light gravel. Nothing looks so miserable in a garden as a flowering shrub that does not thrive. It is so large a monument of failure that it may poison all the gardener's pleasure in his garden, and one sickly shrub will mar the effect of a whole shrubbery.

Then again, the very number and diversity of flowering shrubs are apt to intimidate the gardener. There are so many that he would like to have, even among those quite familiar to him, that he does not know where to begin, especially if his garden is not very large. And flowering shrubs have such different

associations. An Apple tree seems to belong to a different world from a Rhododendron, and a Magnolia from a Hawthorn. Associations may be quite arbitrary and may change from time to time; but you can no more ignore them in the use of shrubs than in the use of words. There are some shrubs that always have an exotic look, and need to be used as discreetly as foreign words or phrases. You cannot plant them without incongruity among those shrubs that seem to belong to the immemorial past of our gardens. Some day, perhaps, the hardy Azaleas will look as homely as a Damask Rose; but at present they still seem to belong to the Far East, so closely are they associated in our minds with Japanese drawings and decoration; and it is not easy to find plants that will combine well with them.

We have said enough to show that the problem of flowering shrubs — a problem at once horticultural and æsthetic — is peculiarly difficult; and it is better not to use them at all than to use them badly, especially in the formal garden. It must be confessed that formal gardens, so far as flowering shrubs are concerned, are at a disadvantage compared with wild or even with ordinary landscape gardens. The best tradition of formal gardening was developed when there were but few flowering shrubs, and it afforded few opportunities for the use of them. It was timid even in the use of Roses, the chief of all flowering shrubs; and now that there are so many Roses that can be treated as true flowering shrubs and not as

mere blossom-producing machines, we are not likely to be content with any timid use of them. Nor can we content ourselves with a timid use of all those earlier flowering shrubs and trees which make the glory of late spring in large gardens, and in garden cities like Oxford with Hawthorn pink and white, and Laburnum, and Lilac and the Guelder rose, and all the Cherries, and Apples, and Plums. We cannot forgo the rapture and abundance of these any more than we can forgo the innumerable twinkling of Crocuses and Squills and Daffodils in the grass. But the question remains, how are we to have them without injuring the other beauties of our gardens; and that question is not easy to answer. Where the garden is very large the problem is easiest. There, flowering shrubs may be planted in broad masses and combinations on the wilder outskirts, and more sparsely and carefully nearer to the house. An occasional flowering shrub may be placed with artful irregularity even in the most formal parts of a garden. Nothing looks better than a single Hawthorn or Laburnum placed, as if by accident, in the corner of a cloister, and it may be used in the same way in a garden close. But there must be no regularity in the planting of such things, or it will distract the eye from the regularity of the main design. To plant a Hawthorn in each corner of a cloister or a garden close would be a fatal absurdity. What is needed is a contrast between the general order and symmetry and a single beautiful accident, for there should be some one ap-

parently accidental beauty in every garden design, however formal, as in every picture, however systematically composed. Without it there seems to be no inspiration and no spontaneity, nothing but a timid anxiety for correctness. And here, perhaps, we may have arrived at a principle for the use of the larger and nobler flowering trees and shrubs, at any rate in more formal and confined gardens. They should be employed not systematically, like flowers or shrubs of utility, but as accidents and surprises, to enliven the formality of the whole. Needless to say, they must be so employed with great restraint. Accidents and surprises, if too often repeated, lose their effect. But the difficulty in every design is to combine restraint with abundance, to know where to be lavish and where to be sparing. Flowering shrubs are most beautiful objects, at any rate, when in flower, and some gardeners, therefore, are tempted to plant them in abundance; but the better course seems to be, at least in small or formal gardens, to use them sparingly in combination with an abundance of herbaceous and other flowering plants. There must be a sacrifice somewhere, especially nowadays, when we have such an infinite variety of all kinds of ornamental plants; and the sacrifice should be made on some principle. Now, there is a principle in the sparing use of flowering shrubs, because they are, as we have said, too large for units in any ordered combination, except in a very large garden. Therefore, they should be used as accidents.

We are all familiar with the accidental use of "ornamental conifers" in landscape gardens, and most of us are tired of it. It is usually unhappy, because these conifers are too formal and not interesting or beautiful enough in themselves for such a use, and also because single accidents are superfluous where everything is intended to look accidental. An accident in a design should be striking and beautiful in itself, and should be used to correct and contrast with the general formality of that design. Therefore, shrubs or trees brilliant in their flowers and informal in their growth should be employed for that purpose. They should contrast in every respect with the more formal elements of the design that will serve as a foil to them. Thus evergreen flowering shrubs, such as *Berberis Darwinii* or *B. stenophylla*, should not be placed against an evergreen background such as a yew hedge. That should serve as a foil rather to some deciduous tree with leafage of an utterly different colour. Nothing is more beautiful in a garden than contrasts of foliage, where they occur once and as if by accident. Nothing is more restless and wearisome than such contrasts where they are incessant and too varied. Thus a mixed shrubbery, even if it is altogether composed of beautiful flowering shrubs, is seldom beautiful as a whole. The items seem to jostle each other and to compete for your attention, like advertisements on a hoarding or pictures at an exhibition, and they compete most violently when they are in flower together and in their fullest beauty. But a

single flowering shrub rightly placed in front of a dark barrier of greenery has your eye to itself and satisfies it, like an altarpiece in a quiet church. Nor does it compete with any border of flowers near it, for their beauty is on a different scale and of a different order. But in a large garden formally designed there may be a greater abundance of flowering shrubs than is possible with this accidental use of them, if only they are arranged in an orderly fashion and without too great variety. The best Rose gardens give us hints for the treatment of other flowering shrubs by which we have not yet profited much. There is no reason why we should not have shrubberies arranged like roseries, not in a thicket all struggling together for life and notice, but widely spaced at regular intervals and with regular repetitions and alternations. In such a shrubbery only a few kinds should be planted. Harmony and simplicity, rather than variety, should be aimed at, and the different shrubs should be chosen so as to agree or contrast well together in the colour and character of their foliage and in their habit of growth, and also to provide a succession of bloom. Lower growing shrubs might be placed between the taller ones, just as dwarf Roses fill up the spaces in a rosery between the occasional great Pillar Roses. Thus a shrubbery with pink Hawthorn and the tallest Philadelphus (*Syringa*) alternating at regular intervals might be filled up with masses of Lavender and *Cytisus præcox*. But the possible combinations of such a shrubbery are

innumerable, and we only mention this one as an example. When the taller shrubs are straight and aspiring in their growth, those in between should be of a more spreading and bushy habit; and these smaller shrubs should be planted as close together and be encouraged to grow as evenly as possible. The ground must be well covered at all costs, and all the shrubs must thrive, or else the effect will be more ragged even than in the ordinary mixed shrubbery. There is no reason why some of the tall Pillar Roses should not have their place in such an arrangement, alternating with Lilacs or some of the taller Spiræas. Nothing can look better than pillars of Dorothy Perkins encircled with Lavender or some other low-growing glaucous-leaved shrub. Where there are spaces between the smaller shrubs they may be filled with masses of German Irises or Pinks or any other plant that keeps some of its beauty all the year. But in any case the shrubs, whether massed or single, should be regular in their arrangement and but little varied in kind.

The use of shrubs about a lawn is a very difficult problem, especially in landscape gardens where there is no formal or quiet background to serve as a foil for them. Shrubs seldom look well when they are planted at regular intervals about a lawn, especially if they are at all stiff or formal in habit. On the other hand, single shrubs dotted here and there are apt to seem pointless and forlorn; and so are beds of low-growing shrubs such as Rhododendrons or Azaleas. These

need a background of quiet greenery and some place that seems to be made for them, not cut out arbitrarily from a great expanse of grass. They should, therefore, always be on the outskirts of a lawn and in some bay encircled with taller shrubs or trees. Then they may have a splendid effect when in flower. Of the larger shrubs the best for the lawn are those which become small trees in time, such as Hawthorns, Judas trees, and Apples. It is strange that Apple trees should so seldom be planted anywhere except in the kitchen garden. Apart from their use, they are, perhaps, the most beautiful of all flowering shrubs, and peculiarly suitable by reason of their spreading growth, for planting on the outskirts of a lawn. Where a lawn is very large it would be well to have an irregularly arranged orchard or grove of Hawthorns at the end of it; and even where it is smaller a few Apple trees or Hawthorns planted together would in time make a pleasant shade, and serve as an agreeable transition to some other part of the garden. But, as we have said, the problem of flowering shrubs is a very difficult one; and we do not now pretend to do more than explain the nature of its difficulties and offer a few suggestions for dealing with them.

THE ASSOCIATIONS OF FLOWERS

I

A LARGE book full of poetry and curious learning might be written about the associations of flowers; and there are few of us, at least among those who care much for flowers, who can think of them apart from their associations. In this respect, as we remarked lately, they are like words. Some are degraded by their associations and others exalted. Some are connected with history and the poetry of the past, others only with bad fashions and foolish pretensions of the present. Compare, for instance, the associations of *Iris florentina*, the true Flower de luce, with those of the ordinary yellow *Calceolaria*. The *Iris* is certainly more beautiful than the *Calceolaria*. But it is also the Lily of France. It has been embroidered upon banners, and painted upon coats of arms. It has led men into many victories, and now it is the symbol of a lost cause. But the poor *Calceolaria* is merely the symbol of a discredited fashion in gardening. We can scarcely see it without thinking of its complementary yet discordant associates, *Geraniums* and *Lobelias*, just as we cannot see the words *transpire* or *phenomenal*, even when they are rightly used, without thinking of the manner in which they have been misused by bad writers. The associations

of some words make them impossible for poetry, and the associations of some flowers are apt to exclude them from the borders of imaginative gardeners.

No doubt it is easy to be too fastidious about associations. A language becomes impoverished when its writers will run no risks in their use of words, when they are more careful not to offend a pampered taste than to express their meaning at all costs; and so a gardener may think too much of the associations of his flowers and be concerned rather with the past than with the future. For after all flowers, like words, when they have been degraded by a bad use, may be ennobled by a good one. The little blue *Lobelia* does not deserve to be banished from our gardens because it has been so often discordantly combined with *Calceolarias* and *Geraniums*. It is not the native of a ribbon border, and, no doubt, if we had only seen it growing wild in South Africa we should recognize its beauty. In this respect flowers have an advantage over words. They are not made by men to begin with, and, therefore, cannot, like some words, be condemned to ugliness and base uses from the first. Some of them are so capable of transformation that, in their garden forms, they may become positively ugly; but few, if any, are positively ugly by nature. It is only misuse, and the associations of misuse, that make them seem ugly to those who have never seen them rightly used.

There are some plants, especially those of the desert, that can scarcely be rightly used in our gardens.

But these we can do without. There are others that a gardener may take a pride in delivering from the associations of misuse and in treating so skilfully that their beauty will surprise those who have only seen them maltreated. Plants that deserve such deliverance and to get associations more worthy of their beauty are, besides Lobelias, the garden Hyacinths, the early Tulips, Echeverias, and other plants associated with carpet bedding, and even Geraniums and Calceolarias. But we have said enough about the unpleasant associations of flowers. They nearly all come from misuse, and will quickly disappear when misuse ceases.

Yet there are some plants that have associations, evil and sinister rather than merely unpleasant, plants that belong to the romance of malign enchantment and about which legends have gathered that we cannot forget when we look at them. The chief of these in England is the Deadly Nightshade, *Atropa belladonna*, which has every sinister quality. It is rare and looks as poisonous as it is, and it grows usually about old ruins and deserted houses. Its names, both English and Latin, prove how much it has impressed the imagination of men. It is the viper among plants, and one might expect a viper to lie in ambush in its shadow. Indeed it is often associated with serpents in allegorical pictures. Other plants of the same family are scarcely less sinister. The Henbane, for instance, is apt, like the Deadly Nightshade, to grow about ruins and deserted houses; and, though

it has a curious beauty of its own, it looks scarcely less sinister than the Nightshade, with its coarse hairy leaves and dingy purple netted flowers. It also has an evil smell. It is strange that these plants should have habits so consistent with their appearance. A rationalist might say that we have come to think they look sinister because of the places where we usually find them. But they would look sinister in a spring meadow or a cottage garden. And there is no doubt that, like Nettles, they have a curious affection for places once occupied and now deserted by man. They are parasites that come with ruin and neglect. They seem to thrive best either where man no longer thrives or where he has never been; and, perhaps, when the famous New Zealander contemplates the ruins of St. Paul's he will find the streets of London overgrown, not with grass, but with Henbane and Deadly Nightshade.

A still more famous relation of Henbane, the Mandrake or Mandragora, is now much less familiar to us. In Mr. Robinson's "English Flower Garden" it is dismissed as "suitable mainly for botanical collections." But Parkinson treated it with the respect due to a plant renowned in literature and legend. He speaks of the heady or strong stuffing smell of its apples, and says that he has often transplanted Mandrakes, "but never found harm by so doing, as many idle tales have been set down in writing, and delivered also by report, of much danger to happen to such as should dig them up or break them." And he adds,

“Neither have I ever seen any form of man-like or woman-like parts in the roots of any. . . . But many cunning counterfeit roots have been shaped to such forms and publicly exposed to the view of all that would see them.” He does not even mention the fable that the Mandrake shrieks when pulled up by the roots. Its fame still survives in literature from the Book of Genesis to *Othello* and that strange poem of Donne’s that begins:—

Go and catch a falling star,
Get with child a mandrake root.

But its fame has almost outlived the plant itself, so far as our gardens are concerned, and many gardeners would not recognize it if they saw it. It has so little beauty that now, when it is no longer used as a medicine, it could only be grown as a curiosity.

The pleasant associations of flowers are of several different kinds, and have much effect upon their treatment in gardens. Thus we naturally associate the most beautiful of our native wildflowers with wild places. There is no reason in the nature of things why Primroses and the English Daffodil and Bluebells should not be grown in the border; yet their beauty seems to us to be lessened by putting them there because we think of them as a part of the beauty of the woods or meadows. The Daffodil, even in its most elaborate garden forms, is still for us a meadow flower because of its likeness to the Wild Daffodil. But the Pheasant-eye Narcissus is not, because, al-

though meadows are full of it in Switzerland, we have no form of it that grows wild in our fields.

There are many plants that have not been developed by the florists which we think of only as garden plants because we have never seen them growing wild. We could scarcely imagine, for instance, a wild Madonna Lily. The very name, which, by-the-by, is quite modern, associates it not only with man, but with the art of man. It appears in many famous pictures of the Virgin, from the Annunciation of Fra Angelico to that of Rossetti. But nowhere perhaps is it so beautifully used as in Lippo Lippi's Coronation, where the white flowers shine above the attendant angels against the blue background.

These Lilies are just the same as those which grow in our gardens now; but few of our modern Roses are much like those which are blown by Zephyrus upon Botticelli's new risen Venus. They are small and rather prim in the arrangement of their petals. They have no thorns, and if Botticelli painted them from a particular model it may have been from the thornless Rose described by Parkinson. But to judge by most old pictures of Roses primness was once considered a virtue in them as in Dahlias and Columbines. Perhaps now we have gone too far the other way. At any rate, our modern Roses have utterly outgrown all the old artistic associations of the flower; and the Tudor Rose does not seem to belong to our gardens like the Fleur-de-lys. The new Roses, whether hybrid perpetuals or teas or ramblers, have yet to

make their artistic associations almost as much as Orchids or any novel species of Primula or Poppy just imported from the East. True, they have been painted by Fantin Latour and other skilful artists; but a flower is not thoroughly at home in art until it has been conventionalized for decoration, until we have in our houses, not mere representations of it in a frame, but the flower itself tamed without loss of character into a beautiful pattern.¹ Then, indeed, it becomes a part of our lives, as wild flowers are a part of the life of the earth. But it must be very familiar to us and very much beloved before it can be so tamed. A designer cannot take any flower he chooses and make a pattern of it, or at least one that will please us for long. Such patterns must grow and be perfected under the hands of many different designers; and the flowers of which they are composed must be chosen by the consent of the world, like the flowers familiar in poetry or legend or the figurative speech of men. Indeed, we may compare the decorative use of flowers with those felicitous names which they only get when they have been familiar and beloved for centuries, and which we find it impossible to fix upon even the most beautiful of new flowers; and just as the very abundance of new flowers makes it more difficult for us now to find good English names for them, so it makes it more difficult for us to employ

¹ Remarkable illustrations of the last phrase of this foregoing sentence are found in Foord's "Decorative Flower Studies," Batsford, London, 1901. L. Y. K.

them in decoration. There are so many competitors for our affections that we are bewildered among them; and before any associations have gathered about one novelty we are distracted to another. We have no right to complain of our riches, and no doubt in time the novelties will be exhausted, and only the best of them will be kept. Then they will begin to gather associations about them and to get beautiful names, and to pass into decoration and poetry and legend. But at present it would be almost as difficult to make a good pattern out of *Incarvillea Delavayi*, beautiful as it is, as to introduce its name into poetry. The flower, like the name, has no associations for us yet; we admire, but do not love it. It must grow in our gardens for a long while before its image can grow in our minds; and decoration is made of mental images rather than of imitations of particular objects. In the same way the felicitous names of flowers express ideas of flowers that have grown up in men's minds slowly and with long association. No doubt they are often invented in a happy flash of fancy; sometimes they are expressive corruptions of an inexpressive original; but in any case they are not accepted unless they express the common idea of a flower. And that idea is made, not only by the peculiar character of its beauty, but by all the associations and the romance that have gathered about it, not only by its own life, but by its connexion with the life of men. We cannot tell why this connexion should be established more in the case of some flowers than of others

that seem to be equally beautiful and are equally familiar, or why some flowers that have had felicitous names in the past have lost them now. We can only note that it is so; and, having made these general remarks, we propose to treat the subject in more detail in another article.

THE ASSOCIATIONS OF FLOWERS

II

Although we, as a nation, have a strong love of flowers, yet they do not mean as much to us as they mean to the Japanese, or, at any rate, we do not manage to express our love for them as systematically or as clearly as the Japanese. It is, of course, a defect of our modern life that we do not manage to express anything very systematically or clearly. Indeed, we rather take a pride in being inarticulate; and not only in ordinary speech but in all our manners and actions we conceal our deeper feelings, whereas the Japanese, for all their Oriental composure and suppression of transitory and individual emotions, have elaborated a ritual for the expression of emotions and tastes that are national and persistent. Flowers for them are not merely toys or ornaments. It is impossible, probably, for any European to understand all that flowers mean to them and how far they love them for their own sake or how far as symbols, chosen by reason of their beauty, of certain qualities which they cultivate as carefully as the flowers themselves. Flowers, such as the Cherry blossom, the Iris, the Pæony, and the Chrysanthemum, have for them associations so ancient and so strong that in the in-

dividual blossom they must always see the type, with all that it implies to them, not merely of beauty, but of virtues which seem to them beautiful, and which they try to produce as naturally and inevitably as a plant bears its flowers. Even if we know nothing of their life and language, we can tell from their art how intimately flowers must be connected with their lives; for in that art flowers are almost as prominent as the human form in the art of the Greeks. And just as, in Greek art, the human form is simplified into types without loss of character, so in Japanese art flowers are simplified into types without loss, indeed rather with emphasis, of character. This kind of simplification cannot be achieved without a great knowledge and love of the object simplified. Nor can it be achieved by an individual, but only by a succession of artists working for a public very familiar with the subject matter of their art. It means that artists and public alike have mental images of their subject matter composed of all those qualities in it which have most significance for them and continually strengthened and enriched by a disinterested study of nature.

One has only to compare the illustrations in an English and Japanese flower catalogue to see how strong are the Japanese mental images of flowers, and how weak are the English. The English illustrations, whether from drawings or from photographs, are representations of individual flowers and nothing more. The Japanese, though they have just as much individuality and far more character, insist upon the

flowers' typical beauty. One can see that even to the humble artist of the catalogue these flowers are familiar, not as mere objects of commerce, but as elements of his own life, and that in painting them he has been concerned, not merely with the indifferent representation of facts, but with the expression of feelings common to his race. Thus even he, working with a professedly commercial object, has command of a tradition which is altogether wanting to the best European flower painters, and which was wanting also to the Dutch flower painters of the seventeenth century. They, with all their skill, painted like florists and for a nation of florists. One can see that they belonged to a people who thought of flowers rather as ornaments for the house than as having an independent life of their own. In their pictures the flowers are always composed into elaborate nosegays, autumn, summer, and spring flowers all mixed together. They communicate to us no sense of their growth. They are interested only in the individual blossom, not in the plant; and their favourite dewdrop is intended rather as a touch of realism and a proof of skill than as a suggestion that the flowers have ever grown out of doors. But the Japanese flower painters, even the catalogue artists, treat flowers like landscape painters rather than like florists. They may show us only a few blossoms, but they seem to be growing in the open air. They always insist as much on the character and growth of the whole plant as on the beauty of individual flowers; and it is plain

that they have studied the plant as it grew, and not merely its flowers picked and arranged in a nosegay.

The Japanese are great gardeners, but they have never become florists, partly perhaps because most of their flowers are indigenous, and they are used to see the types of even their most elaborate garden flowers growing wild; but chiefly because the very life of flowers is sacred and significant to them almost as human life is to us. No doubt these two reasons are connected with each other. For we are much more ready to play tricks with exotic than with native flowers; we take much more pleasure in the whole life and growth of a Primrose or of a Bluebell than in the life and growth of a Dahlia or of *Lilium Auratum*. The Japanese have a great advantage over us in the splendour and variety of their native flora. Flowers must make a great appeal to the imagination of any one where *Lilium Auratum* is to be found growing wild; and there must be little temptation there to make a sharp division between wild and garden flowers or to treat garden flowers as utterly artificial things. It may well be that the splendour of the native flora has had a most powerful influence upon Japanese art, and even that it has made the Japanese an artistic people. However that may be, there can be no doubt of the great part which flowers play both in their life and in their art. And their flowers are so closely connected with their art that even for us they are most strongly associated with it. Every one will have noticed how many Japanese flowers seem to

have a peculiar Japanese character; and how by reason of that character they have a foreign look in our gardens. The explanation of this must be, not that they come from a very distant country, but that they are associated with an art utterly different from our own, so different that, however much we may admire and imitate it, it still remains strange and unreal to us. And thus Japanese flowers, beautiful as they are and in many cases easily grown in our gardens, are apt to look strange and unreal to us. They seem not works of nature, but the products of a fantastic Oriental mind. The Japanese have made decoration of their flowers with so little elimination or perversion of fact that the flowers themselves seem to us to be decoration, of an utterly alien kind, even when they are growing in our gardens or half wild in our woods. The hardy azaleas are grown everywhere now, but there is still something in their beauty that is incongruous with our English gardens; and there is the same incongruity in nearly all Japanese shrubs which flower before their leaves are fully out, particularly in the early flowering magnolias. It is a curious fact that even Japanese flowers which are not familiar to us in Japanese art, such as the *Platycodon*, have a Japanese look; and that the *Funkias* or Plantain Lilies which have been so long in our gardens still seem to belong to a different world from that of the Larkspurs and Phloxes and other border plants commonly associated with them. These plants have certain qualities of texture and form upon which

the Japanese are apt to insist in their decorative treatment of flowers; and thus we seem to see Japanese art in the plants themselves, so strong is the influence of that art upon our minds.

But however much we may admire and imitate it, it is not our art, and we cannot make it ours. Familiarity with it only makes the things most commonly represented in it seem the more foreign to us. If it were not for Japanese art many Japanese plants would now seem quite homely to us which we still find incongruous with the ordinary plants of our gardens, and which for that reason we cannot love as much as we admire them. Beauty is not the only quality for which we love a flower. The very fact that flowers are the most beautiful objects in nature makes their associations so powerful that often these associations gather between us and the flower itself, so that we cannot see it exactly as it is but only through its associations. Often, of course, they are connected not only with its appearance, but with its scent, and the sense of smell calls up associations more quickly than the sense of sight. But for its scent, Mignonette would be a mere curiosity, and grown only in botanical collections. Bluebells are beautiful flowers, but it is their scent even more than their beauty that evokes for us all the delight of woods in May, the songs of birds and the whisper of leaves in the wind, as well as the coloured light and shadow. And it is the faint odour of Primroses which most powerfully reminds us of the mossy places in which they grow and of the

cool and fitful weather of their flowering time. In fact, scent is to sight what poetry is to painting; less definite but far wider in its power, moving us more by association than by a direct appeal, enriching the present not merely with visions but with sounds and emotions of the past, and seeming to involve all the other senses and the mind as well in one complex delight.

It may be that our sense of smell is growing less acute. Certainly we seem to lay less store by scented flowers than our ancestors used to do, to judge by their writings. Bacon is not often a poetical writer, but when he speaks of the scent of flowers he writes, though in prose, like Shakespeare himself. The breath of flowers, he says, is far sweeter in the air (where it comes and goes like the warbling of music) than in the hand. There are many people now who never notice that a flower is scented at all unless it is thrust under their noses. Then the list which he gives of flowers that are fast of their smells and of those which yield them to the air proves that he was curious in this matter. He notes, for instance, that Strawberry leaves dying yield a most excellent cordial smell; and that Burnet, Wild Thyme, and Water-Mint perfume the air most delightfully, not passed by as the rest, but being trodden upon and crushed. "Therefore you are to set whole allies of them, to have the pleasure, when you walk or tread." Parkinson, too, is often very elaborate and exact in his description of scents, whether sweet or foul; and far more plants were

grown in the past for their scent alone than are grown now. Indeed, we have become so indifferent to scent and all its delightful associations, that it is scarcely considered a fault in a new Rose or Carnation that it should be scentless.

It may be that the present fashion for Alpine flowers has increased our indifference to scent, for few of them have much smell, and yet their associations are so strong and delightful that it is no wonder we should overlook this deficiency in them. Probably these associations, more even than their beauty, are the cause of their present popularity. It is only natural that when men take a delight in mountains they should also delight in the flowers that grow upon them. There are thousands of Englishmen now who think of their holidays always in connection with the Swiss mountains, and for whom, therefore, everything associated with those mountains has a peculiar delight. They cannot have those mountains in their own gardens, though in one famous rock garden there is a miniature Matterhorn; but luckily they can, by the kindness of nature, have many of the mountain flowers. And these by reason of their character and beauty, in which they are so distinct from the flowers of the lowlands, do very powerfully call to mind their mountain homes. They are the only "outlandish" flowers in which we take delight because of their native associations, which seem to us wild, even in our own gardens, and which, therefore, we are as unwilling to associate with any kind of formality as our own Primroses and Bluebells and Honeysuckle. Many of them

will grow quite well in the border, and yet so grown they seem to lose half their beauty with all their power of association. Therefore we make special places for them as congruous with their associations as possible.

It is to be hoped, however, that as we travel more and more and further and further afield we shall not develop this kind of sensitiveness about all the foreign plants which we find growing in their native homes. Gardening would become impossible if we tried to imitate the natural conditions of plants from all over the world, if the new associations of foreign travel were to destroy the old associations of our gardens; if we could no longer take delight in *Lobelia cardinalis* in the border because we had seen it growing in an American wilderness; or if a cottage garden came to seem an absurdly artificial and incongruous place to us. But this is never likely to happen. At present our sense of the associations of flowers is weakened and troubled by many things, by the revolution in gardening fashions which is still continuing, and by the multitude of new plants that are constantly introduced. There are some gardeners who prize novelty for its own sake and take no pleasure in familiar beauties. But this time of revolution and discovery must come to an end; and then we shall find out which of the plants, new and old, we love the best; and about these associations will gradually gather again, and they will become familiar to us, we may hope, not only in our gardens, but also in our poetry and art.

BULBS FOR SPRING PLANTING

WE are all accustomed to think of autumn as the time for planting bulbs, and, indeed, most of our best and most familiar bulbs have to be planted in the autumn. Yet there are a good many bulbs not perfectly hardy in our winters which luckily do not, like Daffodils and Crocuses, begin their growth before the spring, and which can, therefore, be taken up and stored during the winter, and only planted when all fear of severe frost is over. Some of these, like the Gladioli, are quite familiar to us; but others are not often seen in our gardens and deserve to be grown more than they are. They are, as a rule, sun-loving plants, and should be planted in warm and sheltered places, with good drainage and light, rich soil. Gardeners often make the mistake of supposing that bulbs which grow in the poorest of soil in their native countries will necessarily need no more nourishment in England. It is natural to suppose this, but often wrong. For as human beings need more food in cold countries than in hot ones, so it is apt to be with plants. It has been discovered, for instance, that *Iris tingitana*, which thrives in Africa almost in the desert, will not usually flower in England without a good dose of manure under it. It is impossible to reproduce in England all the conditions to which

an African plant is used, and, this being so, it may often be a mistake to attempt to reproduce as many of those conditions as possible. The inevitable want of one condition can perhaps only be supplied by a change in other conditions. Only experiment can determine how far this is the case, and, therefore, when a bulb from a hot country fails to flower in England it is always worth while to try a richer diet upon it. But manure when it is given to bulbs should always be placed well below them so that they may not suffer from contact with it, and it should also be well rotted.

Many of the bulbs which are best planted for the first time in spring can be left in the ground afterwards if they are in warm sheltered places, as, for instance, close to a south wall. Such bulbs, however, should be planted deep, and in hard winters protected with litter, which should be removed as soon as mild weather comes. But if these bulbs refuse to flower with this treatment, they should be lifted in the autumn.

The best-known bulbs for spring planting are, as we have said, the Gladioli, but of these only the later flowering kinds should be planted in spring. The beautiful early flowering ones, of which there are now many varieties, start into growth in the winter and should be planted in late autumn, and protected, at least, for the first winter. Of the later flowering Gladioli there are now several groups and an infinite number of varieties. The groups also are tending,

owing to hybridization between them, to lose all distinctive qualities. From nurserymen's catalogues one can only learn, as a rule, that each group is generally considered superior to all the rest. The oldest group was *G. gandavensis*, supposed to be a hybrid between the natural species *G. psittacinus* and *G. cardinalis*, but other species were afterwards crossed with them. The well-known *G. Brenchleyensis*, the scarlet *Gladiolus*, is probably only a form of *gandavensis*. The other groups are all hybrids either between *Gandavensis* and some natural species, or between *Gandavensis* and other hybrids. Thus *G. Lemoinei* is a hybrid between forms of *gandavensis* and *G. purpureo-auratus*, and the strain of the latter parent has produced some varieties that are almost blue. Then Mr. Lemoine has produced a new group, *nanceianus*, by crossing *G. Lemoinei* with a species of *G. Saundersii*. These have larger flowers than *G. Lemoinei*. Close to them are *G. Childsii*, hybrids of *G. gandavensis* and *G. Saundersii*. Of all these groups *G. Lemoinei* are the most distinct in their colours and markings. The largest of all gladioli is a new variety, *Princeps*, of a fine scarlet colour with a white stripe. The culture is the same for all. They may be planted from the beginning of April to the end of May, and the earliest planted come into flower about the middle of July. The *Lemoinei* group flower the earliest, the hybrids with *G. Saundersii* the latest. Gladioli are at their best in a rich loam, though they will do well enough in a light soil if it is well manured. The ground

should be well dug and manured some months before planting, but no manure should be close to the bulbs. The position should be warm and sunny, and the plants must be watered in dry weather. The bulbs must not be lifted until they are thoroughly ripe—that is to say, not until the end of October. Then they should be kept in a dry place and protected from frost.

Many Lilies are best planted in spring, especially those imported from Japan, which do not usually arrive in time to be planted earlier. But we have written of Lilies before. There is also little need to speak of such well-known plants as Montbretias, Galtonias (the Cape hyacinth), and Schizostylis coccinea. These are all hardy, except in the hardest winters in very cold parts of the country, but they are best planted in spring. The Schizostylis, or Kaffir Lily, is valuable because it flowers in late autumn. It requires the same kind of culture as Gladioli, but prefers a rather lighter soil, especially if it is not lifted. In very cold winters it should be protected.

A bulb that deserves to be better known is *Lapeyrousia* (or *Anomatheca*) *cruenta*. It is like a very small *Gladiolus*, with scarlet flowers spotted a deeper colour. It should be planted about the end of March, and flowers for a long time, often persisting from July to September. It is an excellent bulb for the rock garden, as it is only about 9 in. high and requires sharp drainage. Otherwise it is quite easy to grow. It is not certainly hardy, but in a warm place will survive

most winters if it is planted about 6 in. deep. The soil should be light and mixed with leaf-mould and rubble.

The beautiful *Amaryllis belladonna* is hardy in a warm place, as, for instance, against a south wall. It likes a rich loam mixed with leaf-mould and rubble, and should be planted 9 in. deep. Sharp drainage is very important, and a good layer of manure well below the bulbs will encourage it to flower well. It should be disturbed as seldom as possible.

Crinum longifolium (*C. capense*), a noble bulb closely related to the *Amaryllis*, is still hardier, and may be grown in a sunny border. It has pale pink flowers, and there is a beautiful white variety. It likes a rich soil and plenty of water while growing. *C. Moorei* and *C. Powellii* are scarcely less hardy. There is a splendid white variety of *C. Powellii*. They need the same cultivation as *Crinum longifolium*. The genus *Zephyranthes* is also closely related to the genus *Amaryllis*. Nearly all its species are tender, but one, *Zephyranthes candida*, seems to be quite hardy in warm situations in most parts of England. In South America it is a marsh plant, but, like its fellow countryman, *Nierembergia rivularis*, it requires good drainage in England. The soil should be rich and the position sunny. The flowers are white and like those of a crocus, only more starry; sometimes they are slightly tinged with pink. It is an excellent bulb for the rock garden, especially as it flowers in September, when rock gardens usually have few

flowers. *Zephyranthes Atamasco*, a very beautiful plant with large white flowers flushed with pink when they first open, is hardy in very warm places, but should be protected in winter. It is also a marsh plant by nature, but needs the same culture in England as *Zephyranthes candida*.

The *Tigridias* are well enough known, but not so much grown as they deserve. It is true their flowers last but a short time, but they are so strangely beautiful and borne so frequently that this may be forgiven them. They belong to the *Iris* family, and in shape are rather like *Iris*es, though the petals which would be "standards" in the *Iris* are pressed back upon the "falls" or lower petals. *Tigridias* come from Mexico — *Tigridia pavonia* is the species commonly grown — and it is not safe to leave them out all the year in England, though they will often survive mild winters. They should, therefore, be treated like *Gladioli*, planted out in March, lifted when the leaves die down, and stored for the winter in sand. They like a very sunny position and a rich, well-drained soil. They do miserably if they are starved either of food or of sun. In very dry weather they should be well watered. They begin to flower in July and continue, when well treated, for about two months. Most of them are self-coloured on the outer part of their broad lower petals, and strongly spotted in the middle. There is a yellow variety, spotted crimson; a scarlet variety, with darker spots on a yellow ground; a beautiful white variety, with deep pink spots; and a pure white variety.

The Nerines are beautiful bulbs for the greenhouse, but *Nerine Sarniensis*, the Guernsey Lily, is worth trying out of doors in a very warm spot with the same culture as *Amaryllis belladonna*. It should be carefully protected in winter and disturbed as seldom as possible. It is only a bulb for the skilled gardener, but its beauty is so great and strange that it is worth some trouble.

The *Panocratiums* are little grown in our gardens, but *Pancratium Illyricum* is a beautiful plant, closely related to the Daffodil, and hardy, at least in most winters, in the south of England. It should be planted as early as possible, as it flowers in June. It likes a good sandy loam in a well-drained sunny position. The flowers are white, curiously shaped, and sweet scented. *Pancratium maritimum* also has white scented flowers, but it is not so beautiful as *P. Illyricum*. It flowers a month later. It was apparently known to Parkinson; at least the plant, which he calls *Narcissus marinus*, or the great white Sea Daffodil, seems to be the same, though his illustration of it is rather conventional. He remarks that "it will not thrive and bear flowers if it be often transplanted, but rather desires to abide in one place without removing."

Parkinson also speaks of another most beautiful bulb not often seen in our gardens — namely, *Ornithogalum Arabicum*, "the Great Starre-flower of Arabia," but he gives it the bad reputation which it still possesses. He recommends that it be kept out of the ground from September to February in a

dry place and then planted under a south wall. But, even with this care, it will seldom flower more than once in England. Luckily, however, it is a cheap bulb to buy and far the most beautiful of its genus.

Milla biflora is the only species which is still allowed to this unfortunate genus. It has beautiful white starry flowers in late summer; and, as it only grows a foot high, is an excellent bulb for the rock garden. It is not hardy and should be treated like the *Gladioli*.

Crocus (or *Tritonia*) *aurea* is a pretty little plant like a small *Montbretia*. It has orange red flowers in late summer. It is not quite as hardy, perhaps, as the *Montbretias*, but in warm places will stand most winters. Like the *Montbretia* it increases very rapidly, and the bulbs will overcrowd each other if they are not taken up and replanted every two or three years. They should be taken up when the leaves die down, and it is then safest to store them for the next winter.

It is, of course, a common practice to plant many species and varieties of *Anemone* in spring, but, except in very cold heavy soils, those which are usually planted in spring, such as the varieties of *Anemone coronaria*, are better planted in August or September, or, better still, raised from seed, sown where they are to grow. *Anemone fulgens* seldom does much the first year if it is planted in spring. Early autumn is the best time for planting it, as also for the varieties of *Anemone stellata* or *hortensis*. The varieties of

Ranunculus Asiaticus, however, are best planted in February or March; although the Turkish or Turban *Ranunculi* are hardier than the French or Persian, and will often do well if planted in October or November. These garden *Ranunculi* have gone out of fashion with other flowers that suggest Dresden china. But they have a considerable precise beauty of their own and their colours are exquisite. It is a pity that single forms of them are not more cultivated. The single scarlet species, however, is now becoming popular, and it is to be hoped that its beauty will cause a demand for single varieties of other colours. The *Ranunculi* require careful cultivation to do well. The soil must be rich and strong, but not too heavy, and they must not be allowed to suffer from drought while growing. They like a sunny position and are apt to rot away if planted in very wet weather. Neither *Anemones* nor *Ranunculi* are really bulbs, nor have they any resemblance to bulbs; but since they are treated like bulbs we may be excused for speaking of them now. There are many Cape bulbs worth a trial in English gardens which we have not mentioned, but most of them are little known at present and should be tested by experts before they are attempted by the ordinary gardener who does not wish his experience to be costly and painful.

RAISING PERENNIALS FROM SEED

MOST gardeners show curiously little enterprise in the matter of raising perennial plants from seed. Of course the expert gardener increases and improves his stock of plants in this way more than in any other. But the ordinary amateur seems to be very shy of attempting what is both the most profitable and the most exciting process of all the many delightful processes of gardening. Wallflowers, Snapdragons, Pentstemons, Hollyhocks, and other doubtful perennials are raised from seed as a matter of course. But the true perennials are usually either bought or begged to start with, and afterwards increased by cuttings or by the slow and sometimes injurious process of division. Now it is true that some perennials are difficult to raise from seed, and others take a long time before they flower. Many bulbous plants, for instance, such as Daffodils, Tulips, and Lilies, often take six years or more. But the great majority are scarcely more difficult than annuals or biennials, and even those that are difficult or slow will come much more easily and quickly from seed sown as soon as it is ripe. Besides, seed even of rare plants is seldom very dear; and it is always worth while to experiment even if nothing comes of it. But the great advantage of raising perennials

from seed consists in the chances of getting some fine new variety, chances which exist for the humble amateur as well as for the great florist. Many of the most beautiful modern novelties have been produced by amateurs without large trial grounds or even large gardens; and if it were a common practice for amateurs to raise perennials from seed, no doubt the number of fine novelties would be greatly increased. Again, the amateur, if he raises his own plants, can consult his own taste and aim at his own ideal in the case of those plants, such as Larkspurs and Columbines, which vary much from seed. Many of these can be developed without any skill in hybridizing and merely by the selection of seed from those varieties which are most to the gardener's taste. The gardener who is in the habit of raising perennials from seed will look into every garden with a curious eye, and if, as very often happens, he sees an unusually fine variety of some plant, he can beg a little seed of it without misgiving. No one minds giving seed, at least no true gardener, unless it be from a plant so precious that every seed must be treasured; and the gift of seed can always be repaid with a plant or two a few months later. Then the gardener may choose some particular plant to develop in this way; and if he chooses discreetly and proceeds systematically he may do wonders in a few years without occupying much ground or taking very much trouble. A great number of perennials, if the seed is sown as soon as ripe, will flower the next year. Some, if the seed is sown in early

spring, will flower the same year; and only comparatively few take more than two years from sowing to flower.

Speaking roughly we may say that monocotyledonous plants take longer than dicotyledonous plants to flower from seed, and are more troublesome to manage. But it was a common practice among English gardeners in the seventeenth century to raise Tulips from seed, and there is no reason why any amateur should not increase his stock of any rare species by this means, if he has the patience. The seed of most spring-flowering bulbous plants usually germinates very early in the year, and it is best to sow them some time in the summer or autumn in a box or pan and keep them in a cold house or frame through the winter and early spring. The seed of ordinary dicotyledonous perennials should be sown either when ripe or in the spring or early summer of the next year. It is safest always to sow them in boxes, or, in the case of the smaller and more delicate Alpines, in pans. Many perennials will germinate quickly and readily with the most ordinary routine. All that is needed is light, rich, and fairly fine soil, say a mixture of sandy loam and leaf-mould, and that the seed boxes be regularly watered with a fine rose and kept shaded and cool in hot weather. In all cases seed should be sown as thinly as possible and covered with a layer of soil proportionate to their size. Very small seed, as of the Saxifrages and Campanulas, should be mixed before sowing with a much

larger amount of silver sand and scarcely if at all covered. If the seed is carefully mixed with the sand, the sower will be able to tell by the distribution of the sand upon the surface of the soil whether the seed is evenly sown. Seedlings that are too thick are hampered in growth from their very birth, and may have to be pricked out before they are ready for that process. Very fine seed should never be sown in a draughty place, as the wind may blow it all about. More failures in the raising of seedlings come from excessive or irregular watering than from any other cause; and plants that are difficult to raise must be watered with great care and delicacy. But we are now dealing with ordinary perennials, and the gardener who is raising these will easily be able to see whether the soil is too dry or too much sodden with wet. He should water them carefully every day, and before the seed is sown he should see that the soil is thoroughly and evenly moist down to the bottom of the box. To ensure this it is best to water the soil before it is put into the box. In the case of strong growing and rich feeding plants it is a good plan to cover the bottom of the box with a layer of manure. The seedlings will root down into this and can be transplanted with their roots still fastened to it. But the box must be fairly deep when manure is used, so that the seedlings may not reach it while still very young, and the manure must be very well rotted. Manure from an old hotbed is the best to use. The seedlings must be pricked out as soon as they begin

to hamper each other's growth. And this fact shows the great advantage of thin sowing. Perennials that are thinly sown can often be kept in the seed box until they are ready to be planted out of doors, and thus a great deal of trouble is saved. It is well to have a plot of ground in the kitchen garden for seedlings; and there they may be left until the autumn, when they can be planted where they are to flower next year, or else, if the gardener intends to keep only the best of them, they can remain until they flower the next year. When seed is sown as soon as it is ripe, it is often safest to winter the seedlings in a frame, unless they have grown very strong; and for this reason most gardeners prefer to sow the seed of perennials in the spring, so that they may be large enough to face the next winter out of doors.

It would be impossible to give anything like a complete list of perennials that are easily raised from seed. We can only name some of the best and easiest of them, and they are enough to stock a large garden. All the perennial Larkspurs are very easily raised from seed, both the innumerable hybrids and species such as *D. formosum* and *D. grandiflorum* and the scarlet *D. nudicaule* and *D. cardinale*, both of which, however, are only doubtful perennials. It is now possible to get seed of the beautiful pale blue *D. belladonna*, and this is said to come true. All perennial Larkspurs will flower the next year from seed sown as soon as it is ripe, and some will flower the same year from seed sown in early spring. Columbines are

as easily raised from seed as Larkspurs, and vary as much. We have written before in some detail of these beautiful plants and of the possibilities of their further development, so there is no need to say anything further on the subject now.

Most of the Campanulas are easily raised from seed, particularly *C. persicifolia*, *C. carpatica*, *C. grandis*, *C. lactiflora*, *C. latifolia pyramidalis*, and *C. rhomboidalis*, besides many small species and hybrids suitable for the rock garden. *C. persicifolia* and *C. carpatica* vary a good deal from seed, and very fine varieties may be got by careful selection. *Alstroemerias*, although of the *Narcissus* family, soon flower from seed. The seed should be sown as soon as ripe and the seedlings planted out in the spring if they are strong enough. They should be well established in any case before they face a winter out of doors. *Anchusa italica*, a doubtful perennial, comes as easily from seed as any biennial, and fine forms can now be got from seed of the splendid Dropmore variety. *Anemone coronaria* is quite easily raised from seed sown as soon as ripe, but the seed should be sown out of doors, and kept well shaded until the seedlings are strong. The finest Anemones are those which are left to flower where the seed is sown. *A. fulgens* can be raised as easily as *A. coronaria*. Michaelmas Daisies are easily raised from seed, but so easily increased by division that it is best to get a large stock of the finer varieties in this way. The Catananches, *Centaurea montana*, the perennial species of *Coreopsis*,

Commelina caelestis, the *Dracocephalums*, *Echinops*, most species of *Eryngium*, *Erodium Manescavi*, most species of *Cranesbill*, *Gaillardias*, *Geums*, the perennial *Gypsophilas*, *Linaria Dalmatica*, the perennial *Linums*, *Lobelias*, and *Lupins*, *Lychnis chalconica*, *L. Haageana* and *L. viscaria*, *Malva moschata*, *Morina longifolia*, *Oenothera macrocarpa* (or *Missouriensis*), *O.* *speciosa* and *O.* *fruticosa*, the perennial *Poppies*, the *Pentstemons*, species as well as hybrids, *Platycodon grandiflorum*, the *Polemoniums*, the *Potentillas*, nearly all the perennial species of *Pinks*, the *Salvias*, the *Caucasian Scabious*, the *Statices*, and the *Violas* or *Tufted Pansies*, as well as many species of *Viola* — these are only some of the most familiar of our garden plants that can be raised from seed with the most ordinary care. They will all, or nearly all, flower the year after the seed is sown, and most of them will be fine plants by that time. About 60 plants have been obtained from one penny packet of the seed of *Oenothera macrocarpa*, some of which flowered the same year that the seed was sown. These plants, if bought from a nurseryman, would probably have cost sixpence apiece; so that the transaction, which entailed very little trouble or skill, was a profitable one.

There are, of course, many plants which are less easy to raise from seed. Either the seed is slow and irregular in germinating, especially when not quite fresh, or the seedlings take a long time to reach maturity. It is often difficult, for instance, to get the

seed of Phloxes to germinate, although self-sown seedlings of some varieties come freely in certain years. This is also the case with the seed of the *Gentianella*, a capricious plant in all respects, which grows and seeds itself like a weed in some places, and in others only lingers and dwindles. It is a good plan to soak the seed of both these plants for some hours before sowing in tepid water; but even then, if the seed is not fresh, disappointments must be expected. Again, the seed of *Auriculas*, and of many other kinds of *Primula*, such as *P. Japonica*, is slow and capricious of germination, unless it is sown as soon as ripe. But, in all these cases, the gardener should not despair after a few months. Seed sown in June may not germinate till the next spring. The seed boxes should be kept in frames through the winter, and then put out in warm spring rains. A sudden crop of seedlings will often be the result. Snow often produces germination in certain stubborn seeds, particularly those of the *Gentians*; and it is worth while to expose a box of these to a fall of snow in early spring. There are many plants which may ripen seeds in England in hot summers, so the gardener should choose his own time to experiment with them. Indeed he will be wise to try most of his bolder experiments in seed sowing after a hot summer; as the seed, even of plants well accustomed to our climate, is apt to be uncertain when there has been little sun to ripen it. It is well always to be on the look-out for seed even on plants that are not generally supposed to ripen it in

England. There is no strict rule in such matters; and sometimes a plant that has never even formed seed before will suddenly bear it and ripen it profusely. Then the gardener, if he is watchful, may get a large stock of a rare plant for nothing except his pains. It is difficult to give precise directions for the treatment of capricious seed, or of seedlings that are hard to bring up. Different plants need different treatment at all periods of their life; and general principles, if easy to lay down, are hard to apply. Watering is the most important point, and the keeping of the soil fresh and sweet. Boxes or pans that are to contain seedlings impatient of stagnant moisture should be well drained, but in such a case the soil should be of such a nature that it will not dry very quickly. It is, therefore, a good plan to use a compost retentive of moisture, such as rough peat and fibrous loam and leaf mould; but the surface, as in all seed beds, must be much finer, and should consist of well-sifted soil mixed with silver sand. In this the seed can be easily covered and will germinate readily, and as the seedlings grow they will throw down their roots into the richer and rougher soil below. Gardeners often take great trouble to make all the soil in their seed boxes very fine, with the result that it holds no moisture, and that the seeds do not germinate, or that the seedlings wither up in their first infancy. It is a good plan to cover up seed boxes with a sheet of glass or even a newspaper, to prevent evaporation. But this must be removed soon after the seeds have germinated.

No seedlings, of course, must be exposed to a hot sun, but they should have as much light and air as possible from the first. They always require careful watching in their youth, and it is only by that means that the gardener can learn how to treat them. He should also know something of the habits of plants which he wishes to raise from seed, as that knowledge will give him some idea how much they ought to be watered, how much sun they will endure, and what amount of drainage and what kind of soil they will need. Of course, in natural conditions, the seed germinates near where the parent plant grows; and the gardener's aim should be, not to depart entirely from these conditions, but only to modify them so as to make germination more certain.

These are only a few general hints on a very large subject, but they may be of use, at any rate, to those amateurs who have never themselves attempted the most exciting and delightful of all gardening processes.

THE BEAUTY AND CHARACTER OF FLOWERS

ONE might become very metaphysical over the beauty of flowers; and it would be good for metaphysicians to observe their beauty disinterestedly for a long time before attempting to deal with æsthetic questions. "To look with the eye confounds the wisdom of ages." It gives you a respect for facts, for the thing in itself. It makes you cautious of theories, not from scepticism, but for fear lest they should impoverish your sense of the value of things. A disinterested love of flowers enriches that sense. For flowers, so far as we are concerned, are simply beautiful things. We cannot argue about them as we argue about works of art. Even the Senior Wrangler who wanted to know what "Paradise Lost" proved would not have made the same demand about a rose. Men make works of art, and it is open to any one to say that they might be better employed. But flowers are made by nature, just like ourselves, and if we question their right to exist, we question our own. Therefore, no one does question their right to exist or the pleasure which they give us. It is part of the process of life. Flowers are beautiful, and we are made to enjoy their beauty, just as we are made to eat and sleep; and there is an end of it. We cannot

enjoy the beauty of works of art in the same simple unquestioning way, for behind the work of art is the artist, a man like ourselves, however superior, who expresses all his character in his work, his infirmities as well as his virtues; and we like or dislike his work as we like or dislike his character. It bears the mark of his age and race and a hundred other marks of circumstance, all of which have some kind of significance and association for us, pleasant or disagreeable. And thus we are never quite just to works of art, and never can see their beauty with disinterested eyes. There is always something involved in it which affects other faculties besides our sense of beauty. Nowadays, for instance, the beauty of Italian Primitive pictures is heightened for us, because we think of them as produced in the springtime of the modern world. Their promise, like the promise of Crocuses and Daffodils, is more delightful to us than the mid-summer pomps of the high Renaissance. In the same way, the beauty of the Bologna eclectics is hidden from us because it has the sickly taint of a declining age. Our historical sense interferes with our sense of beauty. We have learnt to believe that no Italian of the seventeenth century had a real faith or real emotions, and we scent unreality and pretence in all their works. Luckily, we have no historical sense about flowers. It may be that we love the flowers of spring better than those of autumn; but, unless we are morbid, we are reconciled to the succession of the seasons and can take a delight in it. It is in the

nature of things that the beauty of autumn should differ from the beauty of spring. We do not feel any human waste or perversity in the decline of the year any more than in the sunset. There is sometimes a fashion among poets to lament the autumn; but that is only because they produce melodious tears more easily than melodious laughter. There is no true analogy, as we all know, between

Bare ruined choirs where late the sweet birds sang—

and the old age of men; for spring follows winter, but age does not change into youth. It is the great merit of Keats's "Ode to Autumn" that it is full of delight in that delightful season without any hankering after another.

Where are the songs of spring? Ay, where are they?
Think not of them, thou hast thy music, too,—
While barred clouds bloom the soft dying day,
And touch the stubble-plains with rosy hue;
Then in a wailful choir the small gnats mourn
Among the river shallows, borne aloft
Or sinking as the light wind lives or dies.

So it is, too, with the flowers of autumn. They have their own beauty, and it is mere wilfulness of fancy and waste of emotion to connect it with thoughts of death and irrevocable loss. In all wild flowers there is a free gift of delight to us, with no poison in it and nothing to provoke criticism. They seem to express a happiness inherent in life, to be the art of nature

herself, and to show us what our own art ought to be, and would be, if we could purify it of sick fancies and disgusts, and vain subtleties and ambitions, and affectations.

But so soon as flowers are altered and developed by men there is something in their beauty that provokes criticism at once. For they are connected, like works of art, with men's ideas and purposes; and therefore we like or dislike them according as we like or dislike those ideas and purposes. Of course all flowers, even those which have suffered the greatest garden change, have still something of wild nature in them. They are children of the earth and only pupils of the gardener; and, though they may express for us a phase of taste which we dislike, they do not express it so merely as furniture or pictures. But, still, they do express it; and we cannot look upon whatever beauty they may possess with disinterested eyes. There are flowers, for instance, like the prim double Dahlias and Ranunculuses which remind us of the blossoms on Dresden china, and which have, no doubt, been developed by the same kind of taste that produced those blossoms. If we like Dresden china, we shall like these flowers; and there are a hundred subtle causes connected with our whole view and experience of life which affect our taste in such things. The artificiality of a few years ago is always distasteful to us. We have just escaped from it and see only its absurdities. But the artificiality of a remoter past often has some romance

for us, half pathetic and half amusing; and when we are sated with one kind of artifice we turn with relief to another that is less familiar. Thus we are inclined just now to be sated with flowers that are loose and floppy and fantastic in shape, and hectic or over-refined in colour, flowers like some of the tree Pæonies and Tea-roses, and tuberous Begonias; and, therefore, we have a kindlier feeling for the old prim flowers which, at least, did not look exhausted by their efforts to be beautiful, which bore themselves with some reserve, and were not dishevelled by any violence of wind and rain. In all these cases it is the human element in the flower that provokes reactions and changes of fashion. The gardener exaggerates its natural qualities in one direction or another to suit his own taste; and its beauty at once becomes subject to the insecurities of taste which affect all beautiful things made by men. But the beauty of flowers unchanged by men is not subject to these insecurities — or subject to them only when the flowers are grown in unnatural conditions. Wild flowers have developed in their own world and seem to be as perfectly fitted to it as stars to the sky. One can no more see the true beauty of Houseleeks or Stone Crops when they are forced into the pattern of a carpet bed than one can see the true beauty of wild animals in a cage at the Zoo. There is a mystery of fitness in all beauty, and the way to be sure of it is to study the beauty of wild flowers, of Woodruff on a shady bank, or Bluebells under wild Cherry blossom in a wood, or

Daffodils about a stream in an open meadow. Take these away from their surroundings and they are still beautiful; but they have lost almost as much of their beauty as the Columbines in the Bacchus and Ariadne would lose if they were cut out of the canvas.

The best kind of gardening is based upon a sense of the beauty, not merely of individual flowers, but of flowers growing in natural conditions; yet gardening, like all art, must do something more than imitate nature. We cannot even pretend to provide many of our finest garden plants with natural conditions. They are like domesticated animals that in this country need constant human care if they are to thrive. And then we have to remember that nature is often content to make a particular spot beautiful with flowers for only two or three weeks in the year. During these weeks that spot may be the despair of the gardener, but at other times it is overgrown with weeds. Nature makes no compromises, but the gardener must be always making them. And yet, like other artists, while he modifies nature to suit his own purposes, he must still keep a respect for her modesty and a love of her beauty in his heart. He should never be a mere virtuoso and do violence to nature just to show how clever he is. Flowers are the facts of a garden, and they must not be distorted or exaggerated or wrongly related to each other, for they are facts beautiful in themselves and introduced only for that reason; and they all have a certain character in their beauty which can be strengthened or weakened by

the manner in which they are treated. There are, for instance, broad differences of character between monocotyledonous and dicotyledonous flowers, between Irises and Lilies and Tulips and Narcissi on the one hand, and Roses and Pinks and Campanulas on the other. The beauty of the monocotyledons is both simpler and more mysterious than the beauty of the dicotyledons. The dicotyledons are usually inferior in purity both of colour and of form; and yet we are apt to love them better, because with less perfection they seem in their greater complexity to be nearer to human beings. There is something strange and remote even in so familiar a flower as the German Iris. Its beauty beside that of the Rose is like the beauty of the sea compared with the beauty of the earth. Everything about it seems mutable and unsubstantial, as if it had been made by enchantment and might vanish by the same means. Iris colours are liquid or cloudy. It has got its very name from a beauty of the sky. But the colours of the Rose, though less pure, seem to be more fixed. One cannot think of them as flushing and then fading again like a rainbow; and the whole plant looks as if it were firmly rooted in the earth and had grown slowly out of it by a natural process, not by any enchantment. The Iris, leaf and flower, seems to be all of a piece and created at a stroke; so do the Tulip and the Narcissus and the Lily. There is a much stronger difference in the parts of a Rose and much more wayward variety of growth. In the flowers of

monocotyledons there is often an unfathomable complexity of colour, as on the surface of the sea; but in dicotyledons there seems to be a greater complexity of nature and purpose, as in the earth; and therefore they look more at home upon the earth, and as if they were its inhabitants and not passing visitors from an unknown state of being.

These may seem fanciful distinctions, but they can be applied to some purpose in the arrangement of flowers. It is certain that the beauty of monocotyledons is of one kind and the beauty of dicotyledons of another, and also that these different beauties are enhanced by intermixture and contrast. A number of Tulips or Daffodils or Spanish Irises grown by themselves are apt to look monotonous and unsubstantial. Their true character is revealed only when they are mingled with plants of another nature, when they seem to have sprung up among them by chance, giving a last touch of strangeness and wonder to the beauty of the whole. Any formality of arrangement is contrary to their nature. They should look as if they had alit among the leafage of other plants like a flight of glittering birds. Then our pleasure in them is not troubled by the thought that they will so soon be withered. Their fugitive brilliance is at its best when contrasted with the more quiet and enduring beauty of other plants, and especially of shrubs, such as Rosemary or some of the Veronicas which never look dishevelled or exhausted with flowering. These give the sense of permanence that is needed in all garden

design, and the same kind of foil that nature provides for her momentary splendours.

There are some flowers which seem to keep a wild beauty however familiar they are to our gardens, and others which look as if they could never grow wild anywhere, but must have been created for the garden. Nearly all the *Campanulas* look wild wherever they are, and as if they ought to be in the woods or on the mountains. The *Cranesbill* is always a wild-looking plant, whereas its near relation the zonal *pelargonium*, commonly called the *Geranium*, is the tamest of flowers. Tame flowers are not, however, to be condemned for their tameness. They might look out of place in a hedgerow, but they often look beautiful enough in a garden. Sometimes they look tame because they have been developed by the gardener. Thus garden roses are often the tamest of flowers, and wild roses the wildest. But some flowers look tame only because they come from some far country with a flora utterly unlike our own, and because therefore we can think of them only as growing in gardens. *Lilium auratum* grows wild in Japan, but for us it is entirely a garden flower, since there is nothing at all like it among our wild flowers; whereas many even of the most exotic *Campanulas* remind us of our own *Harebell* or some other native species. It is well to bear in mind the wildness or tameness of different flowers when planning their arrangement. One must not be too subtle in such matters; but, where there is a large garden with some parts of it

wilder than others, it is easy to make some separation between the wilder and tamer looking plants; not to put Bluebells, for instance, in the same kind of position as garden Hyacinths, or to mix the natural species of Roses with hybrid perpetuals. It is in wild gardening that a sense of the character of flowers is most needed, for plants such as Dahlias, Kniphofias, double Pæonies, or garden Pinks look most dismally out of place in any imitation of a wilderness. It is the same with a rock garden. There the single mountain pinks look their best and the double garden Pinks are as inappropriate as weeds. But place a mountain Pink in the border, and, even if it thrives, half its beauty is lost. The mountain Pink is a wild flower, the garden Pink a tame one; and, if we can, we should treat each accordingly. All beauty has a character of its own, and the character of flowers is most clearly shown when they are placed in conditions that suit that character — in artificial conditions if the character is artificial, in natural conditions if it is natural. It is only by studying the character of flowers and having regard to it that the gardener can achieve those subtleties of beauty which look as if they had come by chance, but which really are the last triumphs of his art.

SAXIFRAGES¹

THERE is no genus of hardy plants so diverse in form as the saxifrages, and none, perhaps, with such a multitude of species and varieties. But the diversity of the saxifrages is mainly in their leafage and habit of growth. Their flowers vary, of course, in size, in colour, and in shape; but less than the flowers of many other genera, far less than the flowers of the orchids; while even orchids do not vary so much in their whole appearance. There are mossy saxifrages; saxifrages growing in rosettes, some, at their largest, 9 in. across, some smaller than the flower of the daisy; saxifrages with great leathery leaves, some of them rather coarse border plants; saxifrages in close minute tufts, obviously high mountain plants, and only to be grown with some skill on rockwork; and saxifrages of the London Pride class, the most homely of plants, yet with the peculiar character and grace of the family. There is *Saxifraga peltata*, the umbrella plant, so called from its great spreading leaves, sometimes 18 in. wide; and, for contrast with this, there are *Saxifraga caesia* and *Saxifraga squarrosa*, the single leaves of which are almost too small to be distinguished, while a large plant of either of

¹ Most of the Saxifrages are difficult in the United States, though with pains many can be successfully grown.

them could be covered with the leaf of a geranium. And saxifrages are no less varied in their habits and requirements. Some species could be found to thrive in almost any part of the largest and most diversified garden that it is possible to conceive. The greater number are rock plants, indeed, they are the chief of all rock plants; but some are natives of marshes, others like cool, shady places in an ordinary border, others will grow anywhere. Few are really difficult, and the difficult ones are seldom the most beautiful in a genus that is full of beauty. The saxifrages are never likely to be popular with those who grow plants only for their flowers, for their beauty and their peculiar charm are nearly always as much in their habit of growth as in their blossoms. These are seldom brilliant or conspicuous. No one would use saxifrages for bedding out or "to make a show." The best of them are plants for the gardener who delights in character and in fitting the plant to the place. Saxifrages seem to belong to a situation that suits their character like moss to a stone; and, even if they thrive in one that does not, they look like exiles making the best of their banishment. Even the familiar London Pride does not consort well with the ordinary plants of the border; and those who think of it as a dull thing will be surprised at its beauty when they see it in some cool, rocky place among oak-ferns and Primulas. In fact, all, or nearly all, saxifrages are determinedly wild plants. They have suited their character to certain natural conditions; and, al-

though many of them will grow well enough in the ordinary conditions of the gardens, they will not take on the air of a garden plant. Very few of them, therefore, are plants for the border. They belong either to the wild outskirts of the garden or to rockwork; and most of them belong to rockwork.

It is easy enough to talk in general terms of saxifrages, but the most learned expert must have some fears when he comes to particulars; and that not merely because of the multitude of species and varieties, nor because there is much dispute about the cultivation of most of them, but simply because of their names. There is no lack of names among saxifrages, indeed there are too many; and the difficulty is to apportion them. Saxifrages, especially certain divisions of them, are extremely variable, and hybridize almost as readily as Columbines. Nurserymen and others have taken a delight in giving new names to all the minute variations they can distinguish and to innumerable and often indistinct hybrids; and these names have been given recklessly and without reference to any universally acknowledged authority. The consequence is that some saxifrages have several different names, while others share the same name between them. Any one who wants to get an idea of the anarchy which prevails in this matter should read the chapters on saxifrages in Mr. Reginald Farrer's book "My Rock Garden." Mr. Farrer is an expert indeed, and has perhaps the largest collection of saxifrages in the world. Yet their names

often baffle him, and half his time he is explaining that the familiar name of some well-known variety is not the right one. In the matter of names, therefore, one must do the best one can, avoiding tiresome controversies and also, as far as possible, avoiding misleading errors.

Some idea of the complexity of the subject may be gathered from the fact that the innumerable different species and varieties of saxifrages are usually divided into about fifteen sections. But of many of these luckily it is unnecessary to speak in an article addressed to the general reader. Here we shall mention only those sections which contain plants likely to interest the ordinary gardener; and, of these, the best known is the Aizoon section, in which are grouped all the rosette saxifrages, of which *S. Aizoon* is supposed to be the type. We say supposed, because nobody seems to know what exactly *S. Aizoon* is. Mr. Farrer says that he believes it to be a sort of Platonic idea, "represented only by innumerable varieties or partial manifestations of its sacred essence." When you see a rosette Saxifrage of ordinary size and do not know its name, you call it *S. Aizoon*, and no harm is done. For the fact is, the species is so variable and so liable to hybridize with other similar species, that it has lost its identity. Yet this may be said for certain about it, that it grows in silvery rosettes of varying size, the largest about 3 in. across, and that from the centre of these rosettes it throws up sprays of little flowers white or a pale yellow

and usually more or less spotted with pink. It is a true rock plant and, though easy to grow in any open, well-drained place, looks its best only among the rocks. It likes the sun, but not extremes of drought and heat. It thrives best in a light, fairly rich soil, with plenty of lime in it, and when it is planted on a steep bank so that its roots can run under the rocks. It will do well on the north side of an open rockery, but grows leggy and blossoms poorly in shade. These remarks apply to nearly all the saxifrages of this section and to many others. There are few that like either drought or complete shade; and very many need lime if they are to flower profusely.

It would be impossible even to mention all the varieties of *S. Aizoon*. There is a pretty yellow variety and a beautiful pink one, still new in commerce. There is a very small variety called *minima*. There is *crustata*, a name given to many different varieties. There is *elongata*, and so on. *S. lingulata* is usually considered a species. It has large white flowers, varies much from seed, and has hybridized with *S. Aizoon*. *S. Lantoskana* is a variety of it; and sometimes one sees very splendid forms called *Lantoskana superba*, but nurserymen are apt to call any variety of *lingulata* by this name. The two finest species of this section are *S. cotyledon* and *S. longifolia*. Both have very large rosettes and sprays of flowers often a couple of feet high. *S. cotyledon* will grow in any sunny place not too hot. The flowers of the true species are, we believe, unspotted; but there are spotted

varieties. *S. pyramidalis* is only a variety and not a very distinct one. There are other varieties that need not be specified. *S. cotyledon* does not need lime, and some of its varieties seem to dislike it. It is very easy to grow, but deserves a good place and rich, light soil, as then it spreads into great patches and blooms profusely. It can be quickly increased by means of offsets, and differs in this from the even finer *S. longifolia*, the giant saxifrage of the Pyrenees. This dies as soon as it has flowered, but it often takes some years to flower, and is worth growing both for the beauty of the plant and for its short-lived glory of bloom. It likes a cooler place than *S. cotyledon*, and does very well on the north side of a sunny rock garden in deep pockets between the rocks filled with a rich, light, limy soil. It can be easily raised from seed, like all the Aizoon saxifrages, but hybridizes so profusely that one can never be sure of getting the pure species. Hybrids, however, are often beautiful and interesting, and some of them make offsets besides growing as large as the species itself. *S. cotyledon* also hybridizes with other species, though less freely, and a hybrid between it and one of the Aizoons is called *S. McNabiana*. This is a splendid plant, but difficult to get true. The true form, we believe, has pink spots all over the flower. *S. cochlearis* is a species with rather small rosettes, and not certainly in the Aizoon section. *S. valdensis* is usually considered a variety of it, and is a beautiful little plant, easily grown in limy soil and a cool place among the rocks.

The section which contains the rarest, most beautiful, and most delicate of the saxifrages is known as the Kabschia section. The saxifrages included under it nearly all want some care and are all mountaineers. They should be grown among large rocks that are sunk deep into the soil, and must have perfect drainage and be quite free from any drip. The chief difficulty in their cultivation is to provide them with a place that is dry enough in winter and cool enough in summer. In a sunny rockery they do best, as a rule, with a west or northwest aspect. On the south side they are apt to be burnt up by the sun. Their soil should be composed of light loam, silver sand, leaf mould, and mortar rubble or pieces of limestone, and the surface should be covered with rubble or limestone. They should also be placed so that their roots can run under a large stone. This sounds a formidable list of directions; but many of the Kabschia saxifrages are worth any amount of trouble; and any one who has seen a fine clump of *S. burseriana* would be ready to take it. It grows in minute silvery tufts, and from these in March rise flowers large for the size of the plant and like delicate little white roses. There is no more beautiful spring flower in the world; and it is not really difficult to grow, with a little care. *Burseriana major* is a finer variety; and there is one called *Gloria*, not yet in commerce, and said to surpass all other forms. The easiest and most useful of all these saxifrages is *S. apiculata*, a vigorous plant which makes large tufts of deep shining green,

and has pale yellow flowers in March. This needs no particular care. It likes lime, a cool, well-drained place, and a light deep soil. If it ceases to bloom it should be divided in early autumn. It is a most valuable spring plant. *S. Elizabethae* is like a smaller and more delicate *apiculata*. It should be grown like *burseriana*, but is easier and more vigorous, in spite of its delicate beauty. *S. Salomonii* appears to be a hybrid of *burseriana*; it has the same beautiful white flowers on rather longer stalks. It is as easy as *S. Elizabethae*. *S. Boydii* is another hybrid, very small and very slow-growing, a plant for experts. Its white variety, however, is easier and quicker growing. It is also much cheaper. *S. Griesbachii* is remarkable for its crimson flowers, and quite easy to grow, with a little care. *S. caesia* is a minute rosette saxifrage, a pretty little plant which must have lime and a fairly cool place, though it is less impatient of heat than some of the *Kabschia* saxifrages. *S. squarrosa* is even smaller, and grows higher in the mountains. It requires the same culture as *S. caesia*, but rather more care. These are plants only for those who care for minute beauty. There are many other species and varieties in this section, some very beautiful, but most of them rare and little grown as yet by ordinary gardeners.

The mossy saxifrages of the *dactyloides* section, on the other hand, are nearly all very easy to grow, and most of them common in gardens. Dovedale Moss (*S. hypnoides*) is the best known of them and

a native common in Derbyshire and some other counties. There is great uncertainty about the names of many of the mossy saxifrages. The finest of the commoner white ones is *S. Camposii* (or *Wallacei*), a most beautiful plant with large shining white flowers in early summer. *S. muscoides* is a close-growing species, and the variety *atro-purpurea* is better still. *S. Rhei* is, perhaps, a variety of *S. caespitosa*. It has delicate pink flowers and a close habit. Guildford Seedling is a splendid variety of this, with deep crimson flowers. There are some other varieties of *Rhei*, but not differing much from the type. *S. pedemontana*, at least the plant usually sold under that name, is a quick-growing, vigorous species with flowers of a less bright white than those of *S. Camposii*, but still very pretty. Other good species of this section are *cuneata*, *ajugaefolia*, and *exarata*. All the mossy saxifrages like a cool place, and they are excellent plants for the lower parts and the north side of the rock garden. They do not need rock work, but look their best on it. They like a light soil rich in humus. *S. Camposii* is more impatient of drought than the rest, and is apt to wither up in hot sun, while in too deep shade it grows leggy. When this happens it should be taken up and replanted deeper. There have lately been obtained a number of hybrids between mossy saxifrages and the meadow saxifrage (*S. granulata*), which is so abundant in damp meadows in some parts of the country. These hybrids are generally known as *S. decipiens*, and some of them are well worth grow-

ing. There is also a double form of *S. granulata*, a pretty plant, but not so pretty as the wild species. *S. tenella* belongs to a different section from the mossy saxifrages, but it looks even more mossy than they do, and is a charming plant for a cool place on rock-work. It is impatient of hot sun.

The most brilliant flowered of all the saxifrages is *S. oppositifolia*. It grows on English, Scotch, and Welsh mountains, and produces bright crimson-magenta flowers in March. There is no spring flower more beautiful or surprising. It is quite easily grown, and yet many gardeners fail with it. It should be planted in an open yet cool place on the north side of the rock garden, and in poor soil mixed with mortar rubble. If the soil is too rich it gets leggy and refuses to flower. It benefits by a top dressing in spring of sand and leaf-mould, and if it gets rusty it should be taken up and replanted in fresh soil in early autumn. There are several varieties, including a white one, which is not of much value.

Saxifraga Fortunei is a fine species from Japan which flowers in autumn. There is some doubt about its hardiness, and it should be grown in a well-drained and sheltered, but fairly cool, position in the rock garden, with some protection in hard frosts. Most of the larger saxifrages belong to the *Bergenia* or *Megasea* section. *S. cordifolia* and *S. crassifolia*, both often called *S. megasea*, are the best known. They are border plants with pretty pink flowers, but the leaves usually look rather dingy. To flower well,

they require a fairly sunny place and a good rich soil. *S. ligulata* and its variety *S. ciliata* are better suited for bold rock-work, and look well among plants such as *Corydalis nobilis*. *S. Stracheyi* is the prettiest species of the section, with delicate pink flowers early in March or April. It sometimes dies in very hard winters and should be given a fairly cool, sheltered position among the rocks. The variety *Afghanica* has white flowers and is a beautiful plant not often seen.

We have mentioned but a few of the innumerable species and varieties of the saxifrage. The gardener who begins to collect saxifrages will never come to the end of them, and he will be wise always to see less known species and varieties before he buys them. If he does not, he will probably acquire many common or nondescript plants with romantic names. The anarchy among saxifrages is such that nothing could put an end to it except the appointment of a Dictator and an Act making it a criminal offence to call any saxifrage by any name except the one given to it by him. But even then in a few years there would be a number of new hybrids and as much confusion among them as ever.

THE FIFTY BEST HARDY PERENNIALS

EVERY one likes to make anthologies, for no one is satisfied with the anthologies of others; and in making them there is a pleasure both of inclusion and exclusion. There are some things unjustly ignored by other anthologists, and others unduly prized by them. There is no lover of poetry that would not like to work some changes upon the Golden Treasury; but it is far easier to make a figurative anthology of poems than a real one of flowers. In the first place, you can produce your poems to justify your choice; but you can only produce the names of your flowers, and those who do not know them must take your judgment on trust. In the next, there are no garden varieties of poems. There is no *Lycidas grandiflorus* to oust the original and no *Dropmore* version of the *Ode to the West Wind*. No one dares to touch up a poem except the author of it. When he is dead the type of the poem is fixed. But with flowers it is otherwise. If, making an anthology of them, you speak of the *Rose*, you are asked at once, *What Rose?* And what can you answer? How can one be chosen among so many with such different merits and defects? It is the same with *Irises* and *Lilies* and *Larkspurs* and *Pæonies*. It is impossible to satisfy even yourself with any one choice among them. And yet it is amus-

ing to try, and may amuse others. But even the attempt is possible only with strict and arbitrary limitations, which are difficult to define and still more difficult to keep. We will confine ourselves to fifty hardy perennial plants. We will have nothing to do with shrubs, thus avoiding roses, which could only be treated in an anthology to themselves. Then how about bulbs? They, too, need an anthology to themselves. So we will leave them all out except Lilies, which must be included because the Madonna Lily cannot be left out. We will also confine ourselves to border plants; and one of our chief tests shall be that a plant can be easily grown in the ordinary garden. This is to be an anthology for every one, not for the specialist; and when we say easily grown, we mean grown without fuss or constant renewal. Thus we get rid of Carnations, which also need an anthology to themselves. Our fifty best perennials must be hardy, easily grown, and true perennials, or at least perennial for some years. They must also, of course, be beautiful; and where there is a great choice of varieties we shall try to select one which excels in all the qualities of a border plant. But, having laid down these strict rules for our choice, we shall be tempted to break them in one or two cases, where a plant has such signal merits that it ought to be in every garden, although it has also defects that ought to exclude it from our anthology. We shall try to make that anthology classical rather than romantic, indulging in our own freaks of taste no more than we

can help. But even so it is sure to seem freakish to some readers; and if it does they will have the pleasure of disagreeing with it.

We will begin with Larkspurs, one of our chief difficulties. The florists are always raising new varieties of these, but many of them are not pure blue, and surely the glory of a Larkspur is in its blueness. In this *Delphinium Belladonna* has never been surpassed. It is not quite so robust as some varieties nor so tall growing, but will do well enough in most sunny well-drained borders; and it flowers longer than any Larkspur. *Persimmon* is taller and larger flowered and a splendid variety, but it has not all the grace of *Belladonna*. *True Blue* is a noble plant, a darker colour with a brown centre like a bee, but it has a doubtful constitution. Therefore we choose *Belladonna* for our Larkspur. It used never to ripen seed; but a seed-bearing variety has now been obtained from which it is said the seedlings come true. Several species of Lilies are thoroughly good garden plants. The chief of them, of course, is the *Madonna*, whose one defect is its disease. Plant it in August or September in a rooty place, but where it gets plenty of sun, and with the top of the bulb only about an inch under ground. In a poor soil give it a good dose of cow manure well under the bulb. Then never disturb it, and it will probably triumph over the disease, even in districts where the disease is rampant. *Lilium testaceum* must also come into our anthology. It is even easier to grow than the *Madonna Lily*, and

needs the same culture, and where it thrives it increases at a great pace. It has apricot coloured flowers with bright red anthers, and grows taller than the Madonna Lily. It does not mind disturbance so much, and is almost as beautiful. It makes a magnificent contrast with the Belladonna Larkspur. These are the two chief garden lilies. Others are beautiful and easy, but not good enough to be among our fifty plants. Then there are Pæonies. Among these it is impossible to make a final choice, but there is none more beautiful, robust, and free-flowering than The Bride, a large, pure white single variety of *Pæonia albiflora*. Columbines are even more difficult to choose. *Aquilegia caerulea* is not a true perennial in most gardens; *A. glandulosa* and the hybrid *Stuartii* are very capricious. The long-spurred hybrids are not fixed and have no names; but they are the Columbines for the ordinary gardener, and there is no flower in the garden to beat a fine blue and white hybrid of *A. caerulea*, with a thoroughly robust habit.

The Dropmore variety of *Anchusa italica* must come in our anthology, although it will die out after a year or two if not propagated by ordinary or root cuttings. It is, however, the finest of all blue border plants, and cuttings are very easily struck. The new pale blue variety, Opal, is almost as beautiful. Among the Campanulas we have no hesitation in choosing *C. persicifolia*, variety *grandiflora*. This is a plant to be raised from seed. The seedlings will vary both in the colour and the size of their flowers. The best

should be chosen and perpetuated. *Platycodon grandiflorum* is closely related to the *Campanulas*, and a valuable low-growing border plant. We choose its dwarf variety *Mariesii*, and with this should be grown *Oenothera macrocarpa* for the contrast both of their colour and growth. There are many fine *Oenotheras*, but this is the best perennial one for the ordinary garden. It can be very easily raised from seed, and flowers for a long time. There is no better plant for the front of the border. *Centaurea montana* is a humble plant and spreads like a weed; but it is very beautiful in its blue, white, and pink varieties, and has the great merit of growing anywhere and flowering early. If it were not so easy, it would be prized, and it deserves to be more prized for its easiness. Another humble and slighted plant is *Nepeta mussini*, which has a peculiar modest beauty both of flower and growth, and will flourish anywhere. It is a most valuable plant to give some quietness and neatness to the front of a gay border. It combines beautifully with the giant *Thrift*, *Armeria cephalotes*, another plant of the highest merit and too little seen in gardens. There is a richly coloured variety of this called *rubra*, the deep pink flowers of which contrast well with the dark lavender of the *Nepeta*. With both of these may be associated the beautiful *Polemonium reptans*. All *Polemoniums* are fine plants, but this is the best, both in colour and in habit, and it is quite easy to grow.

Erigeron speciosus is another plant often slighted

because of its easiness, but it has many merits besides that and deserves a place in our anthology. It can be grown with the Oriental poppy for a fine bold contrast, not with one of the sickly new varieties, but with some splendid deep scarlet form such as Goliath. The great defect of Oriental poppies is that they are untidy after they have flowered. Miss Jekyll advises that *Gypsophila paniculata* should be grown among them so as to cover their untidiness. This is a good idea, and *Gypsophila*, of course, comes into our anthology except for gardens with very heavy soils. *Gypsophila* suggests a plant which is a perfect mate for it, but which ought not to be in our anthology at all. The hybrid *Pentstemons* are not hardy in winter or in cold gardens. But they are so easily raised from seed or cuttings, and they are so valuable, that every garden ought to contain them. But if we are not allowed to include them we must insist upon *P. barbatus*, which is hardy in most gardens, and particularly upon its variety *Torreyi*, with its coral-red flowers. We must also insist upon *Hollyhocks*, which are not true perennials perhaps, but should be in every garden big enough for them. Raise them from seed, and, if possible, sow it where the plants are to remain, and then they will probably escape the disease. It is difficult to choose among the *Anemones*, but for the ordinary border there is none to equal the ordinary white *Anemone japonica*. It is still more difficult to choose among *Iris*s, but without further argument we name the variety of *Iris pallida*

dalmatica called Princess Beatrice. At least there is no more beautiful garden flower in existence. Then there are the Violas or tufted Pansies; a choice is impossible among these. But there is nothing to beat Florizel for beauty and vigour, though there are others to equal it. We name it because one variety must be named; and if we are to choose a particular pink, we will have Albino for the beauty of its flowers, as fine as those of a white carnation. Of the Phloxes we scarcely dare name one. But there is none so brilliant in colour as Coquelicot, though others have a better constitution. Among Michaelmas Daisies we choose Aster acris, but only for the sake of choosing one. It has this advantage over most, that it does not spread all over the border or need constant division if it is not to deteriorate; and there is none more beautiful. Among Funkias we have no hesitation in choosing *F. Sieboldii* for the beauty of its glaucous leaves; but the Day Lilies are much more difficult to choose. *H. aurantiaca major* is always said to be the finest, but it usually prefers not to flower. We prefer *H. Thunbergii*, which has a sweet scent and clear yellow flowers. The Kniphofias are no easier, but there is none to surpass *K. caulescens* either in flower or in leaf, and it is very easily increased.

There are innumerable Veronicas, but none so brilliant in the border as *Veronica amethystina*, the best variety of which has bright blue flowers. Among the Flaxes none remains so long in bloom as *Linum perenne*, although *L. narbonnense* has larger blossoms. Of the

Yuccas *Y. gloriosa* is far the most splendid when in flower, but it flowers rarely. *Y. filamentosa* is a free bloomer and also a splendid plant. *Scabiosa caucasica* is not a true perennial always, but it will last for some years in most good, well-drained borders, and can be easily raised from seed. Its beauty should give it a place in any anthology. Of the *Spiræas* we choose *S. aruncus*, an obvious but sound selection. The Meadow Rues are not showy plants, but they have a peculiar quiet beauty, and there is none so good as the purple-flowered variety of *Thalietrum aquilegifolium*. The Cranesbills are a valuable family of plants. We are tempted by *Geranium grandiflorum*, but the most brilliant is the variety of *G. ibericum* called *platypetalum*. There are many garden varieties of *Potentilla*, but none flowers so long, has so delicate a colour, or is so ready to thrive anywhere as *Potentilla nepalensis*. Few of the genus *Coreopsis* are true perennials, but *C. lanceolata* lives for a reasonable number of years. It is very like *C. grandiflora*, but rather smaller and more delicate in flower.

The Goatsrues are excellent border plants, with a delicate beauty of flower which would be more valued if they were less easy to grow. There is a more compact form of *Galega officinalis* which is perhaps the best; Spiderwort is another homely but beautiful plant—*Tradescantia virginica* is its botanical name—and of many good varieties the white one has the most exquisite beauty. The Globe flowers

are all fine plants, only at their best in a rich moist soil. New varieties are now being produced every year, but none has finer flowers than the variety of *Trollius asiaticus* called Orange Globe. The *Statice*s are also being continually improved, and some of the finer varieties of *Statice latifolia* are splendid plants. It varies much from seed. Therefore the plants should be seen, if possible, when in flower, and a good form chosen. Those who have space can easily raise it from seed and should keep only the seedlings with the finest flowers.

Incarvillea Delavayi is still a new plant, and for some time after its introduction was supposed not to be hardy, or at least to need care and a special place in the rock garden. One reason for this, no doubt, was its appearance and the fact that it belongs to a family in which are not many hardy plants. But though it looks as tender and foreign as a *Gloxinia*, it appears to be quite hardy in any light, good soil, and it is a splendid plant for the front of the border.

There are some plants which, however beautiful they may be, are disliked by gardeners because they spread like Goutweed. One of the worst of these is *Coronilla varia*, and one cannot, in spite of its beauty, recommend it for any border whatever. The common Rose-bay, *Epilobium angustifolium*, is almost as bad; but the white variety of this is so beautiful and so ready to thrive anywhere that it must be included in our anthology. But the gardener should

beware of it, as it spreads by underground suckers, and these will come up 6 ft. away from the parent plant. *Sidalcea* is also a very spreading plant, but *S. Listeri*, with delicate pink flowers, is less troublesome by far than *S. candida*, and also prettier. The musk mallow (*Malva moschata*) is one of the most beautiful of our wild flowers, and well worth a place in any garden; but the white variety is still more beautiful and not so often seen in gardens as it deserves. Of the St. John's Worts *Hypericum Mose-rianum*, a half shrubby species, is the best and a beautiful border plant. Most of the *Erodiums* are rock plants, but *E. Manescavi* should be in every garden, if only because it is one of the longest blooming of all hardy plants. It is not brilliant, but its flowers have a quiet and delicate beauty of their own. The most familiar Saxifrage, of course, is London Pride, but a finer plant altogether for the cool border is a variety of *S. rotundifolia* sold as *S. Lasiophylla*. This is probably not its true name, but it is the only one we know it by. It has much larger flowers than those of London Pride and also prettier leaves. It is a little known plant, but of the highest value. *Tiarella cordifolia* is another beautiful plant of the same family for the front of the cool border, well known, but not so much grown as it deserves. We have mentioned fifty plants and there are dozens of others which we feel we have unjustly neglected. But some of them are a little difficult, like the beautiful *Mertensia virginica*, which where it thrives makes an exquisite

contrast with *Tiarella*; and some are not exactly to our taste. No doubt also there are obvious omissions in the anthology, due not to perversity, but to forgetfulness. But that anthology is not meant to be dogmatic. At the worst it can only be disagreed with. At the best it may make the reader more in love than ever with some old favourites, and introduce him to some new ones.

THE FIFTY BEST ROCK PLANTS

IT is not quite so difficult to make a choice of the fifty best rock plants as of the fifty best hardy perennials; but no list is likely to please any one very much except the maker of it; and even he will probably see the faults of it soon after he has made it. One plant will seem the best of its kind to-day and another to-morrow. Besides, he is sure to forget some of his favourite plants. But still his list may contain some beautiful plants unknown to some of his readers, and it may confirm their liking for others. The list which follows does not pretend to be even the writer's final choice, but it will contain only plants which he has thoroughly tested, and which he knows can be made to flourish without any great amount of skill. Some of them are quite easy, others not quite so easy; but none are inexplicably capricious, and none demand conditions which the ordinary well-made rock garden in the country cannot supply. They are chosen first for their beauty, next for their perfect fitness for the rock garden, and last for their comparative ease of culture. None of the larger shrubs suitable for the rock garden are included among them, and no bulbs. Some are not rock plants in their native countries, but all will look better and probably do better in the rock garden than anywhere else.

If the present writer were allowed to grow only one rock plant, he would without hesitation choose *Lithospermum prostratum*. It has only two faults — namely, that it will not endure lime in the soil and that it is not easy to propagate. Otherwise it is as perfect as a plant can be. It is a small shrub, quite prostrate in its growth, and for some months of spring and early summer covered with brilliant blue flowers, while it often bears again, though more sparsely, in the autumn. It is always described in books as quite easy to grow. Yet one often sees poor plants of it even in pretentious rock gardens. The reason is that gardeners often will not give it what it wants. Its wants are well known, and, except on limy soils, easily supplied — but they must be supplied if it is to thrive. It will do well either on the north or the south side of the rock garden; but does not like too hot a place or too poor a soil. It roots very deeply, and should be planted in at least 2 ft. of good fibrous soil and leaf-mould, and placed so that its roots can run under a large rock. Also it should never be disturbed, and if possible it should be sheltered from easterly winds, which often damage it in winter and early spring. When it is well grown it spreads into a bush several feet across, and in flower is almost as brilliant as any gentian. It must be propagated by cuttings, which are sometimes difficult to strike. These are usually taken after it has flowered, and consist of fresh growth with a little of the old wood, but good healthy shoots taken in April will often root better.

An excellent contrast to the *Lithospermum* is *Arenaria montana*, which has large white flowers. But care must be taken that the *Arenaria* does not smother the *Lithospermum*, as it grows at a great pace. It will thrive anywhere except in deep shade or a bog, and few rock plants are more beautiful. It can be raised from seed almost as easily as mustard, or any shoot will root quickly. It is equally beautiful mixed with *Saponaria ocymoides*, another rampant plant, also of the Pink family, and with bright pink blossoms. This also should be raised from seed, and cut back whenever it gets leggy. A small shrub of the highest beauty and value is *Daphne cneorum*, especially the finer variety of it called *majus*. This, like the *Lithospermum*, has certain definite wants. It thrives best among rocks and in the same kind of soil as the *Lithospermum*. It must not have either too dry or too damp a place, but may be grown either on the south or the north side of a sunny open rock garden. There is some dispute as to whether it likes lime, but it will certainly thrive without it. It is difficult to increase except by layers, and these take some time to root. Whenever the shoots grow leggy they should be layered, and then the plant will spread and increase in vigour. It is beautiful at all times of the year, but the beauty and scent of its pink blossoms are incomparable. It has the reputation of being capricious; but this is probably because it dislikes disturbance, bad drainage, sour soil, and an exposed position. It should not be planted anywhere

near the *Lithospermum*, but a good contrast to it is *Saxifraga cotyledon*, the most useful of all the rosette Saxifrages. There are several varieties of this, but they do not differ much. It can be easily raised from seed or increased by offsets, and flowers very freely. It likes a rich, light soil, and does not need lime. It should be given plenty of space, as each rosette will grow into large patches. There are, of course, innumerable Saxifrages, and at least twenty of them might claim to be among the best fifty rock plants. We must include one more of these and we choose *S. Burseriana major* for its extreme beauty. It needs some care and should be grown in a cool, well-drained place, where it gets sun for about half the day. The soil should consist of fibrous loam, leaf-mould, and mortar rubble, and the plant should be surrounded with rubble or chips of rock. It is small and must be secluded from all rampant plants. There is the same difficulty with the *Campanulas* as with the Saxifrages. It is hard to make a choice among them. We choose the best variety of *Campanula garganica*, the name of which appears to be uncertain. It has pale starry blue flowers, is easily raised from seed, and thrives in any well-drained open place among rocks and in rich, light soil. There is no *Campanula* more beautiful either in flower or in habit. If a more vigorous *Campanula* is required, we must add *C. muralis*, especially its larger variety, *Portenschlagiana*. This will grow anywhere on the rock garden, and looks its best contrasted with *Silene alpestris*, an exquisite

but most vigorous plant, with flowers like those of a delicate little white pink. Both of these should be left undisturbed for some years after they are planted. The *Silene* does not like a very hot, dry place. For a contrast to *C. garganica* there is nothing to surpass *Asperula hirta*, a little woodruff with delicate pink flowers, that looks as if it would be difficult, but is almost as easy as *Aubretia*. But even more beautiful and worthy of the best position in the rock garden is *Asperula athoa* (or *suberosa*), a downy little plant with flowers like pink coral, which it bears all through the summer. This is not difficult, but should be planted in a dry fissure between the rocks in full sun and looking south, in a compost consisting mainly of mortar rubble with a little fibrous soil and leaf-mould. It is not a plant for a cold climate, but may be easily grown in the south of England, and can be increased by careful division in spring or by cuttings taken at the same time. It should also be planted in spring. Of all rock plants the Pinks are the most valuable genus, and if one species is to be chosen among them we choose *Dianthus neglectus*. It is not the easiest, but easier than *D. alpinus* or the wonderful *D. callizonus*; and it is perhaps the most beautiful of all. It can be easily raised from seed, but hybridizes too readily with other species. Some seedlings will probably be inferior, some true, and some may turn out splendid hybrids, finer even than the species. It is a small plant with grassy leaves and brilliant pink flowers washed with yellow on the

underside of the petals. It thrives best in fissures between big rocks looking south and in poor, rubbly soil. It certainly likes lime.

The *Androsaces* are a difficult family, but *A. carnea* is not so difficult as some, and very beautiful. It should be planted in a cool, well-drained position, as it can endure neither drought in summer nor stagnant moisture in winter. In a hot rock garden it will do best with a northwest aspect. The soil should consist of fibrous loam, silver sand, and leaf-mould. It grows best in a level pocket, if it is sharply drained, and cannot endure lime. It should be top-dressed with leaf-mould and silver sand in the spring. It can be raised from seed, if this is sown when fresh, and it often ripens seed in England. Near *A. carnea* may be grown the exquisite *Oxalis enneaphylla*, a much easier plant. This likes a rich, light, stony soil, and to be left alone when once planted. It bears milky white flowers, large for the size of the plant, in late spring, and dies down in the autumn. Another beautiful plant for a cool, well-drained place is *Polemonium confertum*. This is rare, but can be easily raised from seed or increased by careful division in spring. It has delicate pale lavender blossoms, and is more beautiful even than its white variety, *P. melitum*. It likes a light soil enriched with leaf-mould.

For the hottest places in the rock garden there are no plants better than the *Aethionemas*, and of these *E. grandiflorum* is the most brilliant in colour. It is hardy enough to endure most winters and can be

easily raised from seed, especially if sown when fresh or from cuttings taken in spring. All the *Aethionemas* like lime and a poor soil. Another excellent plant for the same kind of position is *Onosma tauricum* (Golden Drop). In a dry place and poor soil this grows to a considerable size, and flowers all the summer. Its chief need is protection from stagnant moisture in the winter. It should be increased by cuttings taken either in April or the autumn. The cuttings must be kept as dry as possible, as they are apt to damp off. The *Erodiums* are all plants for dry places, except the beautiful little *E. Reichardii*, which is not very hardy. The best of them, perhaps, is *E. guttatum*, neat in habit and with delicate white spotted flowers. It is a very easy plant for sunny rock work and often ripens seed in England. *Geranium argenteum* is the best of the Cranesbills for the rock garden, more beautiful than *G. cinereum* because of its silvery leaves. It should be planted in a deep crevice between rocks looking full south, and must be top-dressed or replanted if it grows out of the ground. It shares this habit with many of the Alpine primulas, among which it is difficult to make a choice. But certainly none is more easy or beautiful than the white *Primula nivalis* (the true name of which appears to be *P. pubescens alba*). This thrives in any cool place in light rich soil, which should be 2 ft. deep at least. All the Alpine primulas like to be surrounded with stones.

Few Gentians are quite easy, and not long ago

Gentiana verna was supposed to be almost impossible in England, chiefly because it was treated as a rock plant. It should be grown in a flat sunny basin where it will catch all the rain. If this is well drained it will not suffer from damp in the winter. The soil should be deep, half loam and half leaf-mould. It is best planted in early spring, and the most important point in its culture is to top-dress it with leaf-mould at intervals through the summer and to water it frequently in dry weather. The plants must be very firm in the soil, and it is well to tread on them whenever they seem to be at all loose. Strong plants should be obtained to start with, and these are best got from Ireland. With these precautions it is easy to grow where the air is pure, and there is no need to speak of its beauty. It should never be disturbed when established.

The culture of *Ramondia Pyrenaica* is now fairly well understood. It is most splendid near a waterfall, but most gardeners cannot provide it with this. It will thrive, however, among rocks where it is placed so that the sun never strikes upon it, and is best planted so that the roots run horizontally into the ground. It likes a rich soil of loam, peat, and leaf-mould, though peat is not necessary, and is not averse to lime.

Rosa alpina is the only rose suitable to the rock garden, and it is suitable only to large rock gardens. It grows rather more than a foot high and has bright pink flowers. It needs space, as it spreads by suckers and prefers a cool place and rich soil. It is very easily

grown. It varies a good deal in size, and pains should be taken to get the dwarfest variety.

There are not many rock plants that flower in autumn, and one of the best of these, where there is space for it, is *Polygonum vacciniifolium*, a perfectly prostrate Knotweed with pink blossoms in September and October. It spreads rapidly, and its shoots root in the ground as they spread. It should be grown in poor soil and in an open position on the north side if it is to flower well. It can be readily increased by rooted shoots cut off and replanted in spring, but should not be disturbed when established. Other plants that will flower late in the year are *Papaver alpinus* and *Linaria alpina*. These often die after flowering, but if raised from seed in spring in a cold frame and planted out as soon as possible they will come into flower about July and continue to bloom till the frosts. They can also be sown where they are to bloom. They will flourish in any well-drained position not too dry and seed themselves profusely. Both are extremely beautiful.

Few of the Pentstemons are true perennials, but *P. glaber alpinus* lasts as long as any, and is a true rock plant. It varies in colour, but the best varieties are a beautiful glass blue. It can be easily raised from seed or increased by cuttings. Of the Columbines, *Aquilegia Pyrenaica* is the dwarfest and a very beautiful plant. It is easy to grow in a cool well-drained place, but difficult to get. *A. alpina* is never seen in its true beauty in England. It seems to de-

teriorate in cultivation. Of the low-growing spring Phloxes there are many varieties, but none so beautiful or compact as the white Phlox *Nelsoni* and the pink *P. Vivid*. These should be mixed among bold rocks and in a light rich soil. In damp or shady places they are apt to die off in winter. If they are top-dressed with leaf-mould the shoots will root, and this is the best way to increase them.

There are several Alpine *Ranunculi*, but none more beautiful or vigorous than *R. amplexicaulis*, which likes a cool place and a soil of loam and leaf-mould. Of all the *Violas*, the new *Viola gracilis* from Greece seems the most valuable for the rock garden. It appears to be hardy and vigorous and has bright but delicate purple flowers. It should be grown in a warm place and light, rich soil, at least until its capacity for standing our winters is better known. Among *Veronicas* we choose *V. prostrata*, among *Potentillas*, *P. alba* — both most beautiful plants not so often grown as they should be. *P. alba* flowers for six months of the year, and will grow almost anywhere. In a large rock garden space should be found for *Nierembergia rivularis*, which in England thrives best in a flat, sunny, well-drained place and should be top-dressed with leaf-mould when it starts into growth in spring. It increases at a great pace, and flowers for a long time. *Dryas octopetala* also needs a large space, and flowers most freely in full sun when it is protected from drought by large rocks. It likes a strong dose of lime in the soil. There are many good

Achilleas for the rock garden, all liking a dry, sunny situation, but the best is *A. argentea* (rightly called *Tanacetum argenteum*). This is beautiful both for its silvery foliage and for its pure white flowers. There is no better plant for the top of the rock garden, and it may be mixed with the *Aethionemas*.

Few of the dwarf *Hypericums* are quite hardy; but *H. reptans* will survive most winters if planted in a warm place where its roots are protected by large rocks, and it is the most beautiful when in flower. It likes a rich, light soil, and may be increased by cuttings taken in spring. Near it may be grown *Edraianthus serpyllifolius*, a little bell flower of a brilliant purple colour, not at all difficult to grow in fissures of the rocks and in light, rubbly soil. This is also best increased by cuttings taken in spring. One of the earliest of all spring flowers is *Iberis saxatilis*, the smallest of the Candytufts, and not always easy to obtain true. It likes a limy soil and a fissure between rocks looking full south. It is quite prostrate, and the largest plants are only a few inches across. House-leeks are innumerable in variety, but the best for the rock garden is *Sempervivum arachnoideum* and its larger variety *S. laggeri*. These are quite easy in any high and dry sunny place. They like a fissure where they can spread out over the face of the rocks.

All the plants mentioned in this list are only suggestions, and could be matched with other plants as beautiful. The writer chooses them because he has

tried them all and knows their beauty and that they can be grown with a moderate amount of skill and pains. He could make another list almost as much to his taste — and perhaps more to the taste of others. There are now too many rock plants, and the beginner is apt to be bewildered among them. But if he stocks his rock garden with the plants we have mentioned, he will have nothing worthless and nothing that he need despair of growing.

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