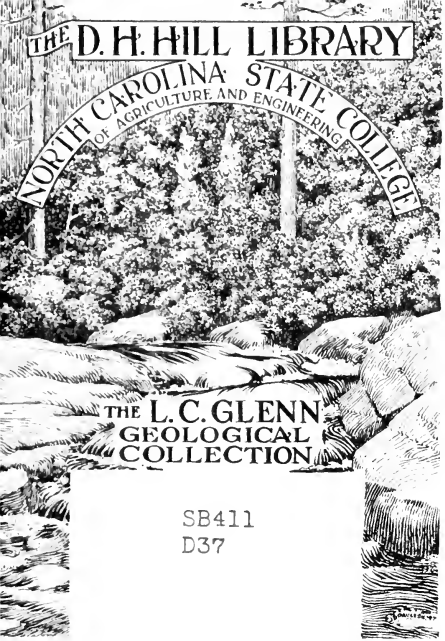
ROSES

GARDEN·FLOWERS·IN·COLOR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GARDEN·FLOWERS IN·COLOR

EDITED BY . . . . .
R. HOOPER PEARSON
MANAGING EDITOR
OF THE *GARDENERS' CHRONICLE* . . . . .

PLATE I (*Frontispiece*)

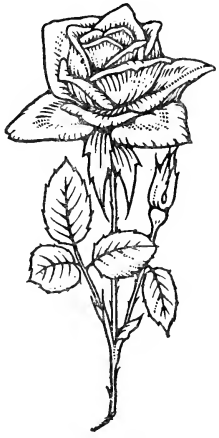
HUGH DICKSON

(One of the best H.P.'s of recent introduction.)

Roses

H. R. Darlington, F.L.S.

With Eight Coloured Plates



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PREFACE

THE indirect effects of legislation are notoriously incalculable, and even those who are inclined to think most hardly of the Chancellor of the Exchequer would scarcely suggest that of malice prepense he had by means of the Finance 1909–10 Act deprived the Rose-loving public of the pleasure of reading a book on Roses from the pen of Mr. H. E. Molyneux. Yet it has so fallen out that Mr. Molyneux, who had intended writing this book, has found himself unable to accomplish the task owing to the press of work thrown upon him by the Act in question, and it has fallen to me to prepare the following pages, owing to the pressure of circumstances (and the Editor), somewhat more hurriedly than I could have wished.

Those who, like myself, are familiar with Mr. Molyneux' careful observation and graceful method of expression, must regret that he has been unable to accomplish the task he had proposed, and must hope that before long we may again renew our interest in his writings, and reap the benefit of his judgment and experience.

In compiling this little book, although I have, I fear, somewhat exceeded the limits of space originally assigned to me, I have found the subjects calling for discussion so many that I have had much difficulty in deciding which to reject. The plan I finally selected has been to confine

myself as far as possible to matters relating strictly to the practical cultivation of Roses. Matters of more theoretical interest, such as the History of the Rose, and of the forms of culture practised in the past, I have found it necessary to reject; and for different reasons, subjects like Hybridisation and the raising of new varieties, and similar subjects which would be of practical value to a limited class of readers, have also had to go. I have, however, endeavoured to include as far as possible such matters as the amateur rosarian is likely to concern himself with in growing his own Roses in his own garden, and to try to solve some difficulties with which, from my numerous correspondence, it appears amateurs are frequently confronted.

It is but a short time since Mr. Pemberton's much more elaborate treatise on Roses appeared, but even in that time I regret to have been obliged to add somewhat considerably to the list of diseases and pests with which we are troubled. The introduction of improved forms of washes and of syringes for applying them has, it is true, in large measure helped us to keep some of these plagues at bay, but syringing is at best a mitigation and seldom a cure of the evil against which it is directed, and I have among my friends some who consider the time it involves may be better spent in other ways.

It is quite within the bounds of possibility that the hybridist might help rosarians considerably if he could be induced to direct his attention to the introduction of disease-proof Roses. As far as I can judge, that fine-coloured Rose Rayon d'Or is practically immune from mildew; I have had it growing in a bed surrounded with Roses such as Theresa which have suffered badly, without seeing the least

trace of the hoary fungus invade its brilliant and shining foliage. Here perhaps may be the commencement of a new era for the rosarian.

As to new Roses, I have said but little, for there is little that can be said from one's own actual experience, and I have tried to confine myself to this. The annual production of new Roses is now very large; more than a hundred new varieties are usually put in commerce each year. It usually takes at least four years for a new Rose to become at all common in gardens, and then our experience of it in a wet summer may prove to be almost valueless in a hot and dry one, and *vice versâ*.

I ought to add a word about the illustrations. For these I am not personally responsible; they were, I believe, selected and completed before I was asked to undertake this book. Their chief interest lies in the fact that they are photographs in colour of actual Roses. Some idea of the difficulty attending this form of photography may be formed from the statement made to me that in some cases the Rose, in sitting for its portrait, was required to keep still during an exposure of as much as six hours.

H. R. D.

POTTERS BAR, 1911.

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ROSES

INTRODUCTION

ARE we to have the garden for the Rose, or the Rose for the garden? It is somewhat strange that this question should be asked at all, but it at least says something for the Rose that the late Mr. Foster Melliar, and doubtless other rosarians of the last century, should have answered unhesitatingly in favour of the first alternative. Yet much has happened among Roses in the past twenty years, and it is no longer possible to admit as Mr. Melliar did "that for masses of grand colour as viewed from a distance no Rose effect can equal that of the Rhododendrons." I would yield to none in my estimate of the value of colour in the garden, whether it be found in the mass or in the individual flower, and it is with no want of appreciation of the grand colour effect of a bold group of Rhododendron or Azalea in the height of its spring glory, that I would point to the profusion of colour in July to be found in the grape-like clusters of Dorothy Perkins or Minnehaha, and the wonderful glow of colour produced by a well-covered arch or weeping standard of Hiawatha in the evening sun.

Sir Michael Foster used to say that he was seldom three weeks in the year without an Iris in flower in his garden—

a wonderful record which few are likely to attain—but the flowering of individual plants of members of the Iris family is confined to a few weeks, while we have many varieties of Roses that will produce flowers almost continuously from May to December, and those who possess a greenhouse may obtain Roses indoors from February until the outdoor Roses come into bloom.

There should, in fact, be only one answer to the question with which I began, and that should be "Both." Were it necessary to choose between the alternatives of the garden for the Rose or the Rose for the garden, I would personally prefer to sacrifice the former for the latter; but the choice would be as unsatisfactory as it is unnecessary, and the object of this little book is to show how it may be possible to cultivate beautiful Roses in a beautiful garden.

Another choice often unnecessarily presented to the owner of a Rose garden is said to lie between his garden and the exhibition. "Show Roses! If once we allowed our gardener to show Roses we should never be able to pick another flower in the garden." These and similar expressions to the disparagement of Rose-showing are common, and I believe generally quite misconceived. The development of Rose shows, and particularly of the decorative classes and classes for garden Roses, has done an enormous amount for the improvement of the garden. It is only by comparing his own productions with those of others, including, if he be an amateur, the flowers he has staged with those put up in similar classes by nurserymen, that the exhibitor learns the perfection to which Roses may be brought and how far his own blooms fall short of the ideal.

He very soon learns that his plants should, in the first place, be free from weakness and disease. It is not as a rule in the exhibitor's garden that the Rose-bushes are white with mildew or red with rust, or turned into fodder plants for the delectation of all the sawfly grubs and caterpillars in the neighbourhood. The cutting of Roses for exhibition in boxes never, I think, damages the garden, and even the big vases of garden Roses and groups of decorative varieties seldom make such a tax on the garden that its beauty is not soon renewed. Still, it must be admitted that exhibiting is strenuous work, and if some of our friends do not care to bear the labour and heat of the day in assisting to provide the display, let us hope they will be moved, when they visit our shows, to help to defray the necessary expenses.

The supreme object of the Rose shows ought to be the improvement of our gardens. And they have accomplished a great deal in that direction. It is there that most of us first see the New Roses, and the crowds that throng the tent set apart for these novelties at the "National" sufficiently attest the widespread interest they awaken every year, but even more important is the annual test to which they subject our established favourites. To many of us who are confirmed exhibitors the actual pleasure of a Rose show is considerable, and each has his own method of enjoying it. To Dean Hole one may surmise the pleasure lay largely in the genial companionship of so many loyal subjects of the great Queen Rosa. To Foster Melliar, perhaps, it was the joy of battle. To some the great delight may be the delicious perfume and the grace and beauty of the Roses themselves. To others imagination will paint in

glowing colours the wonderful effects which, through the increased knowledge they are acquiring, they hope to be able to produce in their own gardens.

I remember, at one of the few Rose shows I have attended at the Crystal Palace, seeing a dear old gentleman, obviously a country parson, who with the assistance of his wife was carefully and methodically going through each exhibit, admiring each Rose as he came to it and accurately recording its name in a pocket-book. I know not what sort of an order he gave to his nurseryman in the ensuing autumn, but evidently he had some scheme of that kind on foot, for after a time the lady became a little restive. "I am sure, John, I have seen you write down that name before," she said. A consultation followed, and it was found the lady was right and the name had been already registered four times in the pocket-book, but it was not to be so registered for nothing. "My dear," he said, "I think we shall have to get four plants of that Rose this autumn." Let us hope the investment proved satisfactory. But save for the undoubted pleasure the old gentleman derived from the compilation of his list, his method, though not uncommon, was somewhat too hazardous to be likely to reward him.

The novice who attends a show and orders a plant of each of the varieties that excites his admiration, without inquiry as to their habit in the garden, will probably be disappointed to find the result not come up to his expectation, particularly if he plant them at haphazard in a single bed. I have seen many such beds. The most important position is probably occupied by Bessie Brown, a Rose quite useless in the garden, hanging her head at the un-

expected prominence assigned to her; then there is a strong Noella Nabonnand, and hard by the meagre remains of a plant of Bridesmaid. Helping to cover this on the other side is perhaps Gustave Regis, and then a weakly plant of Papa Gontier, in front of this Madame Jules Grolez, and next door, taking out all its colour, the Lyons Rose, then Lady Ashtown and Grüss an Teplitz. Many of these are good Roses, but half of them are spoiling the other half, and the result is neither a good bed nor good flowers.

Now, I have no desire to dictate to any one how he should plant his garden. A man's garden should be a place where he is to take his pleasure, and should conform to his own ideals, not to those of some one else. I entertain a strong opinion that no one can make a satisfactory garden for another. Moreover, circumstances of size, shape, position, and the means of the proprietor vary so greatly that it is neither practicable nor desirable to lay down rigid rules. But I should like, if I can, to help the owner of the small garden, and particularly if it should be one of those awkwardly shaped plots so often met with in our suburbs, laid out by builders or estate agents, a race apparently gifted with little consideration for the convenience of the gardener, or any ideas of beauty that reside not in mathematically straight lines drawn by the office ruler. It was in such a garden, about 20 yards wide by 100 yards long, that I first began to grow Roses "on my own," and possibly effects that have been pleasing to me may please others.

Such a garden often contains a number of small beds intended to be planted afresh every summer with Pelargoniums or Begonias, Lobelia and Tropæolums.

But these little beds, if planted with China or dwarf Polyantha Roses or other bedding varieties, afford a longer period of flower and give interest and occupation all the year round. Beds which do not conveniently hold more than a dozen Roses are best planted each with one variety only. A small bed of mixed Roses is seldom satisfactory, and even in the case of larger beds or borders intended to hold fifty to a hundred Roses it is better to select a few sorts and use, let us say, ten or a dozen of each variety chosen. In such a case standard Roses may conveniently be employed to separate the different varieties. A bed of standards should almost always be avoided. I still have an affection, perhaps partly from old associations, for the old-fashioned plan of planting standards each in a single bed in the grass alongside the drive or gravel walk, or round the edge of the lawn, but in a small garden the amount of valuable space thus occupied is a consideration.

In a small, suburban garden such as I have referred to, the owner on taking possession will often find the kitchen garden separated from the flower garden by a Privet hedge. His first step should be to root this up and substitute Penzance Sweet Briars for the Privet. Ordinary iron railings may be placed along the line of the fence and the Briars planted about 3 feet apart on each side of the railing. The height of the fence may be increased to 8 or 10 feet by fastening iron uprights between each rail. Any blacksmith can make these uprights and pierce them with holes through which galvanised wire can be threaded. The garden will probably be surrounded by oak fencing with a border 3 to 6 feet wide at its base. These borders are not very good places

for dwarf bush Roses, but if they must be utilised they are best planted with China and Polyantha Roses. At the same time, the fences are excellent places against which to grow rambling and climbing Roses. Many of the Wichuraianas and Multifloras may be grown satisfactorily on these fences with almost any aspect except due north. If the aspect be north, Félicité Perpétue or Dundee Rambler may be tried. On a south or west aspect the Noisettes or climbing Hybrid Teas may be grown. The bush Roses and standards, H.P.'s, H.T.'s, and Teas are best grown some little distance from the fences, and collected into or round the centre of the garden.

Perhaps I should add a word about pergolas. The pergola is a convenient structure on which to grow climbing Roses, but it is well to be careful where it is placed. The first essential of a pergola is that it should lead somewhere, from the house to the Rose garden if convenient; but it should not be put in some side part of the garden where a path is not required. If it be made of wood the bark should not be left on. Bark looks very nice for a year or two, but it soon becomes the resort of thousands of pests of all kinds; rather let it be stripped off and the wood painted with creosote.

Finally, with what shall the Roses be surrounded? The choice generally lies between gravel and grass. Gravel is no doubt convenient for getting access to the beds in winter, but if possible it should be confined to the outer parts of the Rose garden, for Roses never look so well as when surrounded by neat paths of grass, and let the central part at least be fairly spacious. A central

grass path through the middle of the Rose garden, not less than 9 feet wide, will well repay the trouble it may give in keeping it mown.

The keeping open of the central part of the Rose garden is of considerable importance. A sundial may be placed there if desired, but no larger construction. Rose temples and fantastic arrangements of chains and posts, if necessary, must be kept to the sides ; so, too, should the summer-house. A good, roomy summer-house covered with climbing Roses, and, if possible with a thatched roof, is both beautiful and useful, much better than any Rose temple, though I much fear my friendly reader, if a novice, will want to try the temple scheme before he realises it is generally a mistake.

But I fear I am getting too particular. We know from Lord Beaconsfield that gardeners are an opinionated race, and my object is to assist my friends rather than criticise them. May I, however, say at once that I have myself committed all the mistakes I have criticised, and many more ; and, after all, the finding out one's mistakes and devising remedies for them is part of the fun of gardening.

CHAPTER I

SITUATION

THE situation of the Rose garden is not often under the control of the rosarian, but if he has any choice in the matter, then several points deserve his attention.

Thus he should try to secure as far as possible :—

1. Freedom from frost.
2. Exposure to sun and air.
3. Protection from cold winds.

1. To secure protection from frost, a high position should be chosen. Cold air falls and hot air rises, so what is wanted is a site not necessarily high above sea-level, but relatively high compared with the surrounding country, so that the cold air may slip away down the neighbouring valleys.

2. Exposure to sun and air is most important. Few Roses will flower well without sun ; while if there is not a free circulation of air there is usually constant trouble with mildew and fungus. To obtain the full benefit of the sun, a gentle slope of the ground southwards should be chosen, and if this is done the soil will have a temperature higher by some degrees than a soil which slopes to the north. At the time of the spring frosts a certain amount of shelter from the east gives time for the plants to recover gradually after a night of frost before they receive the full force of the spring sunshine.

3. Protection from cold winds is best secured by the presence of walls or buildings on the north and east, and by a low wall or fence to the south-west. It is wonderful how much protection is afforded by a low wall; the wind seems to lift up over it and pass above the garden behind it.

Failing a wall, hedges of various sorts may be made. In the nurseries, one often finds Beech hedges planted for protection, but for the Rose garden there is nothing so pleasant in the summer evenings as a hedge of Sweet Briar or Penzance Briars. The sweet and delicate scent pervades the air and gives an added pleasure to working in the garden. The Penzance Briars will make a fine hedge up to 12 feet high. Then the Wichuraianas, such as Dorothy Perkins, will grow as tall and are nearly evergreen, and the Rugosas are hardy and make a good hedge from 6 to 8 feet high. All these are hungry feeders, and when grown so thickly as to form a hedge, dwarf Roses should not be planted within 10 or 12 feet. If it is necessary to have dwarf Roses in the hedge border, choose the Chinas. A wood at some distance away may afford good shelter, but it is not desirable to have trees very near. Roses should never be planted under the drip from their boughs, nor nearer the trunk than the tree's height. Even then, there will be constant trouble with their roots, for, as Mr. Foster Melliar discovered, even concrete walls underground will not always prevent them from trespassing into the Rose soil.

CHAPTER II

SOILS

ROSES will grow after a fashion in almost any soil. But if it be poor and gravelly, unfertile clay or poor chalk, the best results can only be attained by careful preparation before the trees are planted.

Soils with a large proportion of clay in their constitution are generally called heavy or, as the Midland farmers expressively say, "loving," while those in which sand bears a large part are called open or light.

A heavy, clay soil is often called cold, and a friable, light soil, warm, but this is not quite correct. The light soil warms up decidedly more quickly than the heavy soil under the influence of the sun in spring, and during the summer, when warmth is most wanted, is generally of a higher temperature; but in the autumn, when the temperature is falling, the light soil loses its heat more rapidly than the heavy, clay soil, and growth will be noticed to continue later into the autumn on clay than on light soils, while the average winter temperature of clay soils is slightly the higher. Mr. A. D. Hall has shown that the "lateness" of clay and undrained soils in the spring is at least in part due to the large amount of water they contain which is evaporated by the early spring winds, which in so doing keep down the temperature of these soils. This evaporation can

be to some extent checked, and the spring temperature of the soil raised, (1) by establishing a loose tilth of the surface, and (2) by providing some shelter to break the force of the wind.

So far as Roses are concerned, the Teas, Chinas, Rugosas, and probably many of the Wichuraianas prefer a rather light sandy, or gravelly, soil, while the Hybrid Perpetuals, most of the Hybrid Teas and all the Briars, succeed best on a soil of a rather heavy and retentive character.

CHAPTER III

BEDS AND BORDERS

THE size and shape of the beds intended to receive the plants is not unimportant. For dwarf Roses the best width is 5 or 6 feet, and the beds may be as long as the ground will allow. I think most amateurs begin by making their beds too wide; certainly I did so myself. When space is limited we are apt to grudge the room required by paths, but it is of great importance to be able to get at all sides of the plants. A bed 5 feet wide will take 3 rows of roses; this allows a space of 1 foot between the outer rows and the grass or gravel edge, and 18 inches between the rows. With a 6-foot bed we may have 4 rows of plants, and this is the limit. Dwarf Roses look very well when grown in beds from 6 to 10 feet in length, one variety in each bed, or, if long beds are used, groups of 16 to 20 Roses of one variety may be separated by a single standard. I do not like beds of standards, but am rather fond of the old-fashioned plan of growing standards in single beds round the lawn. These beds for single standards should be made in the first instance at least 4 feet square, the grass being brought in later if desired.

CHAPTER IV

THE PREPARATION OF NEW BEDS FOR ROSES

THE conditions of subsoil, soil, and situation vary so greatly in different places that it is impossible to lay down one hard-and-fast rule for all cases, and the amount of labour available and the time at the disposal of the rosarian are also factors that must be borne in mind, but whatever plan is decided on there are three points of primary importance :—

1. **Drainage.**—First and most essential is drainage. Roses will not thrive where the rain cannot pass away readily from their roots, and they are, moreover, much more liable to injury from frost when the soil is in a wet and stagnant condition. An outfall for the water must be secured and the beds properly drained whenever necessary, and this practically means in all cases, except where the soil is gravel, chalk or other porous material, which allows naturally a free escape of water.

2. **Retention of Moisture.**—Roses, though impatient of standing water, delight in a free and deep root run in a soil retentive of moisture, and in order to secure this there should be a considerable amount of "humus" (decayed vegetable matter) in the soil, a condition that is best secured by the addition of leaf-mould and farmyard or stable manure.

PLATE II

HIAWATHA (WICHURAIANA)

A brilliant-coloured climbing Rose.

The old florist's rule of 3 feet of well-worked soil below the surface holds in the case of Roses as well as for bulbs and kitchen-garden produce.

3. **Firm Planting.**—The soil in which the Roses are to be planted must be firm, therefore the making of the beds intended to receive the plants ought to be finished a month before the Roses arrive from the nursery, to allow the soil to settle down and become penetrated by the autumn rains. On heavy, clay lands it is a good plan to make the beds in spring and cultivate a crop of annuals in the summer, digging them in and planting the Roses in the following autumn. When planting is in progress the soil must be firmly trodden down round the plants, and it is good practice to repeat this operation again in the spring at the time of pruning the Roses planted in the previous autumn.

This firm planting is far more important than amateurs are inclined to consider. Shirley Hibberd mentions a case where the most costly preparation had been made, good Roses purchased and properly pruned, but when called on to advise on them in June he found that they looked miserable and starved, a mass of blackish-green, scrubby sticks. They were loosely planted. All that was required was to tread the beds backwards and forwards till the soil was firm as a pavement. The following year they were "a mass of green foliage and thumping flowers."

A few methods of preparing the beds are as follow :—

(*a*) First let us suppose we are indifferent to time or expense and take the ideal method. Dig out all the soil to a depth of 3 feet, preserve the best, and carry the greater part, perhaps two-thirds, right away. If the subsoil is not

naturally porous, slope the bottom to 6 inches deeper in the centre of the bed. Then lay a 2-inch drain-pipe down the middle of the bed and connect it with an outfall. On the top of the drain-pipe fill in with 6 inches of rough, porous material such as mortar rubble, broken brickbats, burnt clay, or even, if nothing else presents itself, clinkers from the greenhouse boiler. This is to be spread all over the bed and so make a porous foundation. On the top of the porous bed place a layer of old turf, then a layer of

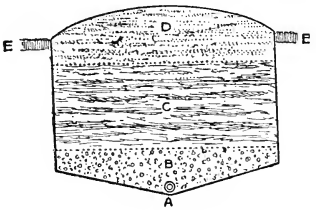


DIAGRAM SHOWING SECTION OF ROSE BED

(*a*) 2-inch drain-pipe.
(*b*) Rubble and porous material.
(*c*) Alternate layers of top-spit and old manure.
(*d*) Upper portion in which the roses are planted consisting of good soil and leaf-mould.
(*e*) Grass level.

manure, then turf and top-spit, if possible from a heavy pasture, and again manure, then top-spit again, and so on till you get to 9 or 10 inches of the surface, giving a sprinkling from time to time of $\frac{1}{2}$ or $\frac{1}{4}$ inch bones. Then mix the heap of best soil you have preserved with a quantity of leaf-mould, turning it over till it is thoroughly incorporated, and fill up with this to 3 inches above the

level of the ground. This will give you a bed that will last for years, with but little attention except hoeing.

(*b*) A modification of this method is to preserve a greater quantity of the soil, keeping the best as before for mixing with leaf-mould for the top, and to use a certain amount of the other soil dug from the bed with the turfy layers as the work proceeds.

(*c*) Where, as in many parts of the London district, the subsoil consists of stiff, cheesy, unfertile clay, it is a good plan, after setting aside the best soil, to make a ballast fire and burn the clay as it is dug out, by mixing it with slack on the fire. When a good heap of ballast has been obtained, sift it through a ¼-inch sieve ; use the coarse for the bottom to cover the drainage, and mix up the fine with the soil set aside to use for the upper part of the bed, together with some good farmyard or stable manure. Treated thus, many apparently hopeless clay soils give excellent results ; Roses get their fibrous roots into the burnt clay and greatly appreciate it. Roses will not grow satisfactorily in sheer clay. The finer ballast sifted through the ¼-inch sieve is also excellent material for top-dressing established plants.

(*d*) Where the soil is already fairly good, after the drainage has received attention it may be sufficient to trench or bastard-trench the ground, two or even three spits deep, working in a liberal supply of old manure, especially into the lower spits.

Even poor soils will give good results if thus deeply worked and manured, and in dealing with poor soils it is to be remembered that if the soil is good and rich, round and below the roots of the Roses, it is not of much importance if the top 5 or 6 inches is of relatively poor

quality. It is so easy to enrich this in subsequent years in the ordinary routine of culture.

Where an old Rose bed is being remade, it is a good plan to wheel away a large portion of the soil from the bed, and replace it by soil from the kitchen garden, using the soil wheeled from the Rose bed to replace that taken from the kitchen garden. To the Rose bed a certain proportion of turf or top-spit may be added if it be available. Both Roses and kitchen garden will benefit from this treatment.

As general directions for the treatment or improvement of Rose soils, it may be observed that *light soils* are improved by the addition of something of a heavier texture; this is best supplied in the form of the top-spit from heavy meadow-land. *Heavy soils* are greatly improved by the admixture of road scrapings ("road sand"), wood-ashes, or leaf-mould, or by burning the heaviest clay and, after passing the burnt clay through a sieve to remove the biggest pieces, mixing up the finer burnt earth with soil.

Finally, it must be understood that while the more elaborate methods of preparing the ground are by no means essential for successful garden cultivation of Roses, a thorough working of the ground should never be dispensed with, and that more important than the quality of the manure or the chemical constituents in ordinary soil is a good mechanical and physical condition of the soil.[1]

[1] See the conclusion arrived at by the expert appointed in 1898 to examine the soil from the most successful nurseries, in the N.R.S. *Report on the Constitution of Rose Soils*, p. 22.

CHAPTER V

PLANTING AND TRANSPLANTING

THE best time for planting or moving Roses is from the middle of October to the middle of November. Plants required from the nurseries should therefore be ordered in good time to secure their arrival before the winter frosts.

On heavy soils, if the ground is very wet, it is a good plan to have a little rather light and dry soil set aside to put immediately over the roots. I have already laid stress on the importance of firm planting, and the light soil will prevent the clay caking too solidly round the roots.

A handful of bone-meal may be dusted into the hole intended to receive the plant, in order to give it a start, but no other manure should be allowed near the roots.

In transplanting Roses from one part of the garden to another, the first thing to do before the fork is put into the ground is to take off all the leaves, then prepare the place where it is to be planted, and finally lift the plant as carefully as you can. Before planting, examine the roots ; all short and fibrous roots should be carefully preserved, but if the plant is found to have made long roots which possess but few rootlets, shorten these considerably, and allow them to make a fresh start in the new quarters. Unless the tree is very top-heavy and so likely to be much disturbed by winter winds, no pruning should be done when planting

before Christmas ; when, however, the operation is deferred till after the New Year the tree may be pruned at the time of planting. It is sometimes said that Roses may be transplanted at any time with sufficient care, and certainly if necessity arise it is quite easy to transplant at any time from September till well on in April. Still it is unwise to expect much of spring-planted Roses the first summer, though they will often do well in late summer and autumn. After April, unless turned out of pots, there is considerable risk in moving Roses. If it must be done, all the leaves must be removed and the hole to receive the plant well filled with water, and the plant moved with as much earth as may be practicable. Even with these precautions the plant suffers a severe check, and it is not a desirable experiment if any other course is open.

CHAPTER VI

THE ART OF PRUNING

CAN I convince my readers that pruning is an art? That even as a mere general knowledge of the rules of art will not make an artist, so my readers, though they commit to heart all I may say in this chapter and all that is contained in the N.R.S. *Pruning Book*, will not produce the best effect unless they study their plants?

In the spring let them study the effect of last year's pruning before they attack the bushes. In August let them note carefully the result of their efforts at pruning in the spring, and let them review the plants again in autumn before they enter on their winter rest. Pruning for exhibition may perhaps be thought to be an exception. Mr. Mawley once suggested that for this purpose many an amateur would secure results as good as those he usually attains, if he drove a hay-cutting machine over his Rose beds; but even in pruning for exhibition there is room for much exercise of judgment, and I doubt if any exhibitor would voluntarily adopt the suggestion.

IMPLEMENTS

There are those who proceed to their pruning with nothing but a knife in their pockets, but for myself I prefer

rather more accessories. I will describe the contents of my pruning-basket.

First and most important is a strong pair of dogskin driving gloves. These are quite sufficient protection, and not so clumsy as the leathern hedging-gloves often sold for the purpose. It is, however, convenient to have something wherewith to protect the wrists, and for this purpose I have found light wristlets made of Japanese matting very convenient. They are obtainable at most horticultural salesmen for about 6d. a pair.

A light leathern cushion or kneeling mat is also desirable. I find an ordinary leathern footstool which has seen better days in the dining-room, and has been strengthened by the local saddler, and provided by him with a loop or handle at one end so that it can be slung on the arm, does as well as anything I have tried. When using a kneeling cushion, I do not get on with the work so fast as when merely stooping over the plants—it is less easy to change one's position ; but if there are many drawf Roses to be pruned, the use of the cushion affords a change of attitude, and perhaps the work is done more carefully—it is not always desirable to be in a hurry even when pruning.

Some small tool should be taken for clearing away the soil from the collar of the plants. A trowel or hand weeding-fork will do, but I have found Barr's Daffodil hoe the most convenient tool for the purpose. It is about 12 inches long, and has a 3-inch blade at right angles to the handle.

Then I have two pruning-knives, one the ordinary gardener's knife (the French serpette) and the other with a finer point to the blade, which is often useful in getting at a

branch when close to another. Two pairs of secateurs are desirable, one light and very sharp for small work, and the other heavy for cutting thick branches and old stumps. I have hitherto carried two saws, one a scimitar-shaped saw with the teeth set backwards so that the cut is made when pulling, not pushing, the other an ordinary keyhole saw, tapering to a fine point.

Dr. Williams has, however, this year introduced to me a delightful little saw which shuts up like a knife into a round wooden handle, some 6 or 7 inches long. This saw is not very broad, cuts both when pushing and pulling, and it only costs about 1s. Since I have had it I have scarcely used the larger saws, and the fact of being able to shut it up and carry it in the pocket is an advantage.

As to secateurs, I have tried nearly every make I could find. Not one of them is perfect, but on the whole I find I rely on two kinds, and the first is a make in which the cutting blade has a sliding action. This has the advantage of being easily sharpened, but would, I think, be better with a double cutting edge. Also, the screw on which the blades work having no washers and going directly into the under blade, tends as the screw gets loose with wear to move, and requires tightening up too often. The other form is that known as Aubert's pattern. There are several slightly different forms on the market. They have two cutting edges, one semicircular and the other in a double curve. It is very important to see that the two cutting blades are kept sharp, and the cutting edges accurately adjusted to each other. Even when new it is by no means uncommon to find the adjustment very badly done, and the steel is often so soft that it gets bent out of shape in a short

time. For sharpening secateurs I have found the little book-shaped stones used by wood-carvers for sharpening their tools very useful. Tearing of the wood will result either if the secateurs are blunt or improperly adjusted. They should readily cut thin paper.

Finally, I carry in my basket a little tin of paint, or painter's knotting. This is applied immediately the cut is made, with the double object of preventing bleeding of the sap and keeping out fungous diseases. I think, on the whole, paint is the more effective, but even that is not proof against the grub of the stem-boring sawfly, which seems to eat through a thick coating of white-lead paint with impunity.

With the relative advantages of knife and secateurs I have dealt elsewhere.[1] It will suffice here to say that while the cut of the knife is no doubt better in many ways—for instance, it crushes and injures the wood less and a knife is easier to keep sharp—yet it is more difficult to use well, and on the whole the secateurs will give as good, or better, results and save considerable time, provided that where the cut branch is not to be removed at pruning time the following year, but, as in the case of large bushes and standards, is to form part of the permanent plant, the secateur cut should be followed by a smoothing cut with the knife, no projecting wood being left above the bud intended to grow. I usually do this later when searching for caterpillars and dis-budding.

[1] *Rose Annual*, 1910.

THE OBJECT OF PRUNING

If we are to prune with the head, as it were, and not merely like the mowing machine aforesaid, it is necessary we should have clear ideas of the reasons for pruning the plants.

1. **Pruning for Shape.**—Probably the earliest form of pruning was undertaken with the object of improving the shape of the plant, and it is still of great importance in the garden. It was probably suggested by noting the effect of the removal of shoots of shrubs by animals in feeding. The rounded gorse bushes pruned by sheep, as seen on the Welsh hills, may well have suggested the earlier forms of topiary work. Pruning for shape will be our principal object, perhaps, in pruning large specimen bushes and standards of such garden Roses as Grüss an Teplitz or summer Roses like Thalia or the Garland, where we have ample room for development.

2. **Pruning for Space.**—This is necessary where we have a number of bushes growing near to one another. If unrestricted growth were allowed, before long the stronger growers would entirely overpower their weaker neighbours and the balance of the group would then be destroyed.

3. **Pruning to Improve the Quality of the Flowers.**—The object of the plant when growing wild is to produce as many seeds as possible, which it can do by forming a large number of small flowers. The gardener requires from many varieties quality rather than quantity, and he prunes with the object of concentrating the

energies of the plant in the perfecting of the flowers he retains.

4. **Pruning to encourage Growth.**—Nature always tends to obtain a balance between the root system of the plant and the aërial or leaf-bearing portion. The larger the root system the larger the top. By removing a part of the top this balance is disturbed, and the plant tries to supply the defect by a vigorous and rapid growth.

5. **Pruning to renew and prolong the Life of the Plant.**—Most Roses, if left to grow at will, produce their young growths of the year from the top of the branches, the old stems getting harder and more prone to attack from disease or frost every year, until a time comes when the young growths lack vigour and the plant ultimately dies. If we notice the wild Dog Rose, we see how this difficulty is got over in nature. From the collar of the plant just below the surface of the soil are produced strong suckers, which grow like stolons for a short distance underground, ultimately coming to the surface and forming fresh plants, roots from the base of the suckers being soon thrown out. In cultivation the suckers are carefully removed from budded plants, so the Rose is not allowed to renew its youth in this way. But by close pruning the formation of young and vigorous basal shoots is encouraged and the plant kept healthy and thrifty.

DIRECTIONS FOR PRUNING

I will begin by laying down three general rules applicable to Roses :—

(i.) Before beginning to prune, ascertain the variety, or at least the class of Rose you intend to operate on.

(ii.) All Roses that have been purchased and planted, or even moved from another part of the garden in the autumn, should be pruned hard the following spring.

(iii.) Roses that are planted before Christmas should not be pruned till the following spring, while those planted after Christmas may be pruned at the time of planting.

CLIMBING ROSES: THE RAMBLERS

Pruning should be finished with January, except where otherwise mentioned. The Ayrshire Roses, such as Dundee Rambler, and the Sempervirens section, which includes Félicité Perpétue, are all of strong, vigorous growth and require practically no pruning, but should be trained when in a position where this is necessary and thinned out sparingly. The summer-flowering Hybrid Musks, like Mme. d'Arblay and The Garland (sometimes described as a Hybrid China), may be treated in the same manner. The Rambler Roses, including Multiflora scandens, Crimson Rambler, Blush Rambler, Tea Rambler, and others, make strong, basal shoots, and from these in the following year the flowers are produced on short laterals. In addition to these short flowering laterals a certain number of strong growths from the old wood are produced, very like the basal shoots in appearance. If the basal shoots cover sufficient height and area, all the old wood which has flowered may be cut away at any time after flowering is over. If, however, the basal shoots do not cover the required area, or additional height is required, then a suitable number of the strong shoots produced from the old wood may be left in addition to the basal shoots, the old wood being cut back to the point

where the strong shoot starts. It is important to remember that in these Roses the old wood which has flowered is practically useless except as a carrier for the strong, young shoots it produces, and must not be expected to flower well again. This selection of strong shoots from old wood will generally only be required where the Rambler is grown on a tall arch or pergola or trained against a wall. When grown as a pillar the basal shoots will generally be sufficient, but in order to assist in covering the base, two or three shoots only need be taken up the full height and others shortened to different heights.

The Boursault Roses (Amadis, elegans, gracilis and inermis Morlettii) and the taller Sweetbriars, including the Penzance Briars (except Lord and Lady Penzance)—together with the section of Wichuraiana hereafter mentioned, may be pruned in a similar manner. They are strong growers, throwing up vigorous young wood, sometimes from the base, but more often from the strong wood of former years.

For a few years no thinning will be necessary, but after their third or fourth year a good deal of the older wood will have to be removed, and the process repeated at the like intervals. Every year a moderate shortening and tying in of shoots, branches, and laterals where they are not wanted may be made, and when necessary to furnish the base. When the plants are grown as a hedge instead of as climbers, the shoots should be trained slantwise, the lower ones nearly horizontally. Every few years the hedge is taken down in the autumn, and a great business it is to do this. A considerable cutting out of the older and weaker wood takes place, and the best of the younger shoots are

tied in slantwise again. These Roses will make a hedge 10 feet high.

Lord and Lady Penzance and the dwarfer varieties of Sweetbriar do not make satisfactory climbers, but will make a hedge 4 feet high.

THE WICHURAIANAS

Here we have four distinct types:[1]—(1) The type of Dorothy Perkins, and its sports Minnehaha, Lady Godiva, White Dorothy, Lady Gay, and others, which make numerous basal shoots, pushing and creeping along the ground unless trained up. These will supply the best flowers in the next year, and should be used to replace the wood that has flowered during the summer as in the case of the Multifloras, but there is this distinction between them, that in the group of Wichuraianas the shoots that have flowered will flower again if they are required to fill up gaps, though the flowers will not be so good as those from the young shoots. Where two-year-old wood is to be left, the short laterals that have flowered should be cut back to two or three eyes of the main stem.

(2) Wichuraianas of the type of Alberic Barbier, François Foucard, Gardenia, Jersey Beauty, and Réné André. These do not make basal shoots to anything like the same extent as the Dorothy Perkins section, the young shoots being to a large extent produced from the wood of former years. The method of pruning, therefore, will be to shorten in the laterals that have flowered to two or three eyes and preserve

[1] For this method of classifying this section of Roses I am indebted to Dr. A. H. Williams, who first suggested it to me.

the strong young growth, cutting out older wood to make room for it where necessary. It is well to take down the plants and thoroughly overhaul them every three or four years. They can generally be induced to produce basal shoots by laying the plants along the ground in spring until growth is well started.

(3) Wichuraianas of a more bush-like habit, such as Gerbe Rose, and perhaps Diabolo. These, though vigorous in growth, are not so well adapted for climbers, and are best treated as free bushes or trained into a hedge. The directions for pruning will be the same as those for the Conrad F. Meyer section of the Rugosas.[1]

(4) Wichuraianas of the dwarf, perpetual-flowering kinds introduced by Mr. G. Paul as Cheshunt Roses, Seashell, Iceberg, and the like. These may be treated like the dwarf Polyanthas and need no pruning, except the removal of the flower-stalks and dead wood. This may be done in April.

At the risk of repeating myself, I add that for more than one reason the pruning of the foregoing Roses may be taken in hand as soon as flowering is over for the year, and must be completed before the end of January.

THE NOISETTES

The Noisettes should be pruned in April. They are a race of climbing or semi-climbing habit, and may be divided into two groups — (1) The strong growers, like climbing Aimée Vibert and Maréchal Niel, and (2) those of moderate growth, such as William Allen Richardson, L'Ideal, and Mme. Alfred Carrière. Even the moderate

[1] Pp. 35, 36.

growers, however, when trained to walls, fences, or pillars, may be built up to a considerable size.

The two sections require no special difference in pruning; they produce their flowers on short laterals from the growths of the previous year. It is, therefore, useless to prune them hard, as this would produce vigorous growth, but not flowers till the following year. It is only in the first year after planting that this is to be done and the flowers sacrificed. Afterwards the object is to preserve as much of the good wood of the previous summer as possible, removing older wood, except where it is required for one of two purposes. The first is when the old wood is wanted to carry good, young shoots proceeding from it. Where this is the case, all that part of the older stem beyond the point of origin of the younger shoot may be cut away. The second case is when a portion of the older wood is required on wall or fence to fill a gap. Here so much as is necessary may be kept, but the laterals which carried the flowers of the previous summer are cut back to one or two eyes.

A few of the Noisettes are tender. Lamarque, Maréchal Niel, and Fortune's Yellow are all really best when grown under glass—at least anywhere north of London. With the exception of Fortune's Yellow, which only flowers once, they are all good autumnal bloomers.

Aimée Vibert, Alister Stella Gray, and Mme. Alfred Carrière are hardy, and seldom give much difficulty, but in pruning most of the other Noisettes a careful search should be made at pruning time for bad wood. Unsound wood, whether affected by frost or fungus, is useless, and must be removed and burnt forthwith.

BUSH ROSES

Summer-Flowering Roses.—These all make their flowering wood in the previous summer. By pruning young wood we are cutting off flowers, and therefore the rule for pruning is very simple. Let them alone till they become too thick, then thin out. Do not cut back Damask Roses, *e.g.* Lady Curzon, Crimson Damask, Mrs. O. G. Orpen, Tuscany, York and Lancaster, Gallica (Rosa Mundi), nor Rosa alba nor Madame Plantier. Thin out where crowded. This is all that is necessary, but the tips may be shortened a very little if it is wished. These Roses vary in habit, and will give bushes from 3 to 6 feet.

Provence Roses and the Mosses should be well thinned out in September, and in the spring may be shortened to half their length, but not more. This treatment I find best even for the Moss Roses of a perpetual character.

The Austrian Briars and many of the species flower, not on the laterals, but on short growths from them—sub-laterals. Here, therefore, no pruning is necessary; on the contrary, everything should be done to encourage the formation of laterals. This can be done to some extent by bending or pegging down the long growths so as to induce the lower buds to start into growth. When these have started, the stems may be allowed to rise again if desired. Thinning out of three-year-old wood is allowable, and should be practised wherever the growths are crowded. Where pruning has to be done it should be carried out immediately after flowering.

One or two species or hybrids of species require special treatment.

Nitida should have the old growth removed annually and the young shoots pegged down. The Banksians should have no pruning for the first three years after planting ; afterwards, old stems may be cut out from time to time to obtain new growth from the base. Una should have the laterals left a foot long. Sinica Anemone only requires training.

PERPETUAL ROSES

The Rugosas.—These should be pruned in February. The usual direction given is to "go as you please," *i.e.* whether you prune severely or lightly does not much matter. But this is not quite correct, for we have now three distinct types of Rugosa Roses requiring different consideration in pruning.

First, there is the old-fashioned Rugosa, such as Calocarpa, Delicata, and Blanc Double de Coubert, which will give us the well-known red berries in autumn. We may either prune them hard back or devote most of our attention to thinning and tying, but we shall get very different results according to the method we employ. The system of hard pruning will give us flowers, but they will be late, and one of the chief points of the Rugosa is its earliness ; so, unless we do not want early flowers and are cramped for space, it is best to make use of the second method and thin out the old wood, confining the pruning, properly so called, to such slight shortening of the shoots as the plant may require for the sake of shapeliness.

The second group contains Conrad F. Meyer, Mme. Lucienne Willeminot, Nova Zembla, Madame Ancelot, and Roses of a similar type, great strong growers with very thorny stems. These do not give us any choice of method,

for they should have very little pruning at all. We should confine our operations to merely removing damaged wood and thinning out that of two years and upwards. When, however, it is possible to do so, some at least of the branches should be bent and tied down, either permanently or till the buds towards the base have started. The fault of the Roses in this group is that they are not naturally very free-flowering, so everything should be done to induce them to shoot from the whole length of the stem, otherwise the crop of flowers will be small. So far as I can judge, the new yellow Rugosa "Daniel Leseuer," which seems very nearly related to the Dijon Teas, should be treated in the same way as those of this group.

The third group is a small one, not, perhaps, very generally grown as yet, and of less vigour than either of the preceding groups. Probably its members contain a greater proportion of Tea Rose blood in their composition. With regard to these, I think the nearer they approach in character to the Tea or Hybrid-Tea the harder they should be pruned.

The Bourbons.—These may be pruned any time in March. Not many of these are now much grown; it will be enough to mention the best—Hermosa, Marie Pare, Mme. Isaac Pereire, Mrs. Paul, Souvenir de la Malmaison, perhaps Boule de Neige and the hybrid Bourbon, Zephirine Drouhin. For the most part they flower on laterals produced from the old wood. Thinning, therefore, should be the rule rather than pruning. There should be no hard pruning, but just enough to keep the plant in shape.

Hybrid Perpetuals.—When we come to deal with the hybrid perpetuals, we are met at the outset with two

distinct schools, which may be said to be headed respectively by our two most successful amateur exhibitors. They may conveniently be called the early and late schools. The followers of the early school begin to prune in February, finish early in March, and cut right back to one or two eyes, with a view to encourage the plant to break from dormant buds at the junction of the Rose with the stock, though a few varieties, such as Charles Lefebvre, are left with somewhat longer stems. This school of rosarians holds that early pruning is preferable on four grounds : (1) The buds which are left to develop are in a very backward condition and are not suddenly forced into growth, but permitted by the early period at which they are called on to take the sap from the roots to develop slowly and gradually, and it is thought they are thereby able to produce better-shaped flowers than if pruning is deferred till the sap is in full flow ; for, if this course were pursued, these backward buds would suddenly be called upon to make use of the full flow of the spring sap and be liable to produce malformed flowers. (2) The plants suffer less from bleeding. (3) The operator has a greater choice of weather. (4) The severe pruning and constant supply of young wood keep the plants healthy.

The late school, on the other hand, prefers to leave pruning of the H.P.'s till the third week in March, and does not advise so severe a pruning even for exhibition Roses, leaving from 2 inches to 6 inches of old wood, say from three to five buds, or even more in the case of the strong-growing varieties, such as the Duke of Edinburgh or Hugh Dickson. The advocates of late pruning think that by this practice they run less risk from frost, which may injure the buds as

they are starting to grow, and cause them to produce malformed flowers; further, that the new growth "gets away" quicker, and that rapid development is better than slow growth.

The views of these two schools of the art of pruning may be to some extent reconciled if we observe the rule "the later the longer," which means that the later in the year the pruning is carried out the less severe it should be.

One rather obvious caution should be observed, but experience has shown that it is necessary to mention it, and that is, the pruner must be sure that the shoots he leaves in thinning out the old wood are Rose shoots, and not suckers from the Briar stock. I have seen the whole of the Rose cut away and some magnificent strong Briar suckers carefully retained and pruned back to the orthodox three eyes.

Where the plants are not required to produce flowers for exhibition or for specimen vases, but are grown for the decoration of the garden, it is usual to find a direction to prune more lightly, some advising that a foot or more of last year's wood be left intact. This may be necessary where the object in view is to form a specimen bush, but I think the hybrid perpetual is hardly the most suitable Rose to grow for that purpose, and in spite of the great preponderance of authority in favour of this view, I hold the method of treatment to be wrong, or at least—undesirable. Where a large number of flowers from the individual plants is required, resort should be had to "pegging down." This is an admirable method of growing the stronger varieties of the H.P.'s. From two to four of the longest and best ripened shoots of the previous year

are carefully bent downwards, and secured in a horizontal position by pegs or, what is sometimes more convenient, by tying them to long pieces of strong telegraph wire inserted in the ground. They can either be left their whole length or shortened somewhat to suit the space they are desired to cover. These shoots will flower up their whole length, and the plant will throw up strong shoots from the base. In the following spring the shoots that have flowered are cut right away, and the requisite number of young shoots bent down to take their places. By this method we secure a result similar to that aimed at in close pruning, namely, the renewal of the life of the plant by the production of strong shoots from the base, and the annual removal of all the old wood.

One matter that has of late years acquired some importance must be mentioned, and that is the necessity to examine carefully the cuts made in last year's pruning, whether it be left or cut away. If a little hole is found in the stem, it shows that the larvæ of a sawfly have found a winter home there, and either the shoot should be cut off and burnt or the stem slit down till the grub is found and destroyed. These sawflies have recently become a serious nuisance to the Rose-grower.

THE HYBRID TEAS

Prune about the middle of March. The varieties are very numerous. First, there are climbing and pillar Roses, like Carmine Pillar and climbing Mrs. W. J. Grant; next Roses to make big bushes, such, for instance, as Grüss an Teplitz, Reine Olga de Wurtemberg, and Gustave Regis;

then tall upright growers like Pharisaer and Mrs. E. G. Hill, and branching, symmetrical bushes of the Caroline Testout type. Again, we find Roses which perversely try to grow a lob-sided panicle, proceeding from a single strong shoot, such as Joseph Hill and Mme. Abel Chatenay; and typical bedding Roses like Dr. J. Campbell Hall. Further, there are Roses, like Ecarlate, which nearly approach the Chinas, and others very close to the H.P.'s, of which I will take as examples John Ruskin and Gladys Harkness. We have also the singles, Simplicity, Irish Elegance, and several others with the prefix "Irish," and the semi-double Theresa; Bessie Brown, a strong-growing exhibition Rose, is another type. Beside these, there are Roses of the spreading, branching habit of the Lyons Rose; and Roses like Mildred Grant, of short, stumpy, upright growth, usually with a single flower on the top.

There is no class of Rose in the treatment of which my first rule for pruning—"Never prune until you know the kind of Rose you are dealing with"—is of so much importance as in the case of Hybrid Teas. I will begin at the end of my list and work backwards. With Mildred Grant there is no difficulty; we simply take out the dead wood, of which there is generally a certain amount, and cut the live stems to the ground; if we leave one or two buds it will be sufficient. Marquise Litta and White Lady are other Roses requiring the like treatment. It follows, I think, that these Roses may be planted together closely; a foot apart will be ample. Somewhat similar will be the pruning of the Roses that approach the H.P. type; but, if desired, John Ruskin, which is a strong grower, may be tried pegged down. Ecarlate, and Roses of a character

PLATE III

MRS. JOHN LAING (H.P.)

A most useful Rose. The plant is perfectly hardy, and the flower fragrant. The colour shown in the flower illustrated is that of a shaded flower, and less bright than the best.


T. Ernest Waltham

tending towards the Chinas, may be pruned either hard or lightly. The latter course is generally advised, and at least for a few years they do very well in the borders with very little pruning after the first year ; but in this case care must be taken to provide for the production of new wood by a system of thinning and cutting back some of the growths, or in a few years the old stems become hard and unmanageable. I think that these Roses should be pruned rather later than most Hybrid Teas, and both hard and long pruning employed, of course, on different plants. When Ecarlate and Marquise de Salisbury are in beds, I like to shear the outer plants right down, pruning those in the centre rather less severely. The last remarks will indicate the way to treat the bedding varieties, such as Dr. J. C. Hall, Mme. Ravary, Duchess of Wellington, Richmond, and Augustine Guinoisseau, at least when they are used in beds. The amount of pruning they receive should be dependent on their position in the bed. There are some Hybrid Teas, of which Lady Ashtown is an example, which make beautiful bedding Roses when their flowers are not grown too large, but when grown as exhibition Roses they hang their heads in a manner altogether pitiable and useless in the garden. I prefer to correct the tendency, however, when they are grown as bedding Roses, not by less severe pruning, but by disbudding with discretion, which is quite effectual, and produces a better plant for the position in which it is being grown.

To produce a good effect in the garden the singles must be grown into fair-sized bushes, and so long as they are doing well the pruning may be confined to the removal of misplaced and unripened shoots, together with a little

shortening of the summer growth. The effect of the spring pruning should be carefully noted in August, and should afford the best guide to the treatment to be adopted in the following spring: an observation that applies to all Roses grown as large bushes. When the growth has not been satisfactory, it may sometimes be necessary to cut back somewhat severely in order to obtain stronger growth even at some sacrifice in the current year.

The section of the Hybrid Teas which is one of the most difficult to treat satisfactorily in pruning contains those Roses which, in their second growth, tend to throw up a single strong shoot in the form of a panicle growing out of one side of the plant. The Rose usually behaves well in the summer, or first blooming, but after this a stout shoot makes its appearance, and seems to absorb all the growing energy of the plant. Joseph Hill, Mme. Mélanie Soupert, and Mme. Abel Chatenay are examples of this type, but there are several others. If some measures are not taken to counteract this tendency the plants get more and more lop-sided. The first two Roses are often grown for exhibition, and where this is the case we may perhaps only be concerned to cut hard back to a promising bud; but where the appearance in the garden is the chief consideration, some other method should be tried. In the case of Mme. Abel Chatenay something may be done by partially pegging or tying down the stems left after pruning to induce growth from the base of the plant, but the growth of the other two, particularly of Joseph Hill, is usually too stiff for this mode of procedure. Mons. Viviand Morel recommends that when the stout shoot is seen to be starting in the summer it be pinched back to within 2 or 3 inches of the

stem, when, instead of a single panicle, a fair number of flowers on moderately long stalks is obtained. This is often successful, but it is not very easy to catch the stout shoots at the right moment. Short of this, the only thing to do is to encourage the plant to get back to a symmetrical attitude by pruning to the buds most likely to effect this, and afterwards by stopping buds which are making their way in the wrong direction.

Roses of the vigorous branching habit of Caroline Testout and the tall, upright growers like Pharisaer may be considered together. In both cases much will depend on the amount of room available and the character of the bush we wish to obtain. By leaving the best shoots about a foot long the second season, and afterwards pruning back to three or more eyes of the growth of the previous year, cutting to a bud pointing outwards and clearing the centre of the plant, fine specimen bushes may be built up which will generally last for many years. It is quite worth while growing some Roses in this way for the effect they produce in the garden, but there will often come a time when the summer growth begins to get less satisfactory, and, indeed, may almost cease, and an examination of the stem near the ground will probably show an unsatisfactory condition of the bark. Then there is nothing for it but to dig up the plant and begin again with a young one.

These Roses, particularly the upright growers, may also be treated with good effect by the severe method of pruning practised with the H.P.'s, and this is perhaps best, for they are then apparently less liable to suffer from the evil I have described. Hard pruning will, of course, be adopted where exhibition flowers only are desired.

Now for the big bushes. There are some Hybrid Teas that seem only to look and flower their best when grown as big, free bushes. This applies to Grüss an Teplitz, Gustave Regis, and (except when it is grown as a climber) to Reine Olga de Wurtemberg, and they are well worth growing in this fashion. Here pruning may for the most part be confined to a little thinning and snipping back of old flower-stalks. However, before the plants get old and the stems too hard and dry, whenever good young shoots are seen proceeding from anywhere near the base, it is well to cut one at least of the old stems right back to these and so renew the vigour of the plant.

Lastly come the climbing and pillar varieties: three of the most beautiful of these, Climbing Mrs. Grant, Climbing Papa Gontier, and François Crousse, are at their best on a wall, but when not so grown it is of the first importance to remember that these Roses and, in fact, all the Hybrid Teas (and there are at least a dozen first-class Roses for the purpose in this section) tend to become leggy and bare at the base when tied up to a post. Steps must therefore be taken to prevent this. The most effectual thing to do is to untie the stems at pruning time and bend them down as near the ground as can be done without breaking them, leaving them in this position till the buds at the base have started into growth, when they can be retied to the pillar. Another plan when there are enough stems is to cut them to different heights. Thus if you have eight stems, cut two to within a few inches of the ground, and the rest at distances a foot apart, only allowing one to reach the top of the pillar. It is often well to combine both these plans of treatment.

The pruning of H.T.'s on wall, arch, and trellis will be confined to taking out shoots where they are not wanted, and cutting out old stems whenever there is a chance of substituting young growths or allowing them to develop. Walls and the fan-like training given to plants growing on them afford such glorious opportunities for ripening the wood, that it can be left longer than in any other method of garden treatment, and we do not usually find ourselves in the difficulty with which we are faced in dealing with Roses on pillars.

THE CHINA ROSES

The old pink and taller varieties may be pruned early in March, the weaker growing kinds in April.

For pruning purposes the China Roses should be dealt with rather in the way our friends the officers of the Royal Navy treat their facial adornment. It is a case of "all or none." By cutting these Roses down to the ground we get a fine growth, a fair summer flowering, and a grand display in autumn. However, it is worth while treating a certain number of them with practically no pruning beyond the removal of dead wood and cutting off the old flower-stems. The unpruned Chinas will begin to flower in May or the beginning of June, will give a mass of flowers in the early summer, and will also go on flowering late. Many of the taller Chinas, especially the old Pink China or Blush monthly Rose and Laurette Messimy, if allowed to grow will make fine, big bushes, and all gardens should have a few of these varieties. This behaviour must not, however, be expected from those Chinas with a large proportion of

R. semperflorens blood in them, such as Fabvier. On the other hand, these small-growing Chinas, when pruned hard, make some of the very best of bedding Roses. The old Pink China does well as a dwarf hedge, even when clipped with a pair of hedge shears.

TEA-SCENTED ROSES

Pruning should be done in April. The continuity of blossom in the Tea Rose is attained through the eagerness of the buds, which start into growth down the stem before the flowers at the top have fallen. In consequence of this, when we come to prune we find, as a rule, two things before us : first, that our plant is much branched, carrying a lot of rather weak and spindly wood ; and secondly, a number of unripe growths, which are soft and sappy and, oftener than not, somewhat injured by frost. Perhaps it is on this account that many amateurs, who have attained a fair degree of skill in pruning Hybrid Perpetuals and Hybrid Teas, feel less confidence as to how they should proceed when confronted with a well-grown Tea Rose. Teas will break and flower well when little pruning has been done, if the branches left have been uninjured by frost, and there is not quite so much danger in allowing old wood to remain on Teas as there is in the case of the Hybrid Teas. Indeed, so readily are they excited, that the buds of the old wood, if the latter is untouched by frost, will generally start into growth should necessity arise, and therefore, if in any year the stem has been injured, or its retention seems undesirable, it is fairly safe to cut back even into the old wood. It has been said that we often find a good flower of a Tea

Rose on a rather spindly stem, and to some extent this is true, but I think it must always be a stem of the current year's growth; the spindly stem of last year will give nothing worth having, and as for the unripe and sappy wood, it is no good at all. The first thing to do is to remove both.

Modern Tea Roses may be roughly divided into six classes :—(1) Those of spreading and very branching habit, of which Marie Van Houtte is a typical example; (2) Roses like the Maman Cochet group, which tend to produce strong young shoots from the base, upright at first, and afterwards bending over; (3) Roses with much China blood in them, such as Princess de Sagan; (4) others which are very near the Hybrid Teas, *e.g.* Mrs. Myles Kennedy and Harry Kirk; (5) the Dijon Teas; and (6) Climbing or Pillar Roses such as Papillon.

(1) The Marie Van Houtte group is probably the largest, including as it does most of the best decorative and bedding Teas such as Madame Antoine Mari or Paula, as well as many that are largely used for exhibition. This group gives us the greatest choice of method. After removing the weak spray and sappy growths, and also any wood that has been injured by frost, we have first to consider what we have left, and then what effect we want to obtain. After a hard winter it may be that our first operation has already reduced the Rose to ground level, and the second question will not arise. Even so it will matter little; provided the plants were properly earthed up with nice dry soil, or burnt earth (not with manure), in the autumn, the injury will seldom have gone further, and they will soon shoot vigorously again. Our Teas are fortunately

a hardier race than most of the Teas grown twenty years ago. If the only object is exhibition blooms, hard pruning should be the rule. Bedding Roses are treated in much the same way, but attention will be paid to leaving outward-pointing buds, whereas for exhibition Roses the object is to prune to a sound bud with little regard to its direction. The main difference between the two will be made later on, when it comes to disbudding. But, putting aside exhibition and bedding Roses, there is a good deal to be thought of. If the removal of weak and sappy wood has left a fairly well-balanced bush, and there is plenty of room, we may confine the pruning to a little judicious thinning and shortening; but if, as often happens, only one side of the tree is left intact, then care must be directed to pruning to buds pointing in a direction likely to redress the balance of the plant. Again, the tree may form one of a group which requires similar treatment, and if so, it is well to go over the whole group, cutting out the weak and sappy wood. After doing this, we may stop and take a good look at the trees as a whole before deciding how to proceed.

(2) The chief modification of treatment for Roses of the Maman Cochet group consists in the need for critical examination of the strong shoots pushed up from the base during the previous summer. Those that are well ripened and uninjured by frost are excellent, but the production of these strong basal shoots goes on well into the autumn, especially in a wet year like 1910, and any that are soft and unripe are valueless. There is some difference of opinion as to the pruning these Roses should receive, some amateurs of experience advising very little pruning. Though it is not absolutely necessary, my own practice is to remove as

much as possible of the wood which is more than a year old, and to prune fairly hard, seldom leaving more than about 6 inches of stem above the ground.

(3) The Tea Roses which nearly approach the Chinas are best treated like the latter.[1] Such are Princess de Sagan, Souvenir de Catherine Guillot, Souvenir de J. B. Guillot, Souvenir de William Robinson, Betty Berkeley, and some half-a-dozen others.

(4) Harry Kirk, Mrs. Myles Kennedy, and Roses near the Hybrid Teas in character are best pruned to three or four eyes of the previous year's growth.

(5) The Dijon Teas, which include Mme. Berard and Gloire de Dijon, are a class by themselves. They make fine massive bushes, or big heads as standards, also good wall Roses, and may do well pegged down. Some shoots may be left 6 or 7 feet long, others cut to 2 or 3 feet. Mme. Jules Graveraux may be treated in this way, and the pegging-down method is convenient for treating this Rose. By this means, the flowers intended for exhibition are more easily protected than is possible when this Rose is grown in any other way. That beautiful Rose, Billard et Barre, belongs to this section, but requires protection, and I have found the most successful way of growing this Rose is under the overhanging thatch of a summer-house.

(6) The pruning of the free-growing climbing Teas like Papillon and Noella Nabonnand may be confined to spurring in the weak side shoots and thinning old wood and shoots that are not required. They are a small group, but by no means the least decorative in the garden.

[1] *Ante*, p. 47.

CHAPTER VII

MANURES

THE use of suitable manures is of great value in Rose culture, but from the questions I am asked I believe their value is over-estimated and their application often misdirected.

A plant that is growing freely will make good use of a large quantity of manure if it is applied at the right time and in proper condition, while a puny and weakly plant may often be better with very little until it has begun to show signs of health and vigour.

The safest and best stimulant for all Roses is really not manure at all, but good fibrous turf, chopped small enough to dig into the soil, and well-rotted leaf-mould. Wakely's Hop Manure seems to be a convenient and useful substitute for leaf-mould.

Manures, properly so called, are either natural or artificial, and of these the natural manures are the most useful.

First comes farmyard and stable manure, and the manure from stables, when the litter employed is moss litter, is specially valuable from the large amount of humus it brings to the soil. But no animal manure should be employed when fresh or "green," as it is called. The manure used in an old hotbed of the previous year is very good, but perhaps an even better plan is to

collect a heap of horse, cow, pig, and poultry manure—the more animals that go to its manufacture the better—heap it up, beat it firm, and earth it over the top hard and solid. Do this in the early summer and leave it till the next spring, when it will cut down like butter, and be just the thing for incorporation with the Rose beds at pruning time.

Another plan which makes a still more useful compost is to make up a heap by first forming layers of turf, then farmyard or stable manure, then old leaves, starting again on this with turf, manure, and leaves until the available material is used up—finally covering it all with a dome of soil. These materials, after lying for a year, make a perfect compost.

Between the natural and artificial manures come bones. These seem to have the peculiar property, which they share to some extent with leaf-mould, of inducing the formation of fibrous roots by the Roses. They are usually obtained from makers of artificial manure, and are sold as ½-inch or ¼-inch bones, bone-meal, and bone-dust, according to their coarseness. The ½-inch and ¼-inch bones retain their manurial value longest, whilst bone-meal and bone-dust are quicker in their action, and are specially useful in making beds. I have a preference for bone-meal as being most easily applied and most generally useful.

LIQUID MANURE

All Roses are benefited by a good soaking of liquid manure applied after wet weather during the growing season, and for exhibition Roses it is indispensable.

It is prepared in two ways. The first and best method is to arrange for the drainage of the farmyard or a heap of manure—even a hotbed will do—into some dead well or tank (in the last case, when the supply is deficient, a few buckets of water may be thrown over the heap), and diluting the liquid which collects till it is a pale straw colour. The other way is to keep a tub of water into which a few pecks of cow or stable manure are thrown from time to time, and occasionally stirred up with a pole. This should generally be capable of being used at once, but if too dark should be diluted to straw colour.

Roses intended to furnish exhibition flowers should be given applications of this in May and early June. It is quite useless to give it in small quantities. It should be given at the rate of at least a gallon to each plant, and after rain if possible. It is best not to begin using it till the plants have made a fair growth, and rather apply it too weak than too strong.

ARTIFICIAL MANURES

Artificial manures may be incomplete or complete. An incomplete manure supplies some only of the materials required by the plant. The primary salts are incomplete. The most useful materials supplied by salts are nitrogen, phosphorus, and potash. Nitrogen is supplied by nitrates of soda or potash or by salts of ammonia, sulphate of ammonia being that generally used. The effect of nitrogenous manure is to increase the leaf production and growth, retarding the ripening of the wood. Nitrogen is probably

always taken up by the plant in the form of nitrates; hence nitrates of soda or potash are the quickest in their action. Sulphate of ammonia has to be converted into the form of nitrate before it is used by the plant; hence it is slower in action. But sulphate of ammonia possesses the property of being retained in the soil probably in connection with the humus contained in it. Hence it is more lasting than the nitrates, which are rapidly washed away.

The effect of the phosphates is in some respects nearly the opposite of nitrogenous salts, as they tend to hasten the ripening of the plant, and so restrict the production of foliage. They are usually applied either in some form of basic slag or superphosphate of lime, which are cheap, or as phosphate of potash, which is rather more expensive.

Superphosphate is sold in two forms—one the acid phosphate, and the other a basic phosphate. The phosphate is supposed to be only taken up by the plant when in the soluble or acid condition; hence the acid superphosphate acts quickly, the basic phosphate more slowly, and basic slag slowest of the three.

Basic slag contains a large proportion of lime, and so is useful for sweetening the soil. By reason of its slow action it is a very safe manure to use. It should, however, never be applied with sulphate of ammonia or with stable or farmyard manure, but may be used with nitrate of soda.

Potash, the third member of the essential group, is largely utilised by the Rose. It is said to give "quality"; when used by itself it is generally applied in the form of Kainit, a very cheap salt, being a crude chloride of potash, with an admixture of sulphate. Being rather slow in action, it may be employed in autumn. Not one of

these manures is complete in itself, and to obtain a complete manure a mixture of all three is necessary. Such a mixture, when only a small quantity is required, may be obtained by using nitrate of soda and phosphate of potash. Probably the quickest acting manure obtainable may be made by dissolving an ounce of nitrate of soda and an ounce of phosphate of potash in 2 gallons of water. This is very useful as a stimulant to plants in pots just before they come into flower, and as the final application of liquid manure in the season.

Lime, though not a manure in itself, is useful in Rose-growing for the following purposes :—(1) It corrects the acidity caused by excess of humus and sweetens the soil. (2) It liberates constituents of the soil in a condition in which they can be used by the plants. (3) On clay soils it is most useful in permeating, and so assisting to break up, unfertile clays.

The application of any of these incomplete manures by themselves must depend on the condition of the soil. If any one of them is lacking in its due proportion, the use of that one may be beneficial. When they are used, the following are proportions in which it is safe to apply them :—

Nitrate of Soda, ½ oz.	Basic Slag, ¼ lb.
Sulphate of Ammonia, 1 oz.	Phosphate of Potash, ½ to 1 oz.
Superphosphate, 2 oz.	Kainit, 1½ oz.
Basic Phosphate, 2 oz.	Lime, ¼ to ½ lb.

Per square yard in each case, or double these quantities to every yard run of a bed 6 feet wide.

COMPLETE MANURES

Complete artificial manures are almost always compounded, and there are many serviceable receipts on the market. One of the best is that sold as Tonks Manure. It is compounded as follows:—

Superphosphate	12 parts.
Nitrate of Potash	10 „
Sulphate of Magnesia	2 „
Sulphate of Iron	1 part.
Sulphate of Lime (Gypsum)	8 parts.

This may be used in February or March and in May at the rate of ¼ lb. to the square yard, or, what is a simpler reckoning, a 48 flower-pot (5 inch) for every 2 yards run of a bed 6 feet wide. The effect of magnesia on plants is at present little understood. It is no doubt poisonous in large quantities, but salts of magnesia have a wonderful power of retaining moisture in the soil, and it is thought that in small quantities they may be beneficial.

Other artificial manures worth notice are Clay's Fertiliser, a quick-acting manure, which may be used at the rate of 1 oz. to the square yard, towards the end of May, and Ichthemic Guano, which acts rather slowly, and may be used at the rate of 1½ oz. to the square yard, or, as a liquid manure, 1½ oz. to the gallon of water.

The general use of artificial manures should never take the place of natural manure, and is only to be recommended as a supplement, or to give the plants a change of diet.

CHAPTER VIII

SUMMER TREATMENT

As soon as the pruning is done and the spring manuring completed, the summer cultivation must be begun; this is simple but important. The thorough and persistent use of the hoe is imperative, and syringing is necessary from early in May, and thence throughout the season, to keep green-fly and mildew in check. The exhibition Roses will need regular supplies of manure water through May and early June, and most Roses will be benefited by one or two applications, the weaker the better; but whenever given, they must be thorough—a mere damping of the surface is of little use. Whenever it is given, make a rule always to hoe well the next day. Liquid manure should not be given after July.

In the presence of a dry summer some recommend that the Rose beds be coated with a mulch consisting of long manure, brewer's grains, or similar material. If a mulch is used at all—and I am told on some hot and dry soils it is really necessary—it is most important that it be a mulch only and not a manure. If it can be avoided it is best, I think, not to use it at all. A manure and a mulch are quite different things. The first is for feeding, and the mulch for conserving moisture. I have used manure as a mulch with fatal results. A few weeks of damp weather after

the manure mulch has been applied, I have examined the soil beneath the mulch, and found a mass of beautiful white young roots of the Roses just under the mulch—then a spell of drought, and the beautiful white roots were no more. Admitting that the mulch I used was of the wrong kind, I think it best not to use it at all, and to make the mulch of the soil itself—well-hoed, friable soil, permeable alike to air and rain. But if there are soils where mulches are necessary, let them consist of some neutral material, such as cocoa-nut fibre, which will not decoy the roots to the surface and so cause them to perish.

There are few summers when it is not necessary at some time during July or August to apply artificial waterings. It is well to delay watering as long as possible, for, when begun, it must be continued from time to time till rain falls. A watering that only moistens the surface is, I think, worse than none at all. After watering, stir the soil to see if it has got well down, and if it has not done so, give more. It is not a bad plan, in a dry spell, to sink a drain-pipe on end, or a 6-inch pot, next the Rose, and fill them up to ensure the water getting to the roots.

In the late summer or early autumn, many Roses are benefited by a judicious thinning. The summer-flowering Roses that bloom on short laterals from wood of the previous year should have the wood that has flowered cut right away. Those of a less vigorous habit, such as the Moss Roses, should be given similar treatment, but to a less extent, a certain amount of the old wood being left. The Briars may be thinned every few years.

The strong-growing H.P.'s and some of the H.T.'s of similar habit should be looked over, and shoots that

have produced only weak growth cut away, leaving the strongest young shoots to grow and ripen.

An autumn thinning of wall and pillar Roses is very useful. It should not be too severe, but merely with the object of allowing the best young wood to grow and ripen.

The hoeing meanwhile should be diligently continued until the autumn rains come and it becomes less useful.

The last operation of the Rose year is preparation for winter. Where the soil is light and friable, all that is necessary in the case of dwarfs is to draw a little soil round the plants a few inches up the stems. On heavy soils, it is better to bring a little light soil for the purpose, or, what is still more effectual, to put a little heap of fine burnt clay round each plant. In all soils I have found nothing so good as sifted, burnt clay for this purpose.

I should add one warning, and that is that the winter protection should not be applied too early. December is quite soon enough, for it is most important to have the wood thoroughly ripened by the sun and air before the winter protection is applied. Finally, do not use manure for this winter protection. The old plan of tucking up the plants for their winter sleep with a heavy dressing of manure is not one to be recommended. It is too wet, and I am confident that since I have given it up I have not lost half the number of plants I used to lose in winter when following the old method.

CHAPTER IX

PROPAGATION

THE Rose may be propagated by budding, grafting, cuttings, layers, and, in the case of species on their own roots, by suckers. The Chinas, and perhaps some of the Polyanthas, can also sometimes be increased by division.

All these methods have their special advantages. Budding is the quickest and best method for increasing the ordinary garden Roses. Summer is the time for this, July and August being the best months for the operation. Grafting is little used by amateurs, and it has to be done in heat in spring. It is largely used by the trade to rapidly increase new varieties. Cuttings are the easiest and simplest mode of propagation, and very useful for rearing the Wichuraianas, some climbing Roses, many of the species, and a very few garden Roses. Layering is especially useful for increasing some of the species which do not strike readily from cuttings, and for quickly rooting some of the climbers. It is done in spring and summer.

Division, though often practicable with the dwarf Chinas, is not to be relied upon.

Increasing by taking off and transplanting suckers is specially useful for the Scotch Roses, R. nitida, and the varieties of R. rugosa.

STOCKS FOR BUDDING STANDARD STOCKS

I will begin with stardard stocks, for beginners in budding generally do make their first attempts on standards, and rightly so. They are easier to manipulate, for at first the dwarf stock is found inconvenient to get at. Standard stocks are generally got from Briar men or farm labourers, who cut them from the hedges in their autumn hedging work. Two-year-old stocks are the best, and they should be planted in October or November. I generally plant them in double rows some 2 feet apart, when they are held together by their summer growth, and staking is unnecessary the first year. A beginner, however, will find it much more convenient to plant single rows and tie each stock to a stake ; access is then much easier. In the spring they are headed down to the desired height—about 3 feet or less is a convenient size—and all side shoots removed, the buds being inserted on the young growths that push from near the head of the stock. Several of these young growths may be left to grow, but I think it well to remove all side growths within a foot or so of the ground. If there is a shortage of standard stocks, and you have any tall suckers from old stools, these may be budded, not on to the side shoots, for there will not be any, but on to the main shoot of the sucker. When the bud has taken, the sucker must be trained to the old stool and a **V**-shaped incision made, cutting it about half through. Roots will form here, and in the autumn the sucker may be severed from the stool. I have got many good standards in this way.

DWARF STOCKS

The dwarf stocks generally used are the seedling Briar, Briar cuttings, and Manetti. I prefer the seedling Briar. **Seedling Briars** can be bought very cheaply, and as it takes some time and trouble to rear them, it is hardly worth while where room is precious.

But those who wish to raise their own may do so by sowing the seed obtained from the hips of the Wild Rose. I generally fill my pockets with them when I am out shooting in the autumn, and put them in boxes of sand, standing these in the open till springtime. In the spring, rub the seed from the pips and sow it rather thickly in rows. The hips should never be allowed to dry. A certain number of seeds will grow the first year, and others the second year from sowing, but many never grow at all.

Mons. Viviand Morel has made some interesting experiments in the germination of Briar seeds. He sowed them in batches every fortnight from the beginning of August to October, and examined them in the following March. He found that all of those sown in August germinated, while of the seeds sown in September part only had grown, and the October-sown seeds failed to germinate at all. These results point to the desirability of either sowing the seeds as soon as they are ripe—in this country, of course, the ripening would take place later than in France—or otherwise packing them at once in layers of moist sand, and sowing them in the following February.

The little plants, if they do not come too thickly, may be allowed to grow in the seed-bed, or they may be

transplanted and later removed to where they are to be budded, but they must be fully one year old before they are fit for budding.

Briar Cuttings are prepared in October from the tops of the stocks that have been budded in the summer, or from the hedges. In the latter case, do not take the lax trailing growth of the Field Rose, but keep to the Dog Rose. The cuttings should be about 10 inches long, all the thorns should be removed, and the buds except two or three at the top, cutting the base just below a bud. This takes a long time if many are wanted. When made, the cuttings may either be planted at once in double rows 3 inches apart—they are only wanted to root the first year—or, as I generally find convenient, they may be tied up in bundles of fifty and buried in the soil with 2 or 3 inches of their tops sticking out. Besides saving space, this method has the advantage that any that have not properly calloused over by the spring may be thrown away. When spring arrives the bundles should be taken up and inserted in double rows, and most of them will root during the summer.

Manetti.—The Italian Briar is a very early stock, and many like it for H.P.'s, for big plants are produced the first year. The stocks are prepared from cuttings, which are made like Briar cuttings, but they root more easily. This stock should not be used for Teas.

De la Grifferæ is a variety of *Rosa multiflora* with pink-coloured, double flowers, and of robust habit. Some years ago it was in great repute as a stock for Teas, and many still like it for this purpose, but I prefer the seedling Briar. The stocks are obtained from cuttings, which root readily if made in the autumn.

Rosa laxa is a species which, being almost thornless, has advantages. Propagation is effected by cuttings struck in autumn. This stock is useful for some purposes, and it has been suggested as specially suitable for some of the modern Roses originating from Lyons, such as Marquise de Sinety.

The bed to receive the dwarf stocks should be prepared in autumn, and the young stocks, whether seedlings or cuttings, planted in February where they are to remain. They make little growth for a couple of months and then begin to grow vigorously, and are ready for budding in July.

If a few of the stocks that were worked in the previous year, but failed to "take," have been kept, budding may be done on these, from the buds of plants grown under glass, as early as May. The stocks must be growing freely to take the bud well, and must be partially ripe. The latter condition is easily ascertained by testing the prickles. If these break off easily the stock is in a proper condition. When the slit is made in the bark of the stock, it must separate easily from the stem when the sharpened ivory heel of the budding knife is passed under it. If this cannot be done readily, and without bruising the bark, the stock is not in a proper condition.

Preparing the Stocks.—In the case of standards, all that is necessary is to remove a few prickles on the side growths near the stem of the stock. For dwarfs, something more is required. A trench is taken out down the rows of stocks like a turnip trench, to uncover the collar of the stocks, and the stems of the stocks are rubbed and cleaned with a duster or piece of old sacking.

Preparing the Buds.—This is the most important

operation in budding. I think more failures arise from using buds in an improper condition than from any other cause. They should be taken from a shoot which has just flowered. If the thorns rub off easily, the stem is probably in good condition. As a rule, the two highest buds should be rejected, and those from the centre of the shoot used. The actual process of budding consists of four operations—(1) Cutting the bud ; (2) extracting the wood ; (3) inserting the bud in the stock ; and (4) tying it up. (See illustrations on p. 67, reproduced from the *Gardeners' Chronicle.*)

The apparatus required for standards is merely a budding knife and some pieces of raffia cut about a foot in length and soaked in water to soften them, but not wet. For budding dwarfs, I take in addition a leather cushion, a small trowel, and a duster—a digging fork is also useful to help to keep the Briars away from the work. The cushion is to kneel upon, the trowel to clear away the loose soil when necessary, and the duster, besides its use for cleaning the stem of the stock, is often convenient for spreading on the ground round the stock to keep away the soil and prevent the back of one's hands and one's cuffs from getting dirty.

(1) Every operator has a slightly different procedure. I will describe mine. Having got the stock ready and procured the shoot of the Rose to be budded, I first cut off all the leaves, leaving the end of the leaf-stalks. Next I select the bud and make a slight incision below the selected bud, say half an inch above the next one lower down. This done, I begin to cut a little shield of wood with the bud in the centre, starting rather less than half an inch above the bud, and just cutting through the bark into the wood, bringing

ROSE BUDDING

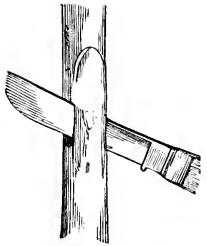


FIG. 1.—Removing the bud.

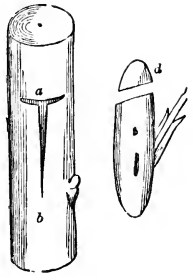


FIG. 2.—Bud and stock prepared.
a, *b*. The incision made in the stock.
c. The bud with wood removed.
d. Upper end of bud not wanted.

FIG. 3.—The bud inserted on the stock, but not cut off at top.

FIG. 4.—The final act of tying in the bud.

the knife out of the wood half an inch below the bud, but not cutting through the bark; then tear or cut down the bark to the cross cut made at starting. I have then a little shield of bark and wood with the bud in it, and a tail of bark, say 1½ inches long, attached.

(2) To remove the wood I bend the bark tail over the forefinger, wood side uppermost, and this causes the wood to separate slightly from the bark; then, by taking hold of the end of the wood, the wood may be jerked out of the bark with a slight pull, half upwards, half sideways. If the bark has come out leaving the base of the bud slightly projecting from the under side of the bark, the tail is neatly cut off square and the bud put between the lips—do not wet it—while the slit is made in the stock.

If, however, when the wood is pulled out, a little hollow is found under the bud on the inside of the bark, the bud has "pulled out" with the wood, and the bud will not grow. Throw it away and try another.

It has often been said, and particularly in recent years, that it is not necessary to pull out the wood. It is true that buds inserted in this way will often grow and make good plants, especially Teas, but I do not consider it good practice. Some years ago I made some experiments in this method of budding with the wood in, and came to the conclusion that the proportion of buds which would "take" when thus treated was considerably less than when the ordinary method is adopted. I think it is a course which should only be pursued when the buds are really valuable ones and are in a condition in which the wood cannot be removed without pulling out the bud. Sometimes in pulling out the wood a little bit breaks off and remains behind.

PLATE IV

MADAME RAVARY (H.T.)

A useful Rose for cultivation in beds or for supplying flowers for decorative purposes.


T. Ernest Walthall

In this case, if the bud is otherwise satisfactory, it is better to ignore it and leave it in, rather than run the risk of damaging the bud by trying to get it out—unless, of course, there are more buds available than are wanted, in which case throw it away and take another.

(3) The bud is now ready for insertion. With the bud in the lips, stand or kneel over the stock and make a longitudinal cut with the budding knife through the bark of the stock, then a cross cut, and raise the bark with the back end of the budding knife and slip in the bud neatly and without lacerating it, being careful to bring the upper bark of the bud just into contact with the untouched bark of the stock above the T cut. The place to make the incision in the stock is, for a standard, on the side growths of the year close to the old stem, and for dwarfs on the seedling Briar, just below the collar, and on Briar cuttings, just below the normal surface of the ground.

(4) All that remains to be done is to tie in the bud. No knot is necessary. Begin to wind the strip of raffia from one end, holding the loose end till a turn or two of the raffia keeps it in place; wind it on fairly tight, but not over the bud, which must be left showing between the turns of the raffia. When you come to the other end, simply slip the loose end of the raffia through the last turn and pull it tight. It will hold quite firmly.

A month later the bud may be looked at, and, if it has not taken, another bud may be inserted if not too late in the season. In the case of standards, if the bud has taken, the raffia may be loosened and retied.

Nothing further remains to be done till February, when the dwarf stocks are cut off just above the bud, and the

standards to within one eye of the bud. This eye is left to grow that it may draw the sap, but it should be cut back at the beginning of May, when the bud only is allowed to grow.

A most important operation remains, that of tying the young shoot of the budded Rose to a support. In the case of standards a thin bamboo is tied by two strings to the main stem of the Briar, and for dwarfs a bamboo is fixed in the ground close to the bud. As soon as the bud has grown enough, it must be at once tied to the support, and when it has grown further, a second and, later, even a third tying may be necessary. If tying is not carefully attended to, the wind will blow the young growth out of the stock, and all the trouble taken with it is wasted.

GRAFTING

Grafting is almost exclusively resorted to by trade growers, as the most expeditious means of raising new Roses, plants grafted in January being obtainable in flower in three or four months' time. It is carried out under glass, and a good bottom heat is necessary. Few amateurs will attempt it, and, as the plants are not so satisfactory as budded plants, they are not advised to do so.

The stocks are potted up a year before grafting into 3 or 4 inch pots and placed in heat a fortnight before the operation. The shoots of the Rose to be grafted are usually cut off and laid in sand or moist earth so that they may be in a less advanced condition than the stock. The scions consist of one bud only. The stocks are headed down and pared on one side to form a splice with the scion, which is

cut to fit. It is important (i.) that the inner bark of stock and scion meet accurately at least on one side, (ii.) that the air be excluded till the scion has begun to grow. The stock and scion are bound together with raffia. French grafting wax may be used, but much grafting is done with raffia only. When the operation is complete, the pot is placed in a frame with bottom heat, and the air excluded. Air is admitted when the buds have started, usually in about three weeks' time.

CUTTINGS

The easiest way to propagate Roses is by means of cuttings made from ripened shoots of the current year in October, and inserted in beds in the open. The cuttings may be from 6 inches to a foot long, and they should be inserted in the ground to three-quarters of their length. In the following summer they will make roots, and in October they may be moved to the place in which they are to remain. It is a good plan to make a trench a few inches deep, and fill the trench with sand to receive the cuttings. The only attention the cuttings require is to examine them carefully after frosty weather and press them into the ground, making the soil firm again. In order to prevent the frost pushing them out of the soil, some advise inserting the cuttings obliquely into the ground.

Cuttings from some Roses may be taken up to Christmas, but a smaller proportion is likely to grow. They may also be taken from the middle of July onwards, placing the cuttings in pots or boxes in a frame under a north wall, and keeping them damp and close until rooted. In spring, cuttings may also be taken under glass from plants grown indoors.

Many Rose-growers are sorely distressed every spring by the apparent waste that takes place at the spring pruning, and would wish to utilise some of the stems cut away, but this is not the right time of year to take cuttings from Roses in the open. I do not say none will grow, for I have myself succeeded in rooting them at this season, but few will do so, and the game is hardly worth the candle.

Roses specially suitable for growing from cuttings are the Multiflora hybrids generally known as Ramblers, such varieties, for instance, as Crimson Rambler, Blush Rambler, Tea Rambler, Hiawatha, and the like, and the hybrids of Wichuraiana, of which there are now so many. All these grow well from cuttings and root readily. I fancy they are not quite so rampant as when they are worked on the Briar, and therefore when wanted for pillars they are better when grown from cuttings.

Every one should grow a few plants of La France from cuttings. In some soils this variety is apt to "ball" when on the Briar, and then plants reared from cuttings are sometimes more successful. This I find to be the case in my own garden.

Zéphirine Drouhin, again, makes good plants from cuttings, and some of my friends say Chinas are excellent when so grown, but I have only recently tried them. Certainly they root readily. Any one who grows many of the species of Rosa should try them in this way. It is more convenient to grow them thus than on the Briar, as they are, in some cases, apt to lose their character after budding and to get out of hand.

The Tea Roses seem to do well from cuttings in some soils. A neighbour of mine tells me he has succeeded

well with Maman Cochet grown in this way, but my own experience is otherwise. I am sure that in my garden they are far more satisfactory on the Briar. Possibly the Teas might do well from cuttings on the Surrey sands.

Bud Cuttings are made by cutting a bud as if about to bud on a stock but allowing the wood and the leaf to remain. They should be inserted in pots or pans of leaf-mould and sand, and placed in the greenhouse under bell glasses.

Those who wish to pursue this interesting subject further will find a most elaborate paper "On Different Ways of Striking Roses," by Mons. Viviand Morel, in vol. 27 of the R.H.S. *Journal*, p. 510.

LAYERING

Most Roses will root from layers if their shoots are sufficiently flexible. The layers can be made in summer —the best time for this work—or in autumn or spring. Spring or summer layers will be rooted by the autumn.

The process is similar to the well-known method of layering Carnations. A shoot of the Rose is bent down into the soil and the top brought up again. It is secured in the earth by a layering peg or by a heavy stone, and the shoot is cut half through (tongued) just beyond the bend where the shoot comes up again. The cut can be kept open by putting in a small stone or piece of glass or peat, or a piece of the leaf or stalk of the Rose itself.

I have employed this method myself for some of the species, such as *R. Seraphini*, which do not seem to root readily from autumn cuttings in the open, and for new

varieties of *R. rugosa*, and new climbers planted in spring which I wished to increase at once without budding. Of course, layering takes rather more room than cuttings.

Suckers.—Many Roses on their own roots make suckers readily. Suckers are underground roots, or root-like stems, which come to the surface and form a shoot. The suckers are removed from the parent plant by cutting the root, or root-like stem, close to the parent stem and planting the suckers elsewhere. This is done most conveniently in autumn. The suckers generally form plants without difficulty.

In order to make certain of the sucker rooting during the summer, the soil may be removed and a **V**-shaped notch may be cut in the sucker where it joins the parent stem. The sucker will soon form roots at this cut, and when it is moved in the autumn will have roots of its own. This is, however, not generally necessary.

Most of the varieties which have come from *R. spinosissima*, like the Scotch Roses, Altaica, Hispida, and Xanthina, are most easily increased in this way. So is *R. nitida* and many of the varieties of *R. rugosa*.

Division.—Where by constant manuring the surface of the beds has gradually been raised, some varieties of Roses of branching habit will often produce roots from the underground stems. I have found this with Chinas, Polyanthas, and Teas. The Roses may then be propagated by digging up the plant in autumn, and cutting off with a sharp knife any stems which have produced roots.

This method is specially convenient for the dwarf Chinas; a single plant may sometimes give as many as half-a-dozen little plants by division.

CHAPTER X

EXHIBITING

THE culture of plants intended to produce exhibition flowers differs only in degree from that of Roses which are cultivated simply for the adornment of the garden. To begin at the beginning, the exhibitor will have to consider how many plants he proposes to grow, and what proportion of them are to be cut-backs (*i.e.* Roses older than one year from the bud which are pruned in the spring) and what proportion "maidens," which are plants which have been budded not more than a season. There are probably few exhibitors of any standing who do not bud a good many of their own Roses, with the double object of obtaining finer flowers and prolonging the season over which they can obtain exhibition blooms. Mr. Pemberton advises the exhibitor who desires to be amongst the successful to grow two maidens for every cut-back plant. This is a high proportion of maidens, but I know some who are accustomed to grow even a larger proportion. The ordinary amateur, however, will generally be content with a very much smaller proportion of maidens. With most of us the question of time is an important consideration, and if we annually bud about one-sixth of our collection, it is as much as we can manage. When an amateur first begins budding, he need not be seriously concerned if he finds

that he loses some 50 per cent. of the buds he puts in. As he gains experience the proportion of successes will be greater, but the novice must neither be surprised nor disheartened if, for the first few years, his maiden plants fail to come up to his expectations. Some of the buds will not "take," and by the time he has discovered this it is too late in the season to bud again. Others may take well, but the spring frosts prove too severe for them, while of those that grow, some will be destroyed by grubs and others develop so late as to be useless.

My advice to the novice is to rely chiefly on his cut-backs, and gradually to acquire experience in growing maidens. Further, his early attempts at budding should be with the H.P. varieties and the more robust of the Hybrid Teas.

As to the varieties to be selected, reference may be made to the chapter on Exhibition Roses. The selection should include H.P.'s, H.T.'s, and Teas, and the novice will be well advised to select a large proportion of H.T.'s. It is easier to obtain a fair proportion of good flowers for exhibition from H.T.'s than either from Hybrid Perpetuals or from Teas, but something will depend on the nature of the soil in his garden. If it be good Rose soil, he might take two-thirds of his selection from the Hybrid Teas, and one-third in about equal proportions from the H.P.'s and Teas. Should his soil be heavy, he should increase the proportion of Hybrid Perpetuals; if light, he may grow more Teas.

Then, in choosing the varieties, it will be well to grow a fair number of plants of the varieties on which it is proposed chiefly to rely. In other words, the number of

varieties chosen should not be too large. He should grow, say, 20 plants each of 25 varieties, rather than 100 varieties and 5 of each.

In planting, it is only necessary to give strict attention to the ordinary rules for preparing the beds, and planting the trees, bearing in mind that, to ensure firm growth, firm planting is necessary. Winter protection can be given by drawing the soil or placing burnt earth round the stems, and removing it in spring.

Pruning will follow generally the lines laid down for the special varieties, but it must be severe to secure show blooms. Usually from two to three eyes of the best shoots of the previous year only should be retained, and the cutting out of all unnecessary or weak growth should be thorough. It is not generally advisable to cut back to the older wood, though it can sometimes be done in the case of the Teas. The exhibitor will care little for the shape of his plant, and will retain an extra strong shoot if well ripened, even though badly placed.

Next to the importance of pruning is manuring. A good dressing of well-rotted manure should be lightly forked into the beds as soon as the pruning is finished, and later, when vigorous growth has begun, say towards the end of the first fortnight in May, liberal applications of liquid manure should be given every week or ten days. If possible, the liquid manure should be given after rain, and it must be well diluted. It is far better too weak than too strong.

At the same time as the supply of liquid manure is begun, the thinning out of unnecessary buds and shoots is commenced. A knowledge of the individual varieties is essential for the proper carrying out of this work. All the

shoots should be removed except those intended to carry the flowers.

In many cases perhaps only two or three shoots will be retained, as, for instance, in Horace Vernet; and sometimes one or two, as in the case of Marquise Litta or Mrs. W. J. Grant, while in others more are allowable —Mrs. John Laing may be allowed four, and La France six or even more shoots.

When the flower-buds at the top of the shoot begin to form, the side buds should be taken out as soon as they can be handled, unless the appearance of the central bud is unsatisfactory, or it has been eaten or otherwise injured. In the latter case the side buds should be allowed to take its place. Many advise that this disbudding be done gradually, and if the side buds have been allowed to develop to any considerable size, this is right. But if the disbudding is done as soon as the side buds are formed, and before they begin to grow, I do not think any harm is done by removing them all at the same time. Some growers, however, like to retain one for a time in case of accidents, and this is my own practice.

During the time the buds are developing they must be carefully examined, and if the centre bud is not poised fair and upright on its stem, or if it begins to show colour on one side before it is time for it to open, or if the top of the bud looks as though it were cut off flat and is not covered nicely by the pointed sepals, it may be removed, and the side bud which has been retained allowed to develop in its place. It is, however, important not to delay this examination until too late a stage.

Certain H.T. varieties, in their first bloom, produce only

one flower at the top of the stem, and in such cases there is not the same choice as in the case of the H.P.'s.

In the case of the Teas, although the character of the growth differs, substantially the same method of culture must be followed.

As soon as the buds are ready to burst measures must be taken to protect them from excessive sun and rain. There are various forms of shades on the market. Some made of Willesden paper have certain advantages of storage, but I have found nothing better than Mr. West's shades made of light calico on a wire frame in the form of a short pointed cone, so designed as to slide up and down a square stick. The usual size, however, 7 inches in diameter at the base, is rather small, and I prefer those of 13 inches diameter, though there is an intermediate size of 10 inches which is very useful.

The manipulation of these shades during the days immediately preceding the show requires much time, for it is not well to keep them closely over the flowers during the daytime; but when the weather allows, they should be raised, or the flowers will become dull and more or less colourless.

Most exhibitors now tie their Roses for travelling to the show, and many begin to tie them on the plants two or three days before cutting them. The tying is effected by taking a piece of soft Berlin wool, 4 or 5 inches long, and tying it loosely round the inner petals, leaving the two outer rows of petals free. The wool is secured by a double twist, so that it may be readily loosened, and will even pull out as the flower expands. It should not be tied in a fixed knot. The value of tying the blooms on the plant is one on which

opinions differ very much. My own experience is that I have spoiled quite as many, or more, flowers than I have improved by the process, and I am tending more and more to restrict my tying to travelling; but the practice is so largely followed by exhibitors so much more successful than myself, that I only venture to put forward my own views with considerable diffidence. However that may be, it is a rule that admits no exception, that when once a flower is tied it must be shaded, and that carefully.

Boxes of the regulation size must be purchased, and should have alternative trays in the larger sizes so that they may be used for trebles. A few days before the show, a sufficient supply of moss from the hedges or woods should be secured and placed on the trays before cutting begins. Sometimes Saxifrage is used, but I think moss is better.

I need say little about tubes, for Foster's tubes and wires are now well known, and there is nothing better. They consist of an outer tube to hold the water, and an inner one in which a strong wire fits, to which the Rose is attached by a piece of soft wire, bound round the strong one. It is well to have all these wire supports taken out of the tubes and disentangled before cutting any blooms, or valuable time may be lost. Perhaps I may add that Mr. West's ingenious clip, designed to raise and hold the outer tube, is a great improvement on the older method of raising the inner tube only by means of a rubber band. This plan sometimes leads to the Rose being hoisted right out of the water.

Cutting the flowers for the show is now generally done the afternoon and evening before the show. It was formerly the custom to do this early in the morning, from three to six o'clock on the show day itself, but in the case of the

Teas and Hybrid Teas nothing is gained by so doing, and, in the case of the Hybrid Perpetuals, very little. If the show is quite close at hand, perhaps a few of the H.P.'s may be a little fresher if picked in the morning, but the difference is so slight as hardly to make it worth while. It is a great comfort to go to bed knowing your boxes are all ready for the early start in the morning, and I think the morning cutting may well be confined to a rapid examination of a few blossoms that have been marked for the purpose of reconsideration on the previous day.

Finally, each Rose must be labelled as it is picked, and to avoid loss of time, it is well to have the labels arranged in a little brown holland satchel with some twenty-four or twenty-six divisions, each division for a letter of the alphabet. If the labelling is left till arrival at the show mistakes may occur, and perhaps duplicates creep in without being noticed.

In addition to his exhibition boxes the exhibitor should also take with him to the show a box for spare blooms, which may be required to replace any that have "flown" during the journey or on removing the ties. This box, like the exhibition boxes, should also be fitted with tubes, and the Roses set up for instant removal to the exhibition box. All the spare Roses should be younger blooms than those they may be required to replace.

DECORATIVE ROSES

The preparation of decorative Roses for exhibition requires as much time and attention as are necessary for the exhibition varieties.

In the case of climbing Roses little can be done to protect them. They should be picked with long stalks, but only of the current year's growth. As soon as they are picked, the bunches must be carefully "cleaned up." In the case of the singles, and some of the cluster Roses, all the old flowers should be removed with a sharp pair of pointed scissors, leaving only the opening buds in order that the stamens of those left may be fresh and bright. A knowledge of the individual varieties is necessary to do this well, but as a rule, and specially in the case of the Briars, all fully expanded flowers may be cut off and only the buds left to open. As soon as this is done they should be plunged to their heads in water, so that they may have a good drink before starting on their journey.

In the case of the dwarf Roses used in the decorative classes, such as Grüss an Teplitz, Liberty, Mme. Abel Chatenay, Mme. Ravary, and Richmond, no thinning of shoots is necessary, but a certain amount of disbudding is often required. If a spell of bad weather sets in, protection must be given, and I have resorted to all sorts of devices for this purpose in a bad year like 1910. The ordinary shades used for protecting the exhibition Roses are very little use—something to cover a larger area is wanted. We have found very useful shades for this purpose can be made out of ordinary slating battens of $2 \times \frac{3}{4}$ inch deal. These are roughly shaped and nailed together to form the frame of a little penthouse, about 5 feet long by 2 feet broad, and covered with white calico. The frames are supported by a similar batten at each end, in which holes are bored to receive a round stick, by moving which the little penthouse can be raised or lowered.

We have also found some light garden frames called, I believe, "The Triumph," very useful. These are 4 feet or 6 feet long by 2 feet broad and covered with glass, and they can be procured from most horticultural sundriesmen. They are very light, and can be supported by large inverted pots. An ordinary pit light will also serve at a pinch, and can be supported by seed-boxes—or loose bricks built into small pillars.

These Roses produce a much more decorative effect when cut with long stems, but, as with the climbing Roses, only the current year's wood must be cut, or they will not take up water well and will soon wither. Scraping the bark and slitting the stems with a sharp knife is useful in helping Roses with long stems to bear the atmosphere of a hot tent, for it enables them to take up water the more readily.

The arrangement of decorative Roses is an art in itself, and affords large scope for the exercise of individual taste. The object must be to produce a light and graceful effect and display the full beauty of the flowers, without making the bunches straggling and untidy. Anything, however, is better than bunching them tightly together so that the form and beauty of the individual flowers are lost in a mass of colour. After the bunch is arranged the judicious use of the scissors in the removal of flowers that are not wanted or are passing over is often very effective. In a vase of decorative Roses freshness is of the utmost importance; a single faded blossom will often spoil a good bunch.

CHAPTER XI

SELECTIONS AND DESCRIPTIONS

THE selection of Roses for any particular purpose is nowadays one of considerable difficulty. When M. Thouviet published the catalogue of M. Jules Graveraux' garden at l'Hay in 1902 he included 6781 varieties. Since then the new varieties have increased at a great rate, probably about one hundred a year, and, besides the older varieties, many of these deserve consideration.

I should like to go through all that I have concerned myself with in my own or my friends' gardens, but in a book of this sort that is obviously impracticable. I must limit myself somewhat narrowly. Meanwhile, as I must start somewhere, I am reminded of the Walrus: "With sobs and tears he sorted out, those of the largest size"; so to the exhibition Roses I shall turn.

EXHIBITION ROSES: H.P. AND H.T. VARIETIES

For some twenty-four years Mr. Mawley has kept a record of the Roses in prize-winning stands at the

Metropolitan Show of the N.R.S. The first twenty-five H.P.'s and H.T.'s appear in the following order :—

Bessie Brown.
Mildred Grant.
Dean Hole.
Frau Karl Druschki.
Mrs. John Laing.
Caroline Testout.
Ulrich Brunner.
J. B. Clark.
Florence Pemberton.
Mrs. W. J. Grant.
Lady Ashtown.
Hugh Dickson.
Mrs. Theodore Roosevelt.
William Shean.
Kaiserin Augusta Victoria.
The Lyons Rose.
A. K. Williams.
Gustave Piganeau.
Alice Lindsell.
Horace Vernet.
Mrs. R. G. Sharman Crawford.
Suzanne Marie Rodocanachi.
La France.
Helen Keller.
Capt. Hayward.

Taking their colours, this list gives us five white, two blush, ten pink, and eight red shades.

Now, we may or may not like these particular Roses ourselves, but it is a stubborn fact, from which there is no getting away, that down to the present they have been the Roses that have won awards for the exhibitor.

Bessie Brown has held its position at the head of the list for five years. It is creamy-white in colour, and at its best is a beautiful Rose for box or specimen glass. It is purely an exhibition Rose; though a good grower, it is useless for garden decoration, on account of its abominable trick of hanging its head. I have seen people resort to many devices to try to remedy this defect, some tying it up to a stick or wire. It is said that in America Bessie Brown holds her head up naturally, so perhaps there is something in our gardens she does

not like. If the amateur desires to grow this variety for its few beautiful flowers, he should carefully hide it away from ordinary garden traffic.

Mildred Grant is a very pale flesh, slightly deeper in the centre, at its best a beautiful flower. The growth is stiff and sturdy and the head held well up, so I allow it in the garden for its beauty, though it is primarily an exhibition Rose, not very vigorous in habit.

Dean Hole.—Light silvery pink, the outside of the petal being slightly darker, the petals curl over, somewhat after the way of La France. This Rose "comes" easily in fairly good weather, and the flower is large with a high pointed centre. The plant is vigorous, and it is useful in the garden after the exhibition season is over, being very free-flowering. It has, however, practically no fragrance, and is nearly useless in very wet weather, as it stains easily and does not keep fresh if much shaded.

Frau Karl Druschki.—This is the best white exhibition Rose, being perfect in shape and substance of petal, a pure white,[1] and capable of being obtained in good form in all weathers. It is good both in summer and autumn, and being very free-flowering, is a useful garden Rose, the climbing form making a fine pillar Rose. Perhaps there is no Rose that can be counted on more certainly during the whole of the showing season to give a good exhibition flower somewhere in the bed. Its defects are, first, that it has no fragrance, and secondly, its autumn growth is so vigorous as to make it rather unmanageable in beds in the garden.

[1] The slight splashes of red in the bud are not noticeable in the open flower.

Mrs. John Laing.—This variety was a gold medal Rose in the days when the N.R.S. was accustomed to give only one medal in the year, instead of ten or a dozen as now. The colour is bright rosy-pink, and the fragrance delightful. It will stand both shading and tying up to a moderate extent, and is an easy Rose to show, always provided you limit the number of blooms on the plant. One of my friends, who is an able exhibitor, holds that if the plant carries four blossoms every one of them will be exhibition flowers; if six, not one will be worth looking at. It is a useful Rose in the garden; free-flowering for a H.P., but perhaps a little stiff and somewhat liable to mildew.

Caroline Testout.—This is also a pink Rose of a bright and warm tone. A Rose for every garden, and every weather. How nobly it responded in the last two dreadfully wet summers! The climbing sport is also most useful, and I believe that, sometimes, it produces even better Roses than the dwarf variety. The shape of the flower is perhaps rather too rounded to please some. "Full and globular," the catalogues call it. A most useful Rose for standard, dwarf bush, pillar, arch or pergola. Its full flowers are rather heavy for arranging in vases except as specimens.

Ulrich Brunner is cherry-red in colour, and grows like a weed. It may be grown equally easily in or out-of-doors. It is not very free-flowering, and I like neither its shape nor colour; still, many exhibitors would be sorry to be without it.

J. B. Clark.—A tremendous grower is this Rose, and it makes a fine standard. One of the best ways of grow-

ing this variety is to peg down about four young shoots each year, cutting off the others. So treated, it gives a fair number of flowers of exhibition quality, and they can be easily protected when necessary. The flowers require shading to get them at their best. This Rose can be relied upon to furnish big flowers, sometimes of a fine colour. It has, however, very little fragrance, and often comes with a split centre.

Florence Pemberton at its best is a lovely Rose, in colour creamy-white with a picotee edge of pink. It requires good cultivation.

Mrs. W. J. Grant (H.T.) is to my mind one of our most beautiful Roses. The only failing is that the plant is weak, and in my experience not very long lived. Its climbing sport is, however, vigorous, and I sometimes think produces as good or better flowers. The colour is Imperial pink—a bright pink with a suspicion of vermilion in it. It is an early Rose, and very free-flowering, therefore disbudding must be carried out if exhibition flowers are wanted. It has a fine form with high pointed centre, not very full, but stands well.

Lady Ashtown (H.T.) is also very free-flowering, and must be disbudded to get exhibition flowers. When so grown the flower is too heavy for the stalk, so for garden purposes it is well not to allow the Rose to come too big. The half-open buds are beautiful for decoration. It is one of the best bedding Roses, but liable to mildew. The colour is deep pink.

Hugh Dickson (H.P., 1904) is a fine, strong-growing Rose either for the garden or for exhibition, but too rampant to make a good bedder. It has a delicious

scent, and is a good crimson, shaded with scarlet. The shape is somewhat rounded. It is quite among the best crimsons, and useful in the garden as a border Rose or for pegging down.

Mrs. Theodore Roosevelt (H.T., 1903), light flesh, tinted pink; a descendant from La France. I think no Rose in my garden gives me a larger proportion of perfectly-shaped, exhibition flowers, and little disbudding is necessary. It is one of the best Roses for exhibitors with small gardens.

William Shean (H.T., 1906).—This Rose has little but its size to recommend it. I like neither its shape nor colour, which is a rather dead pink. If much shaded it soon looks dull, and the flowers will not withstand wet.

Kaiserin Augusta Victoria (H.T., 1891) is cream, tinted lemon, in colour, and not a strong grower, though it has a climbing sport which no treatment seems able to induce to flower anywhere except at the top. I have discarded it in favour of its sport Perle von Godesberg (H.T., 1902), which I find much more satisfactory; so also is a very similar Rose, Mrs. David M'Kee (H.T., 1904)—a great acquisition to the Roses of this class.

The Lyons Rose (H.T., 1907).—This beautiful Rose is a shrimp pink with orange yellow at the base of the petals, but the colour varies to nearly all pink. It makes a good exhibition Rose, the flower being generally pointed and well-shaped, but at times the centre is weak. It has a curious habit of making horizontally spreading growths, and an objectionable one of losing its leaves early in autumn. It is badly susceptible to black spot; nevertheless

it is a lovely Rose which all should grow, and the plant fairly hardy, but autumn growths are often killed by frost. It should be pruned severely.

A. K. Williams (H.P., 1877).—Perhaps none of the red Roses comes more consistently of a perfect imbricated shape than the variety A. K. Williams, but its lasting powers when cut are not great. Its constitution as a "cut back" is generally weakly, but excellent flowers are obtained from maidens. The colour is a bright red, but not so good as Captain Hayward. It has a fine Rose perfume, but is not free-flowering.

Gustave Piganeau (H.P., 1889).—This is only an exhibition Rose, and has a weakly constitution. The colour is not to my fancy, being between carmine and a washy crimson lake (from the paint-box of one's youth). Its redeeming feature is its fragrance.

Alice Lindsell (H.T., 1902) is creamy-white, with a pink centre. The plant is vigorous and the flower large and lumpy. Still, many obtain fine blooms from it.

Horace Vernet (H.P., 1866).—A most lovely Rose, perfect in shape and deep scarlet-crimson in colour, with a delicious perfume. At its best this Rose is unequalled, but many of the flowers on the plant are not of the best. It is usual to say, "Best as a maiden," but I have had quite as many beautiful flowers from cut-back plants. Copious supplies of *very* weak liquid manure are necessary.

Mrs. R. G. Sharman Crawford (H.P., 1894) is a clear, soft pink; the petals with slightly crinkled edges; it is beautiful and reliable, its strong point being its pure colour. It produces exhibition flowers with very little trouble, but is rather given to mildew.

PLATE V

DOROTHY PERKINS (WICHURAIANA)

This climber may be described as the best Rose of the Wichuraiana type. The flowers are frequently more pink than shown in the illustration.

Suzanne Marie Rodocanachi (H.P., 1883) is generally described as glowing rose, but there is a tinge of red in the colouring. It is a grand flower of globular form, easily grown as a dwarf or standard, and useful both early and late. It has no fault, unless it is its name.

La France (H.T., 1867) was the first Hybrid Tea Rose, and who does not know this charming flower? The colour is silvery rose, tinged with pale, scarcely perceptible lilac, the edges of the petals being reflexed and more silvery, and the fragrance is delightful. Unfortunately in some gardens it is given to the objectionable habit of "balling" and refusing to open, especially in damp weather. If this is found to be persistent two remedies may be tried; one is to grow the plant from cuttings on its own roots, and the other to try the climbing sport, which often succeeds where La France itself is unsatisfactory.

Helen Keller (H.P., 1895) is a beautifully shaped Rose, seldom malformed, but useful for exhibition only. It is not a strong grower, and I do not like the colour, which is rosy-cerise, but it is fragrant and the petals are of good substance.

Captain Hayward (H.P., 1893).—Light scarlet-crimson in colour, this beautiful and useful Rose is somewhat loose-petaled and not very full. It is therefore at its best in a cool season. It has fine, vigorous growth, and is easy to manage. A pathetic interest attaches to this Rose in that its raiser, Mr. Bennett, did not live to see it flower.

Other good exhibition Roses, which I have no space to deal with here, are :—

Charles J. Grahame (crimson).

Commandant Felix Faure (dark crimson with vermilion shading).

Killarney (pink).
Mme. Mélanie Soupert (pale yellow and old gold).
Marquise Litta (a weak grower, carmine).
Lady Moira Beauclerc (pink).
Compte de Raimbaud (crimson).
Avoca (scarlet-crimson) ; one of the very best.
Victor Hugo (brilliant crimson).

EXHIBITION TEA ROSES

The list of Tea Roses successful in exhibition boxes is, of course, smaller, and I take the first eighteen. They find their places in the following order :—

1. White Maman Cochet.
2. Mme. Jules Graveraux.
3. Mrs. Edward Mawley.
4. Maman Cochet.
5. Souvenir de Pierre Notting.
6. Medea.
7. Muriel Grahame.
8. Molly Sharman Crawford.
9. Comtesse de Nadaillac.
10. The Bride.
11. Mme. Constant Soupert.
12. Catherine Mermet.
13. Innocente Pirola.
14. Bridesmaid.
15. Souvenir de S. A. Prince.
16. Mme. Cusin.
17. Souvenir d'un Ami.
18. Souvenir d'Elise Vardon.

The list contains six white or cream-coloured Roses, six of various shades of pink, four of various shades of yellow, and two of flesh.

White Maman Cochet (T., 1897) is a nearly pure white Rose, but just tinged with lemon. It has a high pointed centre, with much substance and depth of petal. The flowers are apt to come with a split centre. The shoots from the base of the plant at first grow upwards, afterwards bending over. All the flowers droop head downwards ;

hence it does not make a good garden plant, which is a pity, for the foliage is good and persistent. The Rose will not stand much rain, the heavy heads becoming rotten, and the outer petals getting brown and clammy prevent the flower opening. From its drooping habit, however, it will stand a shower without injury. The flowers must be protected from rain and, unless they are on standards, from mud splashed up from the ground.

Mme. Jules Graveraux (T., 1901).—The colour of this Rose is pale flesh, with a slightly deeper centre sometimes of a yellowish shade. It is a wonderful grower, making shoots of 8 feet or more in the season. It is not easy to grow either as a pillar or wall Rose, as the large flowers must have protection or, with rain, they rot off in dozens. I have found the best way to grow this Rose is to peg it down, but it can be cut back each year if desired. The flowers are exceptionally large, but being very freely produced, severe disbudding is essential.

Mrs. Edward Mawley (T., 1899).—The colour is pink and the size and shape of petal good; the form is excellent, and it has a high pointed centre. The plant is not a good doer, and perhaps gives its best flowers on maiden standards.

Maman Cochet (T., 1893) is pink, shaded with creamy-salmon, sometimes with a suggestion of fawn-yellow, but in other respects than colour it is similar to White Maman Cochet.

Souvenir de Pierre Notting (T., 1902) at its best is a very beautiful Rose of deep apricot-yellow colour. It has an excellent habit, good foliage, is very free-flowering, and as far as these qualities are concerned would be a fine garden Rose. It has, however, the disadvantage of produc-

ing very rough outer petals, and unless severely disbudded and grown as if for exhibition, and carefully protected against the weather, the flowers are of very little value.

Medea (T., 1891).—This is a grand lemon-yellow Rose of good depth of petal, and a beautifully rounded shape, pretty foliage, and easily grown. It is a favourite Rose with me, but is not very free-flowering, and is decidedly liable to injury from frost.

Muriel Grahame (T., 1896) is a pale cream-coloured sport from Catherine Mermet. It is tender and of poor growth and constitution in this country, and, though a fine exhibition Rose, is of little use for general garden purposes.

Molly Sharman Crawford (T., 1908).—Eau de Nil white of good colour and fair constitution. This beautiful Rose seems to be among the best of the newer Tea Roses. It is undoubtedly a fine Rose for exhibition. It holds its head well, and makes a good garden Rose; either for bed or border, I have liked it better each year I have grown it.

Comtesse de Nadaillac (T., 1871).—At its best this is one of the finest exhibition Roses. The colour is coppery apricot, but the shade varies to a very great degree; it sometimes comes a buff-yellow, and will give all intermediate shades. As a maiden, especially on a standard, this Rose makes vigorous growth, with large leathery foliage, but never again, for as a cut-back the growth is poor. It is very free-flowering, but the small flowers are of little value. It is tender and not an easy Rose to grow well; still it may be recommended as indispensable for exhibition.

The Bride (T., 1885) is a white sport from Catherine

Mermet, having a slight tint of lemon, but it is even more solid and perfect in shape, the arrangement of the petals, round a high, pointed centre, being particularly good. This Rose is unfortunately decidedly tender and does not stand rain well. It is therefore often difficult to get perfect flowers out-of-doors, but it is one of the best Roses under glass.

Mme. Constant Soupert (T., 1905) is a Rose that requires a warm season. It is only a fair grower, and should be pruned hard. The flowers have a ground colour of yellow, edged and shaded with peach, and are very beautiful. It is a good exhibition Rose.

Catherine Mermet (T., 1869) is of rather poor growth and constitution, and the foliage is not very good. The colour is a pale pink flesh, and the form of the flower is first-rate when well grown. It requires careful disbudding to two or three flowers on a plant, and shading, as it will not stand wet. It should be grown on a half-standard. It succeeds best under glass.

Innocente Pirola (T., 1878).—A beautiful Rose with fine depth of shell-like petal. The colour is creamy-white, and the flowers come kindly and of nearly perfect form, and last well. The plants require severe pruning, careful disbudding, and good feeding.

Bridesmaid (T., 1893).—A deep-coloured sport of Catherine Mermet. It is a slightly better doer, and one of the very best Roses for growing under glass.

Souvenir de S. A. Prince (T., 1889) is a sport from Souvenir d'un Ami. It is a pure white flower of rather rounded form. It is hardy for a Tea Rose and lasts well, but is inclined to hang its head.

Mme. Cusin (T., 1881).—I have found this Rose much

better and more showy as a standard. As a dwarf its growth is only fair and the flowers are not so good. It is very free-flowering and lasts well. The colour is a good rose-pink, and the shape attractive, rather imbricated, but yet pointed. To obtain exhibition flowers good feeding and careful disbudding are necessary.

Souvenir d'un Ami (T., 1846).—This Rose is a pale and sometimes rather soiled-looking rose colour. I am not very fond of it, but it is hardy and free-flowering. It should be grown as a standard.

Souvenir d'Elise Varden (T., 1854).—This Rose has a poor constitution. It is useful only for exhibitors, and they will be fortunate if they get more than one good shoot from each plant. It may be grown either as a dwarf or standard. The flowers are cream-coloured tinged with pale rose, and when well grown are very beautiful. It used to be one of the most certain prize-winners, but seems to be less seen of recent years. It is of no value as a garden Rose.

Other good Tea Roses for exhibition are :—

Anna Olivier (flesh and buff).

Lady Roberts (apricot, a sport from Anna Olivier).

Madame de Watteville (cream, tinted with rose ; very tender).

Madame Hoste (lemon-yellow).

Madame Vermorel (light yellow with buff centre).

Mrs. Foley Hobbs (ivory-white ; new).

W. R. Smith (creamy-blush tinged with pink ; very pretty, and one of the best).

CHAPTER XII

DECORATIVE ROSES FOR EXHIBITION

TURNING now to the decorative Roses that have proved valuable at the exhibitions, I take the first nineteen in Mr. Mawley's list; four Roses are bracketed together in their place, three coming next at the 23rd position. They are as follows :—

SUMMER LIST

1. Crimson Rambler.
2. Mme. Abel Chatenay.*
3. Gustave Regis.*
4. Marquise de Salisbury.
5. Wm. Allen Richardson.
6. Leuchtstern.
7. Lady Curzon.
8. R. macrantha.
9. Mme. Ravary.*
10. Liberty.
11. Blush Rambler.
12. Lady Battersea.
13. Mme. Pernet Ducher.
14. α, Crimson Damask.
    β, Jersey Beauty.
16. α, Tea Rambler.
    β, The Garland.
18. Papillon.
19. α, Aenchen Müller.
    β, American Pillar.
    γ, Helène.
    δ, Una.

It is interesting to compare this list with the first fifteen Roses that have proved their value for decorative purposes at the autumn shows. These are :—

AUTUMN LIST

1. Mme. Abel Chatenay.*
2. α, Betty.
   β, Irish Elegance.
4. Grüss an Teplitz.
5. Trier.
6. Gustave Regis.*

7. {α, Mme. Ravary.*
   {β, Mme. W. H. Cutbush.
9. Mme. Antoine Mari.
10. {α, Corallina.
    {β, Papa Gontier.
12. Wm. Allen Richardson.*
13. {α, La Tosca.
    {β, Perle d'Or.
15. Mme. Jean Dupuy.

All the summer-flowering Roses have naturally disappeared, and of the perpetual-flowering Roses we have left only the four against which I have placed a star, and these appear very nearly in their relative positions, except that W. A. Richardson has taken a lower, and Mme. Ravary a higher, position. Betty, Trier, Irish Elegance, Perle d'Or, and Mme. W. H. Cutbush would, however, have been lower in the summer list had it been extended to forty-three places.

These two lists, moreover, have a value for others than the exhibitor of Roses in the decorative classes, for they are nearly all good garden Roses.

They must, however, not be regarded as in any way exclusive. For instance, some may be surprised to find that Richmond finds no place in any of the foregoing lists. Its position in the florists' windows, and in Rose competitive classes at other flower shows than those of the N.R.S., makes it clear that as a Rose for decorative purposes it is second only to Mme. Abel Chatenay. The explanation of its exclusion from these lists is that Richmond has unfortunately found a place very low down (fifty-ninth) in the list of Exhibition H.P.'s and H.T.'s. This is no doubt an indication of want of elasticity in the present rules of the N.R.S. Something is being done towards remedying the defect by the creation of classes in which certain decorative Roses in the exhibition lists are to be admitted, but the limitation remains unsatisfactory.

CHAPTER XIII

ROSES FOR DECORATION OF THE GARDEN

FIRST for bush Roses grown in ordinary beds or borders, planted from 1 foot 3 inches to 2 feet 6 inches apart, according to the vigour of growth of the variety.

A. K. Williams (H.P.).—See p. 91.

Alice Lindsell (H.T.).—See p. 92.

Antoine Rivoire (H.T.).—Pale cream with deeper centre, a beautiful Rose, good both early and late. Makes a good standard, but its habit as a bush Rose is not first-class.

Auguste Comte (T.).—Beautiful foliage, flowers pink, with high, pointed, creamy-white centre.

Betty (H.T.).—Coppery rose, shaded yellow; a rather thin Rose, with large shell-like petals; best in autumn.

Bridesmaid (T.).—See p. 99.

Capt. Hayward (H.P.).—See p. 95.

Caroline Testout (H.T.).—See p. 89.

Catherine Mermet (T.).—See p. 99.

Charles J. Grahame (H.T.).—Bright crimson, rather thin, a cool season Rose.

Cheshunt Scarlet (H.P.).—A brilliant-coloured flower, good in autumn.

Commandant Felix Faure (H.P.).—A lovely, dark crimson, well-shaped flower, shaded scarlet, very fragrant.

Comtesse de Nadaillac.—See p. 89.

Dean Hole.—See p. 88.

Dorothy Page Roberts (H.T.).—Semi-double, a rather deep pink rose, with a yellow base to the petal, giving a somewhat metallic lustre. It is very decorative and a good doer.

Edu Meyer (H.T.).—Another semi-double Rose, at its best most beautiful, but sometimes disappointing. The colour is a mixture of pink and yellow not easy to describe. The base of the petals on both sides is yellow, carried half-way up on the inside where it merges into light pink, the reverse of the petals being a darker shade of pink, the general effect being apricot with a mixture of pink and orange. Though moderately hardy, it is not a strong grower, and should have plenty of sun.

Florence Pemberton.—See p. 90.

Frau Karl Druschki (H.P.).—See p. 88.

General M'Arthur (H.T.). — Bright scarlet-crimson. A good Rose, its defects being that its form is not, to my taste, of the first rank, and that it is a little too long between its periods of flowering.

Grüss an Teplitz (H.T.).—Bright crimson, and free-flowering, very showy in the garden, but the flowers have little form. It is a strong grower, and makes a good standard, and should be treated like a Noisette.

Gustav Grünerwald (H.T.).—A beautiful full pink rose with a yellowish base to the petal. A good doer and excellent garden Rose.

Gustave Regis (H.T.).—A vigorous grower, Nankeen yellow, with shell-like petals, only semi-double, but an indispensable garden Rose. Most decorative.

Gustave Piganeau.—See p. 92.

Harry Kirk (T.).—A good doer for a Tea, bright sulphur-yellow, with a deeper centre; a good decorative Rose, but might be little freer in flowering.

Helen Keller (H.P.).—See p. 95.

Horace Vernet.—See p. 92.

Hugh Dickson (H.P.).—See p. 90.

Innocente Pirola (T.).—See p. 99.

Irish Elegance (H.T.).—Single, various shades of apricot, sometimes nearly pink with orange-red buds. The most decorative Rose we have.

Irish Glory (H.T.).—Single, silvery pink. When picked it makes a fine vase.

J. B. Clark (H.T.).—See p. 89.

Joseph Hill (H.T.).—One of the best garden Roses, with shapely flowers and beautiful foliage. The colour is very variable, and consists of various shades of pale pink much suffused with yellow, the base of the petals being quite yellow. It is a good doer, but apt in its second growth to make a single panicle of flower, a tendency which should be checked.

Kaiserin Augusta Victoria (H.T.).—See p. 91.

Killarney (H.T.).—Clear pale pink. One of the most useful of Roses. It requires disbudding, and though a good doer is unfortunately very subject to mildew.

Koenigin Corola (H.T.).—This is a fine Rose with big flowers, full, with large loose petals, a soft pale pink colour, the early flowers produced singly.

Lady Ashtown.—See p. 90.

Lady Roberts (T.).—Light apricot with coppery yellow base, a good garden Rose, and useful for button-holes.

La France (H.T.).—The first H.T. See p. 92.

La Tosca (H.T.).—A good strong-growing Rose, with flowers blush to pale pink in colour, specially good in autumn.

Laurent Carle (H.T.).—Deep carmine, a good grower.

Lyons Rose (H.T.).—See p. 91.

Maman Cochet.—See p. 97.

Mme. Abel Chatenay (H.T.).—Bright salmon-pink with paler reflex of the petals, probably the most popular Rose grown, but difficult to grow well in the garden. The foliage is sparse, and the second growth apt to be confined to a single strong panicle.

Mme. Antoine Mari (T.).—A beautful Rose, shapely and artistic, the colour cream and soft rose-pink, opening creamy-white. It has beautiful foliage which is nearly evergreen, and is a good grower for a Tea Rose and a useful Rose for bedding.

Mme. Constant Soupert (T.).—See p. 98.

Mme. Cusin (T.).—See p. 99.

Mme. Edmée Metz (H.T.).—Light pink, beautiful and effective in fine weather, useless with the least rain.

Mme. Hoste (T.).—Pale lemon-yellow, a good Tea Rose, best as a standard.

Mme. Jean Dupuy (T.).—Light yellow, edged rose, a good grower and excellent garden Rose.

Mme. Jules Graveraux (T.).—See p. 97.

Mme. Jules Grolez (H.T.).—Deep rose-pink; a useful garden Rose, but the colour does not harmonise with many of the pinks. It is rather dwarf.

Mme. Lambard (T.).—A most satisfactory Rose, always bright and cheerful, and most useful in autumn. The

colour is rose-pink but variable; sometimes tinged with yellow. It is best hard pruned.

Mme. Léon Pain (H.T.).—This is one of the three or four best garden Roses. The flowers are well formed, silvery blush, with salmon centre; the growth is vigorous and good, and it gives no trouble.

Mme. Maurice de Luze (H.T.).—A self-coloured Rose of good shape and substance, clear rose colour, often making exhibition blooms; useful also for decoration. Fragrant.

Mme. Mélanie Soupert (H.T.).—A beautiful Rose, shapely, but rather thin; the colour is difficult to describe; it is pale fawn and gold with a delicate shading of peach, sometimes with the least shading of mauve or amethyst. The foliage is large and glossy, and the flowers come on long stems. The second bloom requires disbudding.

Mme. Pernet Ducher (H.T.).—A whiter and dwarfer Gustave Regis.

Mme. Ravary (H.T.).—Pale orange-yellow with apricot centre, of rather a dwarf habit, excellent for decoration in the garden or the house.

Mme. Ségond Weber (H.T.).—Light salmon-rose, beautiful in fine weather, spoilt at once by rain.

Maharajah (H.P.).—Single, deep velvety crimson.

Marie van Houtte (T.).—Lemon-yellow, edged rose, a useful and hardy garden Tea Rose.

Marquise de Sinety (H.T.).—A wonderful colour, golden yellow, shaded coppery red; not a good doer.

Medea (T.).—See p. 97.

Mildred Grant (H.T.).—See p. 88.

Molly Sharman Crawford (T.).—See p. 98.

Mrs. Alfred Tate (H.T.).—Coppery salmon, shaded fawn, a promising Rose for decoration.

Mrs. A. R. Waddell (H.T.).—The colour is very beautiful, but comes best under glass. The plant is a good grower, and the flowers are freely produced, but are rather fleeting.

Mrs. David M'Kee (H.T.).—Creamy-yellow, and well-shaped flowers. This Rose is the best of its type.

Mrs. E. G. Hill (H.T.).—This is a free-flowering and upright-growing Grand Duke Alex de Luxembourg. The flower is pink, with coral-red reverse and large petals. It is the most decorative Rose in my garden, and, with the possible exception of Richmond, I think the most continuously in flower. It is good alike in fine or wet weather, rather thin, but most beautiful.

Mrs. Edward Mawley.—See p. 97.

Mrs. G. W. Kershaw (H.T.).—Rose-pink, a useful garden Rose.

Mrs. Harold Brocklebank (H.T.).—Creamy-white with a buff centre, a good grower, and often well shaped.

Mrs. John Laing (H.P.).—See p. 89.

Mrs. R. G. Sharman Crawford (H.P).—See p. 92.

Mrs. Theodore Roosevelt (H.T.).—See p. 90.

Mrs. W. J. Grant (H.T.).—See p. 90.

Muriel Grahame.—See p. 98.

Papa Gontier (H.T.).—Rosy-crimson with lighter reverse; a most beautiful but, with me, not a very strong grower. The climbing sport on a south wall is beautiful in early summer, and particularly useful in autumn.

Paula (T.).—A pretty little pale-yellow Rose of good habit.

Perle von Godesberg (H.T.).—A creamy-yellow sport

from Kaiserin Augusta Victoria, to which I prefer it. The flowers are well shaped.

Pharisaer (H.T.).—A tall-growing Rose ; the flowers are blush with salmon shading, carried on long stalks, beautiful for decoration in the garden or when cut.

Prince de Bulgarie (H.T.).—Variable in colour, pale blush with apricot centre. With me the early flowers are seldom good, but those in summer and autumn are lovely if the weather prove fine.

Princess Marie Mertchersky (H.T.).—Silvery China Rose, often good, but requires a lot of disbudding.

Richmond (H.T.).—Bright light crimson flowers, almost always well formed. This Rose is more constantly in flower than any Rose in the garden, and provides a bright patch of colour the summer through. Hot sun, however, spoils the colour very much.

Rosette de la Légion d'Honneur (H.T.). — Bright-red buds opening to pinkish-red flowers, veined yellow, a useful Garden Rose, but of an awkward habit. If pruned hard, it flowers late and badly. It is best treated like a Noisette.

Simplicity (H.T.).—A large-flowered, white, single Rose. If gathered just as it opens, so that the stamens are fresh, it is beautiful for decoration.

Souvenir d'Elise Vardon (T.).—See p. 100.

Souvenir de Pierre Notting (T.).—See p. 97.

Souvenir de S. A. Prince (T.).—See p. 97.

Souvenir d'un Ami (T.).—See p. 99.

Sulphurea (T.).—Bright sulphur yellow, semi-double, specially good in autumn.

Suzanne Marie Rodocanachi (H.P.).—See p. 92.

The Bride (T.).—See p. 98.

Ulrich Brunner (H.P.).—Cherry-red. See p. 89.

Viscountess Folkestone (H.T.).—Creamy-white, shaded flesh, often well shaped ; an artistic Rose.

Warrior (H.T.).—A fine colour, nearly crimson when first open, a thin Rose of no great form, but useful in the garden.

W. R. Smith (T.).—Blush, tinted pale pink, well shaped, and a beautiful garden Rose, best in fine weather, as it loses colour in wet.

White Killarney (H.T.).—A white sport from Killarney.

White Maman Cochet.—See p. 96.

William Shean.—See p. 91.

Zéphirine Drouhin (Bourbon).—Bright pink, thornless, free-flowering, and very sweetly scented. This is a delightful garden Rose, a great favourite with the Rev. Alan Cheales. It makes a good hedge, and can be used in many different ways. Every one should grow it.

HYBRID PERPETUALS

In the foregoing list I have included comparatively few Hybrid Perpetuals, only those, in fact, which have some claim to be considered decorative in the garden ; but where practicable, some space should be found for growing some of the older sorts. Few of the modern Roses equal them for perfume, and when well grown they are very beautiful. We have nothing else quite like them. The following are some of the best varieties :—

Charles Lefebvre, velvety crimson.

Comte de Raimbaud, clear crimson, always well shaped ; a good old Rose.

Duchess of Bedford, scarlet-crimson, not a good doer, best as a maiden.

Duke of Edinburgh, scarlet-crimson, very vigorous, with long autumn shoots, only slightly fragrant.

Duke of Teck, bright crimson-scarlet.

Duke of Wellington, dark crimson.

Dupuy Jamain or *Etienne Levet*, carmine-rose. Both these have delicious perfume. One, at least, should be cultivated.

Fisher Holmes, crimson-scarlet, a good Rose.

General Jacqueminot, bright scarlet-crimson and free-flowering.

Mme. Gabriel Luizet, clear pink, flowers little in autumn.

Maurice Bernardin, crimson, often good.

Oscar Cordel, light carmine.

Prince Camille de Rohan, dark crimson, the best Rose of its colour.

Rev. Alan Cheales, pink-lake, with the reverse of the petals silvery pink.

Victor Hugo, bright crimson, unique in colour, but the flowers often come rough.

Xavier Olibo, dark purplish-crimson, the purple shade being very noticeable as the flowers fade.

CHAPTER XIV

ROSES FOR BEDDING

IT is not an easy task to select the best Roses for bedding. A good bedding Rose must hold itself well and be of good habit and foliage, must be very free-flowering, not too tall, and not greatly susceptible to disfiguring disease. These requirements rule out all the H.P.'s, but if any were admitted they should be Cheshunt Scarlet for its brilliant colour, Mrs. R. G. Sharman Crawford for its clear pink, and perhaps Suzanne Marie Rodocanachi; but it is really better to rely entirely on the H.T.'s and Teas as in the following list :—

H.T.'s

Augustine Guinoisseau (white, blush centre).
Camoens (pink).
Dr. J. Campbell Hall (pink), dwarf, almost the best.
Duchess of Wellington (yellow).
Ecarlate (scarlet).
Lady Ashtown (pink).
Liberty (red).
Marquise de Salisbury (dark red).
Mme. Jules Grolez or *Frau Ernst Borsig* (pink).
Mme. Léon Pain (pink).

Mme. Ravary (yellow).
Mrs. E. G. Hill (pale pink, coral-red reverse).
Richmond (red).

Teas

Hon. Edith Gifford (white, blush centre).
Mme. Antoine Mari (cream and pink).
Mme. Lambard (pink).
Mme. Henri Berger (pink), later than the last.
Molly Sharman Crawford (white).

Those who are chiefly at home in the autumn may add Corallina, a strong-growing pink Tea, but the summer flowers are generally an unattractive colour, and the flower lacks good form. Lady Ashtown is beautiful when in flower, but it has periods when few flowers are to be found, though it is not actually without them. Lady Quartus Ewart is a pretty white bedding Rose, with perfect flowers, but it is useless in bad weather.

In addition to the above, any of the China Roses (see p. 122) and the Dwarf Polyantha Roses (see p. 124) make excellent Roses for bedding.

CHAPTER XV

PILLAR ROSES

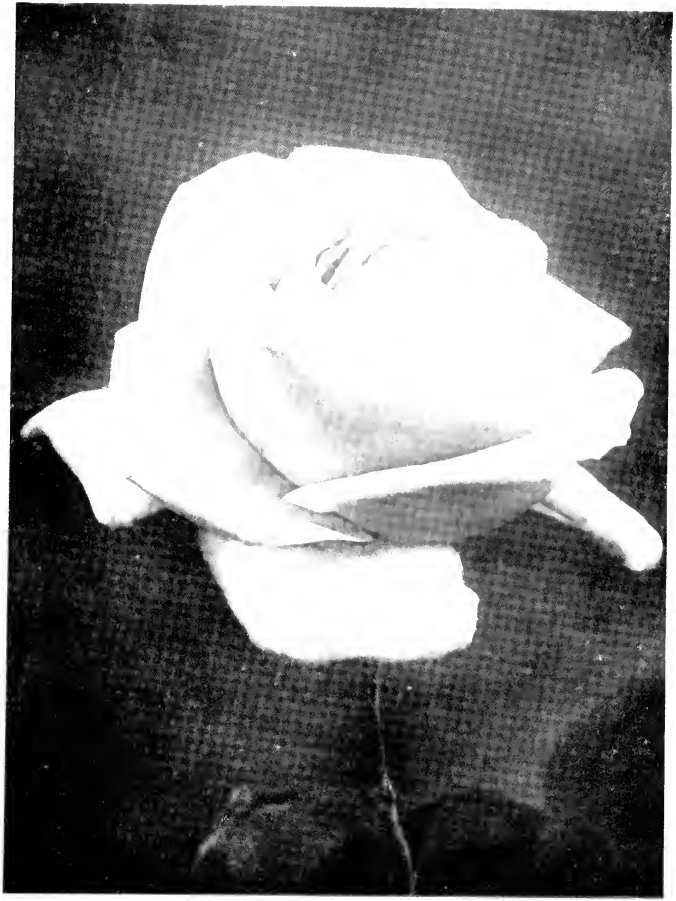
FOR tall pillars up to 12 feet high, many of the Multifloras and nearly all the Wichuraianas are suitable. For pillars up to 8 and 9 feet, Tausendschön is good and easily grown. The showy Carmine Pillar is also excellent. But where many Pillar Roses are grown, at least half the number should be perpetual-flowering Roses. For this purpose resort must be had to the Noisettes and vigorous-growing H.T.'s. The following list gives a selection of those suitable for the purpose. But in all these Roses constant care is required to keep them furnished down to the base—a difficulty which does not arise with the Wichuraianas :—

Aimée Vibert, N. (white).
Alister Stella Gray, N. (yellow), best in autumn.
Ards Rover, H.P. (red).
Ards Rambler, H.T. (red).
Billard et Barre, T. (yellow), a beautiful Rose, but useless without protection.
Climbing Caroline Testout, H.T. (pink).
Celine Forestier, N. (pale yellow).
Climbing Frau Karl Druschki, H.P. (white).
François Crousse, H.T. (red).
Gloire des Rosomanes, H.B. (red), good early and late.
Grüss an Teplitz, H.T. (red), showy.

PLATE VI

THE LYONS ROSE (H.T.)

This Rose is very variable in tint; sometimes it is nearly pink. The prevailing colours are pink and shades of orange.



Lady Waterlow, H.T. (pink).
Climbing La France, H.T. (pink).
L'Ideal, N. (yellowish-red).
Lina Schmidt Michel, H.T., a beautiful Rose, colouring after the style of Grand Duke A. de Luxembourg.
Mme. Alfred Carrière, N. (white), a useful Rose, best in autumn.
Mme. Isaac Pereire, B. (pink), hardy and fragrant, but not first-class.
Maharajah, H.P., single (red).
Morgenroth, H.T. (red, after the style of Carmine Pillar, but perpetual).
Climbing Mrs. W. J. Grant, H.T. (pink), very difficult to keep clothed to the base.
Noella Nabonnand, T. (crimson).
Climbing Papa Gontier, H.T. (beautiful rosy-pink, but tender).
Papillon, T. (pink), the best Tea for a pillar.
Paul's Single White.
Rêve d'Or, N. (yellow).
William Allen Richardson, N. (orange).

CHAPTER XVI

ROSES FOR THE ROCK GARDEN

MANY of the dwarfer species make beautiful subjects for the rock garden. In some the foliage and fruit are worthy of consideration as well as their flowers, and others have beautiful red stems, which look very bright in the winter sun. The following are worth notice :—

Alpina pyrenaica (red).
Alberti (yellow).
Burgurdica (double Daisy-like flowers).
Burnet Rose (cream).
De Meaux (pink).
„ „ (white).
Ecæ (yellow).
Ferox (the Hedgehog Rose).
Foliolosa (good foliage, and warm, rose-coloured flowers).[1]
Gallica pumila (single pink).
Humilis (pink and perpetual).
Lawrenceana (deep pink double flowers).
Nitida (the most beautiful of all; the foliage turns brilliant red in autumn, leaving later stems covered with innumerable red prickles).

[1] Better still is *Rugosa* × *foliosa*, which is perpetual and fragrant.

Seraphini (a beautiful little Corsican Rose, with single pink flowers).

William III. (a dwarf Scotch Rose with dark red flowers).

Many of the Dwarf Polyanthas are also suitable, specially :—

Anna Maria de Montravel.
Engénie Lamesch.
Jessie.
Léonie Lamesch.
Mrs. W. H. Cutbush.
And the Tea *Princesse de Sagan.*

Farther back in the rockery there are a few taller varieties which may be used with effect. They grow 4 to 5 feet high, *e.g.* :—

Altaica (creamy-white).
Hispida (soft yellow).
Hugonis (yellow, beautiful foliage).
Indica Miss Willmott.
Moyesii (salmon-pink).
Nuttalliana (late flowering, pink).
Xanthina (yellow).

CHAPTER XVII

ROSES SUITABLE FOR GROWING AS BIG BUSHES, OR SPECIMEN PLANTS

Altaica (cream coloured, short period of flowering).
Grüss an Teplitz (brilliant red and free-flowering, perpetual).
Janet's Pride (white, edged deep pink, summer-flowering).
Lady Curzon (summer-flowering only).
Mme. Plantier (white).
Macrantha (single, blush, with yellow stamens, most useful for decoration).
Trier (white and fawn, perpetual).
Una (single, cream coloured).
Most of the Rugosa Roses, specially *Conrad F. Meyer* and its sports.

ROSES FOR WALLS

Ards Rambler.
Banksiau.
Climbing Caroline Testout.
Climbing Mrs. W. J. Grant.
François Crousse.
Goubault.
Gloire de Dijon.
L'Ideal.
Macartney.
Mme. Alfred Carrière.
Rêve d'Or.
Reine Olga de Wurtemberg.
Sinica Anemone.
William Allen Richardson.
Zéphirine Drouhin.

CHAPTER XVIII

SWEET BRIARS (R. RUBIGINOSA)

SOMEWHERE near the Rose garden room should be found for one, or more, hedges of Sweet Briars. Their scent from the glands on the under surface of their leaves, in the early morning or evening air, adds much to the charm of the garden.

Of the common Sweet Briar, which has pink flowers, there is a dwarf variety growing 4–5 feet high, and a tall one growing 10 feet or more. Beside these there is a double white and a double scarlet form, and there are also the Penzance Briars growing 12 to 15 feet in height. Many of the Penzance Briars are very like one another. The following is a selection from them:—

Amy Robsart, deep rose.
Catherine Seyton, rosy-pink, free-flowering.
Flora M'Ivor, white, edged and flushed rose.
Jeannie Deans, deep rose.
Julia Mannering, pink.
Lady Penzance, coppery yellow, distinct.
Lucy Ashton, white, edged pink.
Meg Merrilies, rich rose.
Rose Bradwardine, clear rose.

Refulgence is not a Penzance Briar, though like them, it is semi-double and bright crimson.

CHAPTER XIX

THE CHINA ROSES

(*R. indica and R. indica semperflorens*)

THE flowers of China Roses, as a class, are somewhat wanting in form, and, individually, rather fleeting, but the colours are good, and they are specially useful early and late in the season. They begin to flower about the last week in May, and the first period of flowering lasts for three or four weeks; after this, though they continue to flower to some extent, the show of bloom diminishes, and it is often difficult to obtain a vase of any one variety for the July shows. Successional crops soon begin again, and continue till November, but there is a well-defined burst of flower in the early autumn. For garden purposes they consist of two types—the taller growers represented by the Common Blush or Pink China, which make good-sized bushes or dwarf hedges; and a dwarf section headed by the Old Crimson China. There are numerous intermediate varieties, and others which approach the Teas in character and habit.

They may all be used for bedding, and should be planted rather closely, and the taller varieties may be used for low hedges. Like the Teas they prefer rather light soil. The following varieties are recommended:—

White

Ducher.
Rival de Pæstum.
White Pet.

Pale Yellow

*Arethusa.
Chin Chin.

Salmon and Apricot

*Comtesse du Cayla.
*Queen Mab (the best of all).
Mme. Eugène Resal.
Mlle. de la Vallette.

Pinks

*Laurette Messimy.
*Common Pink (Old Monthly Rose).

Scarlet and Crimson

Alice Hamilton.
*Charlotte Klemm.
Cramoisie Superieure.
Fabvier.
Leuchtfeuer.
Old Crimson.

If six only are wanted, those marked with a star may be selected. A very curious coloured pink is Maddelina Scalarandis. It is difficult to harmonise with other coloured Roses, but lights up well by candle-light. Ducher and the Common Pink are hardy and good growers.

CHAPTER XX

POLYANTHA POMPON ROSES

THE Dwarf Polyantha Roses are of recent introduction. Ma Pâquerette was introduced by Guillot in 1875, and was probably the earliest. It was followed by Anna Maria de Montravel, white and very dwarf, obtained by Mme. Rambaux in 1879, Cecile Brunner (Ducher, 1881), and Perle d'Or (Dubreuil, 1883), since which date the varieties have become numerous. They are nearly related to R. multiflora, crossed probably with Teas and China Roses.

As a class they are very bright and cheerful in the garden, and being constantly in flower from early June to late autumn, they make good bedding Roses. In fact, they should generally be massed together to produce a good effect. They may often be used with effect for decorative purposes, but for the most part they are wanting in beauty of form in the individual flower and have little fragrance. However, Eugénie Lamesch, Léonie Lamesch, and Lady Violet Henderson are slightly scented.

Though not so attractive as the Chinas, they last better, and for this reason have, to some extent, replaced them in some gardens. The Dwarf Polyanthas are excellent autumn flowerers.

Aenchen Müller is bright and attractive, but very badly given to mildew.

Cecile Brunner, blush white, with a pale rose-coloured centre, and Perle d'Or, pale yellow, with orange centre, are distinct in habit from the rest of the class, throwing up tall and loose panicles of flower, while in the majority of the varieties the flowers, though also borne on panicles, are rather closely clustered.

The following are worth growing :—

White and Blush

Anna Maria de Montravel (very dwarf).
Katharine Zeimet (the best white).
Marie Pavie (blush).
Cecile Brunner.

Pink

Aschenbrödel (peach).
Aenchen Müller (bright, rich pink).
Mrs. W. H. Cutbush (light clear pink).
Philippine Lambert (pale pink).

Yellow and Orange

Canarienvogel (golden yellow, tinged mauve).
Eugénie Lamesch (yellow ochre, shaded pink).
Léonie Lamesch (bright coppery red, golden centre).
Perle d'Or.

Red

Jessie (dwarf and good).
Kleiner Alfred (red, shaded yellow).

Closely connected with the Dwarf Polyanthas for garden purposes are the new race of Perpetual-Flowering Dwarf Wichuraianas, lately introduced by G. Paul

and Son, of Cheshunt. They are attractive little Roses, but it is too early to write of their merits or otherwise. I may mention Iceberg (white), Amber (yellow), and Seashell (with terra-cotta buds) as worth a trial.

Newer still are some little Roses introduced by Lambert, including Tip-top and Bettel-Student; but I have no personal experience of them.

CHAPTER XXI

RAMBLING ROSES

R. multiflora and R. Wichuraiana

THE Multiflora and Wichuraiana Roses are employed in the garden for very similar purposes, namely, for covering arches and screens, growing over pergolas, or as isolated pillars. The garden hybrids of these Roses are confused one with another; for instance, Hiawatha is sometimes found described as a Multiflora and sometimes as a Wichuraiana, though from its lax growth it ought properly to be included in the latter group. Tea Rambler and Grüss an Zabern I have included in the Multiflora group, to which section, for garden purposes, they clearly belong, though the first is frequently described as a T., and the second as a H.T., groups with which they have little or nothing in common. Both groups are alike in this, that they tend to throw up strong shoots from the base, from which the flowers are produced in the following summer on short laterals.

In Multiflora varieties the wood that has flowered is quite useless for flowering again, and in the case of the Wichuraianas nearly so, and may be removed when flowering is over. In both cases, however, there are often produced from the old wood strong lateral growths, quite different

from the short flowering laterals. These strong growths are called "continuing laterals," and as these will flower, they may be retained if there are not sufficient basal shoots to furnish the plant. The basal shoots from the plants of the Multiflora section are decidedly stronger and of more upright habit than those from the Wichuraiana group, which are much more lax, and tend, if not tied up, to creep along the ground. On account of this lax habit of growth many of the Wichuraianas are specially adapted for growing as weeping standards.

With three exceptions, the Multiflora hybrids are summer flowering only — that is, they have no second crop of flowers. The exceptions are Trier, Perpetual Thalia, and Flower of Fairfield. Though fairly strong growers, the first two, and probably the third, are better adapted for bushes or low pillars than for screen or pergola. Trier seems the best of the three, and should be in every garden. It is creamy-white with a fawn centre, and makes a nice little bush 4 to 5 feet high and 3 to 4 feet through. As soon as the first bloom is over it begins to flower anew, sparsely at first, but, soon gathering strength again, it gives a good crop in late summer and autumn. The foliage is dark green and good.

Perpetual Thalia has pyramidal clusters of white flowers, and makes a bush about the same size, but the foliage is lighter green. The flowers are apt to get brown and untidy as they fade, and should then be cut off.

Flower of Fairfield is the Perpetual Crimson Rambler.

Leaving the Perpetual varieties, the following lists of summer-flowering Multifloras and Wichuraianas are selected.

The varieties marked E begin to flower about the 10th or 15th of June; those marked M, from the 20th to the end of the month; and those marked L, towards the middle of July.

Multifloras

White.

Grüss an Zabern (E).

Yellow.

Aglaia (E).
Goldfinch (M).

Pink.

American Pillar (M).
Blush Rambler (M).
Leuchtstern (E).
Tausendschön (M). Mildews badly.
Tea Rambler (E).

Red.

Crimson Rambler (M).
Rubin (M).

Wichuraianas

White and Cream.

Alberic Barbier (E), cream, yellow centre.
Jersey Beauty (E), cream, single.
White Dorothy (L), white.

Yellow.

Gardenia (E).
Shower of Gold (M).

Pink.

Débutante (M).
Dorothy Perkins (L).
François Juranville (M).
Gerbe Rose (E).
Joseph Lamy (E), white, heavily edged pink.
Lady Godiva (L), pale pink.
Léontine Gervais (M), salmon-pink.
Minnehaha (L).
Réné André (E).

Red.

Diabolo (M).
Excelsa (L), new.
Hiawatha (L).

Lady Godiva is very like Dorothy Dennison and Christian Curle, and the plants that have been sent me as

Lady Gay I am unable to distinguish for garden purposes from Dorothy Perkins. There may be slight differences in each case, but if one is grown, those so nearly like it are not wanted.

Many of the Wichuraianas flower again sparsely in autumn, and there are two, Coquina and Mme. Alice Garnier, which seem to produce a moderate second crop.

OTHER RAMBLING ROSES

Besides the Multiflora and Wichuraiana groups, there are certain strong-growing Roses from other groups that may be used for similar purposes in the garden. Of these I select some of the best :—

Noisette.—Climbing Aimée Vibert, a white cluster Rose, almost evergreen, and flowering in summer and again in autumn.

Hybrid Musk.—The Garland, summer flowering only, coming into flower early in July. Its flowers are blush fading to white, and very freely produced.

Ayrshire.—Dundee Rambler, white with pink edges. This is a very vigorous Rose, and may be grown into trees. It flowers early, about mid-June.

Semperflorens.—Félicité Perpétue, creamy-white, a very vigorous Rose that does well in very exposed gardens and even fairly well on north walls.

Hybrid Briar. — Una, a single, large-flowered Rose, creamy-white in colour.

Boursault.—Inermis Morletii, a thornless Rose, with light rosy-pink flowers ; early flowering.

CHAPTER XXII

ROSA RUGOSA

THESE like the Wichuraianas came from Japan, and like them they possess very good qualities. They are very hardy and free from disease; they have beautiful and strong foliage, generally rather light green and rough; they are not particular as to soil or situation, and they do well in exposed places, and even near the sea. They are very sweetly scented. It was from among their ranks that Mons. Jules Graveraux selected "Rose à Perfum de l'Hay" as the most highly perfumed of all Roses. They are perpetual flowering, and the typical Rugosas have brilliant and large red or orange-coloured pips in the autumn, which last as long as the birds will allow them. They have two faults: one is, the flowers are deficient in form, and the other, they do not last well in water. Attempts have been made by crossing to remedy these defects, and the production of Conrad F. Meyer and its sports is perhaps the most successful result of these crosses. Unfortunately the improvement in form has generally taken place at the expense of the autumn berries.

Out of a large number of varieties the following are recommended:—

White.

Blanc Double de Coubert.
Mme. Georges Bruant.
Repens alba.
Nova Zembla (sport from Conrad F. Meyer).

Shades of Pink and Blush.

Delicata.
Thusnelda, blush, one of the best.
Fimbriata, with serrated edges.
Mercedes.
Conrad F. Meyer, a strong grower with shapely flowers.
Mme. Lucienne Willeminot, a paler sport from Conrad F. Meyer; more free-flowering than its parent.
Mme. Ballu.
Rose-apples.

Yellow.

Daniel Leseuer, a variety with a good deal of resemblance to the Dijon Teas.

Red.

Atropurpurea, the best dark red, very bright and attractive.
Carmen.
Mrs. Anthony Waterer.
Rose à Perfum de l'Hay.

CHAPTER XXIII

ROSES FOR A SMALL GARDEN

IN a small garden, where every inch is of value, it is of the greatest importance to select suitable Roses. Some will prefer chiefly climbing Roses, others bushes and standards for decorating the garden, others again may set their hearts on exhibition Roses. Whatever scheme is decided on in the small garden, the owner should try to make a feature of it. If he wishes to have bush Roses and standards for garden decoration he should not employ too many sorts, but he should grow several plants of each variety he selects. If he decides to grow fifty plants, he should not have more than, say, ten varieties (except as experiments in an out-of-the-way part of the garden) ; if he grows one hundred plants, some dozen or fifteen varieties will be better than a larger number, and in either case he should keep the varieties together and not try chessboard arrangement. The Rose is not a formal plant, but a batch of several of the same kind is much more effective than the same number arranged alternately or at haphazard.

In the following list I have purposely omitted Mme. Abel Chatenay, for, popular as it is, it is not easy to grow the plant to look well in a garden :—

Climbing Roses.

Rambling Roses—
Alberic Barbier (Wichuraiana), white.
Dorothy Perkins (Wich.), pink.
Shower of Gold (Wich.), yellow.
Hiawatha (Wich.), red.
American Pillar (Multiflora), pink.

Rambling Roses—
Blush Rambler (Multiflora), pink.
Crimson Rambler (Multiflora), red.
Tea Rambler (Multiflora), pink.

Noisettes.

Aimée Vibert.
Alister Stella Gray.
Mme. Alfred Carrière.
William Allen Richardson.

Climbing H.T.'s.

Climbing Caroline Testout.
Climbing La France.
Climbing Mrs. W. J. Grant.

To form Big Bushes.

Gustave Regis.
Grüss an Teplitz.
Zéphirine Drouhin.

China Roses.

Common Pink.
Laurette Messimy.
Queen Mab.
Charlotte Klemm.

Bush and Bedding Roses.

Caroline Testout (H.T.).
Commandant Felix Faure (H.P.).
Frau Karl Druschki (H.T.).
Gustav Grünerwald (H.T.).
Joseph Hill (H.T.).
La France (H.T.).
Lady Ashtown (H.T.), but not if the garden is confined.
Mme. Antoine Mari (T.).
Mme. Jules Grolez (H.T.).
Mme. Léon Pain (H.T.).
Mme. Lambard (T.).
Mme. Ravary (H.T.).
Mrs. E. G. Hill (H.T.).
Mrs. R. G. Sharman Crawford (H.P.).
Molly Sharman Crawford (T.).
Pharisaer (H.T.).
Richmond (H.T.).
Suzanne Marie Rodocanachi (H.P).

Exhibition Roses for a Small Exhibitor

H.P.'s: Capt. Hayward.
Frau Karl Druschki.
Mrs. John Laing.
A. K. Williams.
Hugh Dickson (see Plate I.).
Ulrich Brunner.
H.T.'s: Caroline Testout.
Dean Hole.
Marquise Litta.
Mrs. Theodore Roosevelt.
Lady Ashtown.
The Lyons Rose.
Teas: Maman Cochet.
White Maman Cochet.
Medea.
Mme. Jules Graveraux.
Mme. Constant Soupert.
Molly Sharman Crawford.

CHAPTER XXIV

FRAGRANCE IN ROSES

By Mrs. H. R. Darlington

FRAGRANCE! The very word has an alluring sound, and transports us from dusty scenes of toil and the irksome but necessary "daily round and common task" to wide-stretching downs and moorlands sweet with the scent of gorse and heather, now and again blent with salt-laden whiffs from the not far-distant sea.

Or again the word with its associations may lead us in fancy to some old-time garden full of sweet-scented flowers, where the great hedges of lavender and rosemary, the beds gay with gillyflowers, the low-growing mignonette, and the stately Madonna lilies fill the air with a variety of delicious perfumes. In such a garden our fancies or our memories will picture for us huge bushes of the old Cabbage and Damask Roses, the dusky Tuscany, and the charming Maiden's Blush, with beds of the aromatic Moss Roses bordered by the tiny Spong and De Meaux, and here and there a clump of Sweetbriars to remind us in spring-time of "the sweets o' the year."

Readers of Lord Beaconsfield's "Lothair" will remember the fair Lady Corisande's garden, into which no flower without perfume was admitted. They will also probably recall the inimitable Lord St. Aldegonde's sweeping con-

demnation of the gardens of his time: "How I hate modern gardens . . . give me Cabbage Roses, Sweet Peas, and Wallflowers." Here, at any rate, are two whole-hearted advocates of the theory that fragrance is a flower's most precious possession. Fortunately, even if we hold this same opinion, we need not be so exclusive as St. Aldegonde; we need not confine ourselves to Cabbage Roses! Nor, if we may judge from the length of time it took her to choose a Rose for her lover, did Lady Corisande. The stroll to her garden is said to have taken place "after breakfast," and we know that many hours had elapsed when Lothair on returning to the house could offer no better explanation of their long absence and their forgetfulness of lunch than this: "I have been in Corisande's garden, and she has given me a Rose!"

But this is a digression; we are not all the fortunate owners of the site of an ancient garden as was Disraeli's heroine, but I imagine almost every reader of this book has a bit of ground he calls his garden, and he can if he will transform a part or the whole of it into a garden for sweet-scented Roses, thereby, I feel sure, laying in store for himself and others an unfailing source of pleasure and delight. His choice will be very large even among modern Roses. He may leave out Frau Karl Druschki, but he will be sure to include Molly Sharman Crawford; if Baroness Rothschild is missing, her place will be well filled by La France, Mrs. John Laing, or Madame Maurice de Luze; and the presence of François Juranville and Gerbe Rose will leave little room for regret that Leuchtstern and Crimson Rambler have been denied a place.

The Hybrid Perpetuals may perhaps be neglected by

those who look for a continuous display of colour in bed or border ; but those in search of fragrance will come to this class first of all. Indeed, many people to whom the scent of the Tea Rose is scarcely perceptible will claim that here only among modern Roses is the real rose scent to be found. If it is not invidious to choose among such a fragrant company, I think the following dozen varieties are unsurpassed in richness and endurance of perfume :—

Marie Baumann.
Etienne Levet.
Dupuy Jamain.
Senateur Vaisse.
General Jacqueminot.
Hugh Dickson.
Charles Lefebvre.
Commandant Felix Faure.
Prince Arthur.
A. K. Williams.
Madame Gabriel Luizet.
Horace Vernet.

Among the Hybrid Teas we find many practically without scent, and only a few, I think, really equal the old H.P. in this respect. But there are undoubtedly two Roses that may well claim to do this, the pioneer of this class, La France, and its blush white sport, Augustine Guinoisseau, the latter diffuses its fragrance into the air in the way a honeysuckle or jasmine does, more than any Rose I know ; for this reason a bed of it in a much frequented part of the garden is a very pleasant possession. Other fragrant H.T.'s are :—

Richmond.
Château de Clos Vougeot.
Betty.
Gladys Harkness.
John Ruskin (almost an H.P.).
Gustav Grünerwald.
Viscountess Folkestone.
Johanna Sebus.
General MacArthur.
Grüss an Teplitz.
Princess Bonnie.
Mme. Maurice de Luze.
Lady Alice Stanley.

Delicacy of form and colouring are certainly attributes of the delightful Tea Roses, and I think we may add delicacy of scent to their many charms. It is as different in quality from that of an H.P. or Damask as one flower smell can well be from another—many have the refreshing aroma of ripe fruit, and others justify their name of "tea scented." Catherine Mermet and its sports, The Bride, Bridesmaid, and Muriel Grahame, are typical of the fruity smell, Innocence and Madame Cusin of the true tea scent.

Devoniensis,	Molly Sharman Crawford,
Socrates,	Souvenir de S. A. Prince,
Goubault,	Souvenir de Stella Gray,
Souvenir de Wm. Robinson,	Lady Roberts,

are all finely scented Tea Roses.

The *Noisettes* can boast among their number one of the most powerfully scented of all Roses, the glorious Maréchal Niel.

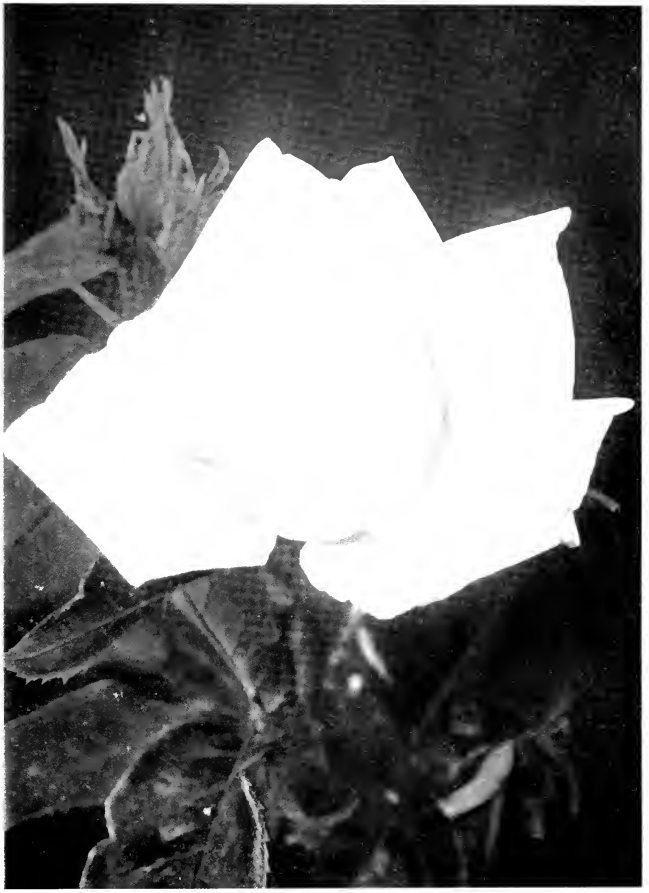
L'Ideal and Madame Alfred Carrière are well worth growing in any garden for their sweet scent, and he who has a greenhouse or a very sheltered south wall should plant Lamarque, and he will be rewarded with sheafs of soft creamy-white flowers which exhale a most delicate fragrance.

The *Bourbons* are rather out of fashion nowadays—they are apt to be somewhat coarse in shape. Unfortunately, one of the sweetest scented among these Roses, Madame Isaac Pereire, is quite indefensible as to contour. But a beautiful bunch of the hybrid Bourbon, Zéphirine Drouhin—shown, if my memory serves me right, by

PLATE VII

FRAU KARL DRUSCHKI (H.P.)

(Slightly reduced)



Messrs. Frank Cant & Co. some few years ago — has deservedly brought back to our gardens one of the most fragrant and charming of garden Roses in existence, one, too, which has the great merit of being able to set at naught the old proverb, "Every rose has its thorn." Neither the Chinas nor the Dwarf Polyanthas are specially fragrant as a class, though most of the Chinas have a pleasant smell, very much like that of the H.P. Duke of Edinburgh ; the old Common Pink and Charlotte Klemm belong to this class ; while Comtesse du Cayla, Madame Eugène Resal, and Laurette Messimy are strongly tea-scented.

We look to the Dwarf Polyanthas more for brilliance of colour and mass of bloom than for fineness of form or sweetness of scent ; but there are exceptions to this rule ; the tiny white Rose with the formidable title, Anna Maria de Montravel, manages to store quite a perceptible amount of fragrance in its miniature but shapely blossoms, as do Cecile Brunner and the curiously coloured, roughly shaped Léonie Lamesch ; while Eugénie Lamesch, as Mr. George Laing Paul pointed out to me, is scented like a violet, or to be still more precise, like a "Marie Louise" violet.

So far we have only considered the more or less perpetual flowering Roses. Among the bush and summer flowering classes we find some of the sweetest Roses. The Alba, Scotch, and Moss Roses are all more or less fragrant—Stanwell Perpetual Scotch Rose, delightfully so.

The Rugosas, some of which are true autumnals, are all richly endowed in the matter of fragrance—so much so that it is difficult to choose from among them, and any may

be safely planted where this quality is the first consideration. None is sweeter than Conrad F. Meyer, with its white sport Nova Zembla ; Rose à Perfum de l'Hay, Blanc Double de Coubert, and Delicata.

The surpassingly sweet scent of the old Damask and Provence Roses is well known, but perhaps the fragrance of some of the Rose species is not so familiar to all. Nitida, the charming little shrub with clear rose-coloured flowers and bright red stems and berries, is one of the sweetest ; Nuttalliana, which does not produce its pretty pink blossoms till late July or early August, is very fragrant ; the beautiful creamy Altiaca has a scent resembling the wild Rose ; while the resinous perfume of Alpina is very refreshing. But of all Roses known to me, Indica semperflorens has far the strongest aroma. It is so powerful and spicy as almost to induce a sneeze ! and it is difficult to get rid of the scent when it has once been inhaled.

I have left myself but little space to consider what claims the Rambling Roses have to rank among fragrant Roses. Most of the Multifloras are scentless. Laure Davoust is the only striking exception that occurs to me.

Though few of the Wichuraianas are as devoid of perfume as Crimson Rambler or Blush Rambler, yet many of the Dorothy Perkins' type are only slightly scented. Débutante, a pale pink, has a very sweet scent, and some of this class which have more Tea blood in them retain the fruity, refreshing fragrance found among the Teas. François Juranville, a delightful Rose in every respect, is very rich in this perfume ; and Gerbe Rose, as Dr. Williams has noticed, is almost as sweet as Augustine Guinoisseau. Alberic Barbier, Léontine Gervais, Réné André, Paul

Transon, and a few others of this class are decidedly fragrant.

There are, of course, hundreds of Roses not mentioned here which possess in a greater or less degree this wonderful attribute of fragrance. I have only mentioned those I know well, and with the single exception of Madame Isaac Pereire, they are all grown in our own garden. Should any beginner wishing to start a rosary chiefly for fragrant Roses consult this book, I hope he will not be disappointed in any of the varieties I have recommended. In conclusion, I would advise him to plant round his garden a dwarf hedge of Sweetbriar for the sake of its leaves "very greene and sweete in smell above the leaves of any other kind of Rose," and at a little distance from the Roses, to shelter them from the north and east, a tall hedge of Lord Penzance's Sweetbriars. He will then be delighted in spring, before even the earliest Roses are in bloom, with the most refreshing scent of the garden, that of Sweetbriar leaves after "soft showers."

CHAPTER XXV

ROSE SPECIES

THE number of species of the genus Rosa is considerable, and botanists have differed a good deal in the arrangement and classification. Sixteen species were known to Linnæus, and to these De Candolle added another, the Systylæ. Lindley in his Monograph in 1820 recognised 76 species, which he divided into 11 groups. Regel admitted 52 species, divided into 15 groups; Crépin made a somewhat complicated division of the species into 16 groups; and Baker, in a paper published in 1905 in the *Journal* of the Linnean Society, recognised 69 species, divided into 11 groups. This is the simplest and most satisfactory classification yet published, and I have followed it here. Although the species are so numerous, it is from comparatively few that our garden Roses have been derived.

The rambling and climbing Roses have practically all come from Roses of the Systylæ group, a group which includes *R. arvensis*, the common white Field Roses of our hedges, flowering a little later than *R. canina;* also *R. sempervirens*, the Evergreen Rose, from which we get Félicité Perpétue; *R. moschata*, the Musk Roses (*hyb.* the Garland), *R. multiflora* (*hyb.* Crimson Rambler), *R. Wichuraiana* (*hyb.* Dorothy Perkins), and *R. setigera*, the Prairie Rose (*hyb.* Reine Olga de Wurtemberg).

The Noisettes appear to be hybrids between *R. moschata* and *R. indica*. The bush Roses of our gardens are derived from two species only, *R. indica* and *R. gallica*. *R. gallica* includes among its derivatives *Provincialis centifolia* (the Cabbage Roses), *muscosa* (the Mosses), *Damascena* (the Damasks), the old *bifera* (gallica × moschata), and the Bourbons (gallica × indica).

The Teas—aristocrats of the garden—have the purest descent, being almost entirely derived from *R. indica*, and the Chinas have a like descent, while the H.P.'s seem to have come (it is almost entirely surmise) from *R. indica* crossed with various derivatives of *R. gallica*, the progeny being again crossed with *R. indica*. Then to get the H.T.'s the H.P.'s, already three-fourths *R. indica*, were again crossed with derivatives from that wonderful Rose. But in addition to our ordinary garden Roses, there are many species and hybrids of species very well worth growing by those who can find room for them. I will take them in Baker's order.

GROUP I.—The single-leafed Rose *R. berberidifolia* has given us a pretty little hybrid named *Berberidifolia Hardii*; it is a small Rose with yellow petals, each of which has a chocolate blotch at the base. In spite of its name it is rather tender, but might do well in the south of England.

GROUP II., Systylæ.—I have already referred to, but there are three hybrids of *R. moschata* I must mention.

1. *Brunonis* is a beautiful pure white cluster Rose, rather late in flowering, growing 8 or 9 feet high, not very hardy, best on a wall.

2. *Pissardii* has the advantage of being a perpetual flowering Rose; there is a rampant pink form and a white

variety, more free flowering, but less vigorous in growth; both make good pillars.

3. *Nivea*, a cross with *R. gallica*, is a strong grower, with white flowers.

R. setigera, which is a species of the same group, is hardy, and makes a big bush, with pretty single pink flowers.

GROUP III.—The Banksians, white and yellow, are well-known climbing Roses, but rather tender. They require practically no pruning, and if grown out of doors are best on a wall.

R. lævigata, in this group, has given us a beautiful hybrid in *Sinica Anemone*, with large, single pink flowers; it is an early Rose, flowering on a south wall soon after the middle of May.

GROUP IV., Bracteatæ.—Comprises *R. lucida* and *clynophylla*. *R. lucida plena* is a pretty little Rose, with double pink flowers. The pink has the least tinge of purple in it, which, like that of Madame Jules Grolez, is difficult to harmonise with other Roses.

GROUP V., Microphyllæ.—*R. microphylla* is a pretty little single Rose, with very curious buds and graceful foliage; it grows 2–3 feet high, and may be used on the rockery.

GROUP VI., Cinnamomeæ.—Contains a large number of species. *R. cinnamomea* itself has single pink flowers with a cinnamon scent, and long, twisted sepals projecting beyond the petals; its red stems in winter are attractive.

R. macrophylla has very large leaves and curious, flask-shaped hips. It has a stiff, upright habit of growth, and the sepals are toothed, and longer than the petals.

R. sericea is unique among Roses in having only four

petals arranged like a Maltese cross. The best garden forms have pure white flowers, though there appear to be varieties with pink and also with yellow tinged flowers. There are two forms, which differ chiefly in the thorns. These are strong and numerous in *S. tetrapetala*, slightly recurved, while in the variety *pteracantha* they are enormously dilated at the base, which is sometimes 1½ inch long. The young stems, with their red prickles, look very bright in winter sunshine. Both forms are worth growing. The foliage is very fern-like and beautiful, and the berries orange coloured.

The form of *R. beggeriana* in my possession has white flowers, with a curious, not altogether pleasing scent; it is a Rose for the shrubbery.

Fedschenkoana,[1] *Nutkana*, and *Fendleri* make good shrubbery Roses. *R. rugosa* I have already mentioned. *R. humilis* is a charming little single pink rose, with two flowering periods in the year. It might be useful for the rockery.

R. nitida and *R. foliolosa* are two of the best of the species. They are referred to in the chapter on Roses for Rock Work.

GROUP VII., Spinosissimæ.—Includes a large number of forms useful in the garden.

R. hemisphærica is a well-known double yellow rose, difficult to flower well. A garden form of this rose, Persian Yellow, is however worth growing for its deep yellow colouring.

R. *spinosissima* itself is the Burnet Rose; from this are derived the Scotch Roses, of which there are white, blush,

[1] A hybrid between Fedschenkoana and R. rugosa is a more beautiful garden Rose than either of its parents. It has white flowers, and is perpetual.

pink, and yellow forms growing 2–3 feet high, and very useful for low hedges.

Stanwell Perpetual is blush white, and has a second flowering.

Altaica (Lindley's *grandiflora*) is one of the most beautiful species; it has large single, cream-coloured flowers and handsome foliage. In a fine summer there is sometimes a sparse second flowering. It makes a good hedge about 4 feet high. The fruits are a dark purple. *Hispida* and *Xanthina* are good yellow varieties, also with good foliage and a similar habit to Altaica.

R. alpina is thornless; it grows about 5–6 feet high, and has blood-red flowers. There is a variety, *pendulina*, with even more decorative foliage, and a small form, *pyrenaica*, with a few thorns; useful for the rockery.

R. blanda may be planted in the open shrubbery; it is doubly useful for its red winter stems.

GROUP VIII., Gallicanæ.—This group includes the Cabbage Roses, the Mosses, and Damask Roses. The varieties of *R. gallica* are showy, and they furnished the exhibition Roses of the first half of last century. Turner's Crimson Damask and Lady Curzon are garden varieties belonging to this group.

GROUP IX., Caninæ.—*R. indica* belongs to this group, and our modern garden Roses are largely derived from it.

R. indica, "Miss Willmott," is an interesting, copper-coloured variety. There is a tall form known as Major; a variety of *R. indica semperflorens* sent me recently has the most powerful aromatic scent of any Rose known to me.

R. canina and its varieties are the Dog Roses of the hedges. *R. macrantha* is a garden variety supposed to be

a cross between *canina* and a variety of *gallica*. It is a most beautiful rose, with pale, flesh-coloured single flowers tinged somewhat deeper towards the edges, and bright yellow stamens. It is very useful for arranging on dinner tables or for other indoor decoration, for which purpose it should be picked as the flowers are just opening. *Andersoni*, with single pink flowers, is another useful garden seedling of *R. canina* and *R. arvensis*.

GROUP X., Villosæ, the Hairy Roses.—Many of these are natives of England, and common in the Lake District.

GROUP XI.—Rubiginosæ is the Sweetbriar group. Beside the Sweetbriars, it includes *R. seraphini*, a delightful little Corsican Rose, useful on the rockery, and *R. ferox*, the Hedgehog Rose, a low-growing, hardy little Rose, sometimes called The Bird's Nest from the dense tangle it makes.

CHAPTER XXVI

THE BRITISH ROSES

ROSE-LOVERS ought not to confine their interest in the Rose to their own or even their friends' gardens. There is the large garden of Nature open to them, and I feel that this small book would be incomplete without a chapter on our native British Roses. Of these wild Roses there are five main divisions :

1. Rosa arvensis.
2. ,, spinosissima.
3. ,, canina (Dog Rose).
4. Rosa villosa (Hairy Rose).
5. ,, rubiginosa (Sweet-briars).

1. *R. arvensis*, the late Wild Rose, the Field Rose.— This beautiful wild Rose opens about ten days later than the Dog Rose, and is the first most people learn to distinguish from the Dog Rose. The flowers have pure white petals, with yellow base and brilliant yellow stamens ; in some varieties the petals are a pale blush, and the Rose is easily distinguishable by the styles which, instead of forming a little pincushion like *canina*, are gummed together into a central column as long or longer than the stamens. When not in flower it is equally easy to distinguish, for the stems are very flexuous and trailing, never forming

[1] See Major Wolley-Dod's elaborate treatises published as supplements to the *Journal of Botany*, and obtainable separately (1) on *Eu-caninæ*, (2) on British Roses except *Eu-caninæ*.

strong arching shoots like *R. canina*. It is quite common in the hedges, and often forms dense bushes or thickets. The fruits are round and smooth.

2. *R. spinosissima*—the Burnet Rose—makes small bushes from a few inches to over 2 feet in height, according to the soil and locality. It has numerous, unequal and straight prickles, and from seven to eleven little leaflets packed closely together on each leaf, producing a graceful and fern-like effect. The flowers are solitary, and white or cream coloured, the styles collected together into a woolly head. The fruits are dark purple, nearly black when ripe. Very near relatives of this little Rose are the Scotch Roses and some of the single garden Roses like Altaica. There is a variety well known in botanic gardens called Rubella, with rose-coloured flowers and red fruits.

3. *R. canina*, the Dog Rose.—This is the common Rose of our hedges. The flowers last but two days, and generally appear in Hertfordshire (according to Mr. Mawley's careful observations) about the middle of June. There are numerous varieties; something like 150 have been described. They may be roughly divided into five sub-groups. (i.) In *Canina* proper or *Lutetiana* the leaves are quite hairless (glabrous), and the sepals are reflexed after the petals fall. (ii.) *Dumetorum* is similar, but has some hairs on the underside of the leaf, if only on the mid-rib. (iii.) *Glauca* (which, as Crépin pointed out, replaces *Lutetiana* in the north and hilly districts) is hairless, has rather shorter leaf-stalks, woolly styles in a flat head, and the sepals rise over the top of the bract after the petals fall. (iv.) *Coriifolia* is similar to *Glauca*, but more or less hairy under the leaf. (v.) *Tomentella* (or *Borreri*) have usually glands at least in

the secondary nerves of the underside of the leaf, well-developed sepals, strong hooked prickles, and roundish leaves with double teeth ; in fact they approach the Sweet-briars.

4. *R. villosa*—the Hairy Rose—is by no means uncommon in the hedges. The leaves are covered with hair or down on both upper and lower surfaces. The plants are usually short, 2 or 3 feet, and the prickles straight or nearly so, and the flowers a deep rose. This group includes *R. pomifera*, *R. mollis*, and *R. omissa*, which are often grown in gardens, especially the first. The difference between *Pomifera* and *Mollis* is small and, for garden purposes, negligible. *Pomifera* has rather larger leaves and fewer prickles. Both have shiny, brown bark stems, and the hairy covering gives a bluish look to the leaves. They flower at the beginning of summer, and the fruit, which is large and pulpy, ripens before that of *Omissa*.

The group of *R. tomentosa*, which also belongs to this species, is nearer *R. canina*, being taller, and with arching branches, and the prickles stout and bent, though perhaps not hooked.

5. *R. rubiginosa*, the Sweetbriar.—This section is distinguished by the sweet-scented glands with which, when looked at through a low-power microscope, the under surfaces of the leaves are densely covered, but they are never so densely and softly hairy on the upper leaf surface as in *R. villosa*. There are four groups—two dwarf, with unequal prickles, viz. *R. eglanteria*, with hairy leaf-stalks, and *R. elliptica*, with smooth ones, and two taller groups with equal prickles, viz. *micrantha* with hairy and *agrestis* with smooth leaf-stalks.

Besides these principal classes there are intermediate groups and varieties which are very numerous. Thus *R. stylosa* is a group of varieties intermediate between the first and third sections (*R. arvensis* and *R. canina*), some varieties approaching one, some the other species. It has dark, shining green leaves. The flowers are white, and the styles united as in *R. arvensis*, but the column is not so long, and the stems and branches are stronger and less pliant.

R. involuta and *R. Sabini* are intermediate between the second and fourth sections (*R. spinosissima* and *R. villosa*). The Irish Rose, *R. hibernica*, is intermediate between the second and third sections (*R. spinosissima* and *R. canina*), while intermediate forms between the second and fifth sections (*R. spinosissima* and *R. rubiginosa*) have been found in *R. biturigensis* and its varieties.

Those who are interested in the subject are advised in the first place to make themselves acquainted with the five typical sections of wild British Roses. In that task they will find little difficulty unless it be at first with *R. villosa*, and afterwards to take up the intermediate forms and subdivisions. They will find the study will well repay them in the interest it arouses.

CHAPTER XXVII

ROSES UNDER GLASS

THERE are three ways of growing Roses under glass :—

1. Roses in pots.
2. Roses on their own roots on shallow benches.
3. Roses permanently planted out.

The first is the method generally employed by, and most suitable for, amateurs with "a bit of glass."

The second and third require a house devoted to Roses alone. The second, *i.e.* growing on shallow benches, is the method commonly employed in America. The third method is not satisfactory for obtaining flowers in winter, but it yields a good supply of spring Roses.

1. **Roses in Pots.**[1]—I have called this the most suitable method for amateurs, because it does not necessarily involve a house devoted to Roses only. Where facilities exist, no doubt a house devoted exclusively to Roses has its advantages, but probably the majority of amateurs do not possess such a house, but have to do the best with the means at their disposal. I am amused and interested to find from Mr. Holland's paper in the *Rose Annual*, 1911,

[1] See an article by Mr. E. J. Holland in the *Rose Annual*, 1911, p. 159, and one by Mr. George Mount, *R. H. S. Journal*, 1902-3, vol. xxvii. p. 542.

that he and I both began growing Roses under glass in the same way, that is, we potted up our cripples. Finding I could do little good in the open ground with such Roses as Georges Schwartz and Etoile de France, I potted them up to get the flowers under glass I could not obtain outside. Doubtless many amateurs have done the same before us and will do so again.

The plants should either be obtained from nurserymen specially prepared for forcing, which is probably the best course, or if one's own plants are to be used, they should be lifted from the open ground and potted into 8-inch pots. The soil should have been prepared beforehand, by making a heap of turf in the spring, sifting a layer of manure between each layer of turf. At potting time the heap is broken down and chopped up, but not too finely, and mixed with a little sand and broken charcoal, just enough to keep the soil open, adding a little bone-meal and wood-ashes if available. The junction of the bud or Rose with the stock on which it is worked should just be covered with the soil, which must be made very firm and rammed hard with a stick or the handle of the trowel.

At the same time of the year any Roses that have been previously grown in pots should be looked over and the drainage removed and fresh crocks and clean pots substituted, adding a little coarse charcoal at the bottom of the pot. The top inch or so of soil should be removed and a rich top-dressing put in its place. Do not hesitate to discard any weakly and unsatisfactory plants.

If the plants are wanted to flower really early, say in January and February (the newly-potted plants will not be satisfactory; they must wait till next year), only

plants established in pots can be used. These are to be pruned and brought indoors in November.

Few amateurs will, however, want their Roses as early as this, and most will be content to begin pruning in December, bringing them indoors by the beginning of the new year. Another batch may be brought in a fortnight later, and a third at the beginning of February. I think it best to leave them outside for a short time after pruning, unless the weather is very severe. As regards pruning, it must be very severe, the plants being cut right down, leaving only two or three buds as if pruning for exhibition.

When the plants are brought indoors, they should not be forced, but allowed to start in a cool temperature. The plants should be syringed from time to time. Mr. Mount advises that this should cease when the leaves appear, but I think that most of us continue it till the buds begin to open. Mildew must be kept in check by painting the hot-water pipes with sulphur or with a mixture of lime and sulphur, but do not use too much. I paint about a yard occasionally, which is generally sufficient. A little weak liquid manure should be given from time to time to help the plants in their growth.

Treated in this way, a supply of Roses will be obtained from the middle of March onwards. After their first flowering, a second crop of flowers may be obtained from the Teas and H.T.'s about May.

Throughout their growing period watering should receive careful attention, and a rather moist atmosphere should be maintained. It is usual to find the plants

over-watered early in the year and under-watered later, when the foliage is vigorous and the sun powerful. These faults must be carefully guarded against.

After the flowering is over, the pots may be taken outside and plunged in a bed of coal ashes till the autumn. Watering must then be carefully attended to, and a little weak manure water given from time to time in order to build up good plants for next year.

The following is a good selection of Roses for culture in pots :—

Bridesmaid.	Mrs. A. R. Waddell.
Frau Karl Druschki.	Mrs. John Laing.
General Jacqueminot.	Mrs. W. J. Grant.
Killarney.	Pharisaer.
Lady Faire (Joseph Low).	Richmond.
Mme. Léon Pain.	The Bride.

2. **The American Method.**—It is claimed that this method is the most satisfactory for securing a supply of Roses throughout the winter. A span-roofed house, running north and south, is provided, and this is fitted with rows of benches running round the house and down the centre. The benches are made of 1¼-inch boards 6 inches deep, the bottoms being of 3-inch battens nailed ½ inch apart. The benches are conveniently about 2 feet 6 inches wide, and the top of the side benches should be 3 feet 9 inches below the roof. The plants are prepared by striking cuttings in a hotbed in February from

[1] An elaborate account of this method appeared in a paper by Miss A. Dorrance, entitled "Rose Forcing in America," in vol. xxvii. of the *R. H. S. Journal*, p. 459. A simpler and excellent account of the same method is given by Mr. C. R. Fielder in the *Rose Annual*, 1909, p. 136.

shoots that have just flowered. When rooted, they are potted into 5-inch pots and grown on till the end of May. They are then planted out on the benches in a compost previously prepared by stacking three parts of fibrous loam and one part of cow manure.

Two rows of Roses, 15 inches apart, are planted in each bench, and the soil made very firm. Watering must be done with judgment, and a night temperature of 55° maintained, all flowers being removed till six weeks before the time when flowers are wanted. No ventilation is given during winter. The Roses so grown may be grown on for two or three years, and then a fresh start made with new cuttings.

Roses suitable for this method are Liberty, Caroline Testout, The Bride, and Bridesmaid.

By this method Roses may be had from October to February, another short blooming season being obtained at the end of May.

3. **Roses Planted out under Glass.**—The span-roof is the best form of house, and the Roses are planted as early in the autumn as convenient.

At the beginning of January they are pruned, and the house kept close and damp to get them to start well. The first crop may be had towards the end of April or in May, the second in June, and a few flowers may be obtained in autumn.

CHAPTER XXVIII

DISEASES AND PESTS

WHETHER it arises from the length of time the Rose has been cultivated as a garden plant, or whether cultivation has developed its flowers at the expense of its constitution, by general consent the Rose is exposed to many foes.

Diseases take the form of several species of parasitic fungi, of which some eight or ten are more or less commonly found in gardens; while as for pests, innumerable insect foes find the Rose a favourite source of sustenance, to the annoyance of the rosarian, who is compelled to devote a large part of his time during the summer months to restricting or guarding against their rapacity. So soon as his spring pruning is over, nay, even during its course, he must begin the watch for the foe, and the watch must continue without cessation till the autumn frosts bring the Rose year to a close.

DISEASES

Rose Mildew (*Sphærotheca pannosa*).—This is the commonest of Rose diseases; it appears as a greasy mould, first on the leaves and later on the stems.

Every summer there are two phases of the attack. The first is early, and generally of a mild type, and so is often

overlooked, but it is important to check the disease at its first appearance in order to prevent serious trouble later on. The early attack is confined to the leaves, making its appearance when the leaves are fully grown. The more serious attack takes place towards the end of July and in August. First the leaves are affected and then the flower-stalks. In the autumn the disease extends to the stems of the plants as white cottony tufts which carry the winter spores.

It has been suggested that the disease might be checked in winter by soaking the stems and soil with Bordeaux Mixture, but I have been unable to find that the parts of the garden which have been so treated have proved any more free from the disease than those which were left untreated.

Mr. G. L. Paul tells me that he has noticed in France that those parts of the country which have no hedges are free from the disease, while in the parts where hedges abound the mildew appears as it does with us. In this country it is well known that plants in an open situation suffer less than those where the circulation of air is restricted. It is virtually impossible to treat with copper solution all the trees and foliage in the garden, and if these harbour the mildew spores during winter, merely destroying those on the Roses themselves is insufficient, and scarcely worth the time involved.

The old-fashioned remedy for mildew was to powder the leaves with flowers of sulphur, and this is still recommended by the Germans, who think it has the incidental advantage of improving the character of the flowers. There is no doubt that under glass sulphur is the most convenient treatment, and by making a mixture of lime and sulphur,

either painted on a part of the hot-water pipes or placed on a board over them, a slight vapour of sulphur is formed which is usually sufficient to keep mildew in check. But out of doors in this country I think that flowers of sulphur are only really effectual during hot weather, and that, under normal conditions, spraying is by far the best means of combating the disease.

It must be remembered that spraying does not cure the disease, but merely prevents it spreading; it is therefore important to begin early and continue systematically spraying the plants, if possible, once a week, or at least once a fortnight. The time to begin is as soon as the leaves have fully unfolded, before any mildew is seen, and if this is done and carefully followed up, it is effectual.

As to the fungicide to be used in the spray, there are several on the market all fairly effectual. In my own garden I use either White's Abol, which I find less trouble than any other, or Cyllin soft soap, 1 ounce to the gallon of water, adding an extra teaspoonful of Cyllin itself to each gallon. This is a little cheaper than Abol, but rather more trouble to make up. The best plan is to heat 1 pound of Cyllin soft soap in ½ gallon (4 pints) of water in an old saucepan, adding to this 2½ ounces of pure Cyllin and storing it for use, taking for the spray 5 ounces of the sticky liquid so formed to the gallon of water.

Sulphide of potash is also a potent fungicide used early in the season at the rate of 1 ounce to 10 gallons of water, and later at double this strength.

Other useful preparations for the purpose are Wright's Moeffic and Cooper's V 2 K fluid.

Roses vary much in their susceptibility to mildew. As a class, the Teas, the Chinas, and the Wichuraianas are generally free from the trouble.

The following is a short list of Roses which are, so far as my experience goes, commonly liable to attack, and therefore require special and continuous watchfulness to prevent an outbreak. The list is not exhaustive, and is confined to good Roses which are worth growing, notwithstanding their liability to mildew.

Decidedly subject to Mildew

Aenchen Müller.	Lady Curzon.
Conrad F. Meyer.	Leuchtstern.
Crimson Rambler.	Mme. Gabriel Luizet.
Her Majesty.	Marquise de Salisbury.
Killarney.	Mrs. O. G. Orpen.

Rather subject to Mildew

Frau Karl Druschki.	Mrs. Cutbush.
Grand Duc A. de Luxembourg.	Mrs. John Laing.
Lady Ashtown.	Mrs. R. G. Sharman Crawford.
Mme. Jules Grolez.	Viscountess Folkestone.

And for their respective classes which are generally free

Dorothy Perkins.	Mme. Cusin.

False Rose Mildew (*Peronospora sparsa*).—This, sometimes called Black Mildew, is fortunately rare, for it is a very fatal disease, particularly to young stock. When an attack occurs, young and vigorous leaves suddenly begin to droop and fall in showers if the branch is shaken. The

shoots become limp and die back. The fungus will be found on the leaves in irregular discoloured patches of a browny-yellow colour, and sometimes on the back of the leaf there will be a slight whitish-coloured down. Under glass, vaporising with sulphur has proved effectual to get rid of the disease, so probably out of doors spraying with sulphide of potash would be the best remedy. Dr. Lambert advises Bordeaux Mixture.

Rose Rust, or Orange Fungus (*Phragmidium subcorticatum*).—This is a widespread disease, but it is seldom troublesome until late summer or autumn.

It makes its appearance in the form of deep, orange-coloured, powdery patches, as a rule first on the stems and later on the leaves, the latter being sometimes covered with them.

In the autumn the winter spores are produced which, instead of being orange-coloured, appear as small black points scattered over the under surface of the leaves. These contain the winter or resting spores, which, in the following spring, if they encounter a suitable medium, infect the young wood and give rise to the fungus, which in turn produces in due time the orange-coloured spores of summer. The disease is particularly common on Wild Roses, which are often a cause of infection, seedling Briars generally being the first plants in the garden to be attacked by the disease.

It seems next to impossible to stamp out this fungus on Briars, but on garden Roses the amateur should endeavour to get rid of it as far as possible, or at least to keep it in check, for leaves which are badly infected soon fall, and the plant is thus enfeebled in its constitution.

As preventive measures, wherever a bad attack has occurred, the fallen leaves which are infected should be carefully collected and burnt, and in the following spring spraying should be commenced early and followed up, as is advised in the case of mildew. Besides this, as soon as the first patches of orange fungus appear on the stems in early summer they should be sought for, and if they are found on a part that can be readily removed, they should be cut off and burnt; but if, as often happens, they occur on a part which cannot be removed without unduly sacrificing the plant and its young growth, the part affected should be rubbed over with a tuft of cotton-wool dipped in methylated spirit, or in cupram, which latter I prefer.

The Roses most liable to infection from the disease (apart from Briars) are the H.P.'s, especially those of the Victor Verdier race, and some of the H.T.'s, the Teas as a class being little subject to it. When a bed of H.P.'s has been badly infected, the whole bed may be found in early September almost denuded of leaves except for tufts of the young foliage at the top of the shoots.

Black Spot (*Actinonema rosæ*).—Black spot, like orange fungus, seldom appears till after midsummer. It is found as black or brownish spots on the surface of the leaves, which afterwards fall off, if the attack is a serious one, in large numbers. In this respect it seems even worse than orange fungus.

The fungus in the infected leaves produces spores which carry the disease to neighbouring plants, and in a large garden it is sometimes possible from the condition of the Roses to trace approximately the origin of the infection. Wet summers seem to favour the spread of black spot,

PLATE VIII

JULIET (HYBRID BRIAR)

The plant is a strong grower, and should make a good hedge.
The flower is fragrant.

which is very difficult to check. Spraying is at present the only remedy beyond the careful collection and destruction of infected leaves. Mr. Massee advises spraying with potassium permanganate;[1] the crystals are to be dissolved in water and diluted to a pale red colour. Few Roses seem to escape this disease. I have had Sweetbriars badly attacked. Maman Cochet and its sports seem rather liable to it, and the Roses recently raised by M. Pernet Ducher from Soleil d'Or parentage have proved in my garden very susceptible.

Rose Leaf Scorch (*Septoria rosæ*).—This disease is confined to the leaves, and appears first as yellowish patches scattered, changing to brown, and often surrounded by a dark line. At this stage it is not unlike an early attack of black spot. Later the brown patches fall out, carrying with them the spores which reproduce the disease. This disease also causes the infected leaves to fall early, even by the middle of July. I have succeeded in checking its spread by spraying with potassium sulphide, using it as strong as I dared, ¼ and sometimes ½ ounce to the gallon, but to be successful the treatment must begin when the disease first appears.

Parasitic Rose Canker (*Coniothyrium Fuckelii*).—This is a new and dangerous disease of Roses. It is generally first noticed at pruning time, two-year or older wood being found with cankered and swollen patches, the bark, especially if it be near the ground, being often split, and sometimes cracked right off; lines of the fungus running up the stem may generally be seen above the part attached. From the frequency with which this disease is found near pruning

[1] About five grains of permanganate to a gallon of water.

cuts, I infer that the plant is infected by the spores finding entrance where the bark has been injured.

It appears that the fungus first attacks the year-old wood in the form of elongated red or, as I have generally noticed them, brownish-yellow patches. In the following winter the infected parts are cracked by frost, and the plant tries to heal this injury by the formation of callus, which perhaps cracks again, hence the cankerous appearance.

The remedy is at pruning time to cut off and burn all affected parts, and to paint any pruning cuts or injuries to the bark, and later in the year to cover the red or browny-yellow patches with Stockholm tar, mixed with creosote or, perhaps better, with Cyllin.

The disease seems to have been first noticed in Germany in 1890, but the cause of it was not discovered till fourteen years later. In my own garden I first saw it after the April snows and frost of 1908. There is a very elaborate account of this disease in the *R.H.S. Journal* (1908), vol. xxxiv. p. 229, by Dr. Güssow.

Rose Root Fungus (*Rœsleria hypogœa*).—I have had a certain amount of trouble with this fungus, which attacks the roots of old standards. The shoots are seen to be unhealthy and droop and die back, and on examining the root of the stock below ground it is found to be covered with a white fungus. What seems to happen is that part of the woody stock or root of the standard dies and gets infected with the fungus, which afterwards affects the living part of the plant.

The only remedy I know is to pull up the tree and burn it before the trouble spreads to other plants. Down

to the present I have not found it on dwarf plants. Mr. Massee recommends treating the ground with lime. This disease appears to be identical with that described by Dr. Lambert as "La France disease," but I have not seen it on that variety.

Botrytis.—Dr. Lambert describes two diseases caused by the Botrytis fungus, of which I have no personal experience on Roses. The first appears as a black spot at the base of the flower-stalk when fairly developed, increasing in size and causing the stalk to wither and die. He suggests the disease may be influenced by conditions of weather and soil, which latter should be treated with lime.

The second, *Botrytis cinerea*, is fairly well known as attacking various plants, and seems only capable of attacking living tissue when the cells are distended with excess of moisture. The symptoms of the disease are similar to the first, except that they appear in wet weather, and the flower bud becomes covered with a greyish mould.

Sooty Mould (*Fumago*).—This is not a Rose disease, though it sometimes gives trouble on Roses. Where there has been a bad attack of greenfly and the pest has covered the leaves with honey dew, this fungus grows on the honey dew, and is not altogether easy to remove. The means of prevention is to destroy the greenfly, but if the fungus is established, wash the leaves with Cyllin soft soap. I have only found it really troublesome under glass.

Canker.—This is not a fungus disease. It is practically confined to budded or grafted Roses, and occurs as a swelling of the stem, either just below, or more often just above, the junction of stock and scion. This leads to a diseased condition, and ultimately the tissues may be ruptured and

disease result. Maréchal Niel is the greatest offender in this respect, so much so indeed that I have seen slight cankerous swellings just above the junction of year-old wood with that of a year previous. Other Roses, however, produce it occasionally. I have seen it, though rarely, on some of the strong-growing Teas and Crimson Rambler. When the disease is established I know of no cure.

PESTS

These are, in a sense, less dangerous than the fungous diseases, for in most cases the injury they do is only local, and it is only a question of care and attention to prevent them from causing harm. They are, however, sufficiently troublesome.

Greenfly or Aphis (*Siphonophora*).—Every one knows these objectionable pests. In spring the eggs that have been laid on the stems and buds of the Roses hatch and produce wingless females. These mature and produce asexually others of their kind, which repeat the process at a great rate, till the whole plant may be covered. They stick their beaks into the leaves and soft stems of the Rose and suck the sap. In addition to the harm they do in this way, they produce "honey dew," a sticky substance, which covers the leaves and stops the pores, in which "sooty mould" may, perhaps, develop.

Towards autumn, instead of wingless females, males and winged females are produced. These winged females are fertilised by the males, and may fly off to other trees or to other plants, and lay their eggs, tiny spindle-shaped, shiny black things, which remain on the stems and axils of

the Roses. Occasionally winged forms are found in the spring. Greenfly is easily kept in check by spraying with Abol or Cyllin soft soap (see p. 161). A spray containing soft soap and quassia is also very good, or the pest may be destroyed by the finger and thumb. The great point is to destroy them the moment they appear, before they have a chance of increasing.

Ladybirds, Ichneumon flies, Horse-flies, and Lace-wing flies all prey on the greenfly.

Scale Insects (*Coccidæ*) are seldom troublesome out of doors, though sometimes a bad attack occurs specially on climbers out of reach. Under glass they are more common. The best treatment is probably washing with soft soap and quassia or Cyllin soft soap.

Frog-hoppers and Cuckoo Spit (*Philænus spumarius*). —The frothy substance, called Cuckoo Spit, which is found on the flower-stalks and axils of the leaves, in May and June conceals a yellowish insect, which bites into the buds and bark and sucks the sap. It is also found on the hawthorn and other plants. In July and August the insect develops into the frog-hopper, which also sucks the sap. It is well known for its jumping powers. There are several varieties, varying in colour from yellow to dark brown. Spraying is the best remedy, but hand-picking may be resorted to if there are not many present.

Beetles (*Coleoptera*).—The larvæ of certain beetles live in the ground and eat the roots of Roses, sometimes killing them. They are mostly white grubs with brown or blackish heads. The cockchafer grubs live three years in the soil before pupating, the summer chafer two years, and the garden chafer and rose beetle one year only. The remedy

is either to search for the grubs and kill them, or trap them under pieces of turf, or else to inject carbon bisulphide into the soil. Mons. Vermorel has introduced an injector suitable for the purpose. The well-known beautiful rose beetle also does damage to the flowers, eating the anthers and petals.

Weevil (*Otiorhynchus*).—This little creature is sometimes a nuisance to those who bud their own Roses. It is a little brown beetle which feeds by night, and will eat the dormant buds. Raffia or "Bass" is no protection however carefully it is tied, and if the buds are found to be attacked, either the beetles must be sought for and destroyed at night, spreading a white cloth under the tree to catch the beetles as they fall, or the buds must be protected with grafting wax. The weevils lay their eggs in the soil, and these produce larvæ which are white with brown heads, and feed on all kinds of roots. Vaporite is said to destroy them.

Lepidoptera—Moths (*Heterocera*).—The caterpillars of several moths cause endless trouble to the rosarian. There is no real cure but searching for them and destroying them before they do much damage. But I am by no means certain that the voracious caterpillar may not be a blessing in disguise, the constant quest and minute attention involved causing us to note many things in the habit and growth of our Roses that might otherwise escape notice.

The caterpillars of the winter moth (*Cheimatobia brumata*) are the first to appear, and almost the worst. They hatch out at the beginning of April, or even earlier, and are then so small as to escape notice. At first a dark grey colour, they afterwards become green with paler stripes. They spin the Rose leaves together and eat into the flower

buds. They become fully grown in June, fall to the ground and pupate. There they remain till October, when they begin to hatch out, a process which continues till the new year. The males have wings, but the females are wingless, and when hatched crawl up the stems of Roses and fruit-trees. On the latter they are often caught by means of grease bands. I have never seen this preventive method tried on Roses, but it might be of use for standards. They not only infest Roses, but orchard and forest trees, so there is no hope of exterminating them. Constant vigilance is the only protection.

Next come the Rose maggots, nasty fat grubs, green, yellow, red, and brown, belonging to various species of tortrices which are all small moths. They eat into the buds. Hand-picking is generally the remedy, but sprayings with nicotine wash may be tried.

Then come the caterpillars of other moths, the quaint brown one of the mottled umber moth, and the fat green one of the beautiful yellow tail moth being generally most in evidence, but there are in my collection of injurious moths some six or eight others. I need give no special directions—they are all ravenous caterpillars.

The following is a list of the moths whose larvæ commonly attack Roses :—

NAME.	TIME OF FINDING CATERPILLAR.
Brown Tail Moth (*Euproctus chrysorrhœa*)	May–August.
Buff Tip Moth (*Pygæra bacephala*) .	Late summer and autumn.
Dagger Moth (*Acronycta psi*) . .	August–October.
Gold Tail Moth (Yellow Tail) (*Porthesia auriflua*)	Autumn and spring.

NAME.	TIME OF FINDING CATERPILLAR.
Mottled Umber Moth (*Hybernia defoliaria*)	May–June.
Pale Tussock Moth (*Dasychira pudebunda*) . . . . . Found in clusters when young.	August–October.
Tortrices (several varieties) . .	May–June.
Vapourer Moth (*Orgyia antiqua*) . Eggs laid in the cocoon from which the female has emerged.	May (?)–August.
Winter Moth (*Cheimatobia brumata*) .	April–June.

The Sawflies (*Hymenoptera*).—Of the numerous insect enemies of the Rose there is none more varied in its form of attack or more difficult to deal with effectually than the sawflies. The perfect insects are quite small, the largest scarcely attain the size of an ordinary house-fly, and many are a good deal smaller. The larvæ of several kinds prey upon Roses, and I can only mention the most distinct.

The Leaf-rolling Sawfly (*Blenocampa pusilla*).—This is one of the worst, and in the last few years has become a great nuisance. It seems specially partial to climbing Roses, but does not confine itself to them, no Rose being safe from attack.

When an attack occurs, the leaves are found rolled inwards on the midrib from both sides; they are seriously injured, and ultimately die. Many who do not know the sawfly and its ways are much puzzled by this, for one may often unroll a dozen or more leaves before finding the little green larvæ inside.

If, however, the edges of the leaves are carefully examined

with a glass, the white egg of the sawfly may often be found glued to the edge of the leaf which has been curled inwards. Even with a microscope, however, it is often difficult to find either egg or larva. But if the curled leaves are collected and put into a tin, dozens of sawflies will hatch out at the beginning of September. The books say the curling of the leaf is done by the larva, but from so often finding the egg on the edge of the rolled leaf, I think this is not so; what happens is that the female lays its eggs on the edge and then saws the leaf to make the edge curl inwards and protect the egg.

The attack generally begins in the latter half of May and continues through June. In September the flies hatch out, and I think there must be another generation before the autumn, but what they live on I have not discovered. A writer in the *Journal des Roses* says sawflies are fond of parsley. However this may be, I notice the attack is usually confined to particular parts of the garden, from which I infer they do not travel far. The only remedy I have tried is picking off and burning the leaves. Spraying of course is useless, but possibly removing and burning the top soil in early spring might be effectual.

The Rose-shoot-boring Sawfly (*Pœclosoma candidatum*). —This is a most exasperating insect. The female lays her eggs in the tips of the shoots, generally selecting the tallest and best. The grub hatching from the egg immediately proceeds to bore its way down the pith. I have never been able to catch the grub before the harm is done. The first indication is a speck or two of blackish dust at the top of the shoot, later the leaves flag, and the marauder will be found as a fat white maggot 1 or even 2 inches down

the centre of the shoot. There is no remedy—the flower is gone—but you may take revenge, and so help to prevent the increase of the race. The grubs are found in June and early July.

Another sawfly whose larvæ lives inside the branches of the Rose is known as *Cephus phtisicus*. The grub is white, with a horny, strongly built head.

The Rose Emphytus (*Emphytus cinctus*).—The larvæ of this sawfly are in my garden almost as troublesome as those of the winter moth. They appear later than these latter, and are active little green caterpillars with black heads.

Mr. Massee and Dr. Schwartz both state that these are the same sawflies whose larvæ eat into the pith of the mature wood and are found at pruning time, having eaten down the pith of the wood which they enter at a pruning cut. They are usually found comfortably ensconced from 1 to 2 inches down the stem, but I have found them as far down as 6 inches or more, and they have an ingenious habit of replacing the pith behind them. Two kinds are found in the spring in this way; one is white and rather small, the other a dark green, and larger. If these are the same sawfly as the Rose Emphytus, then there must, I think, be two generations in the year, for if the Emphytus larvæ be collected and fed in captivity, they will pupate and hatch out sawflies in the course of the summer.

I notice the chrysalides produced in the summer by these Emphytus larvæ are of two kinds, one a shiny black, and the other a light chestnut-brown colour. Possibly these in the second generation become the white and the dark green larvæ respectively found in the pith of the mature wood at pruning time. Cameron mentions at least four varieties of

Emphytus which prey on the Rose. *E. rugocinctus* does not enter the pith, but pupates in the ground. As some protection against these larvæ in their wood-boring stage when I find them numerous, after pruning I smear the cut surface with ordinary white lead paint, and this seems effectual, as I have seldom found them to enter a shoot that has been painted. I hope the painting may also to some extent help to check infection from the Coniothyrium fungus.

There is another curious sawfly (*Pamphilius inanitus*) whose larvæ, aided by the incisions in the leaf made by the female parent when laying her eggs, makes for himself a little house out of the rolled down leaves of the Rose. When he wishes to move, he does so by means of his fore-legs, leaving his tail end in the house, which he thus takes with him. The larvæ feeds on the Rose leaves, and is sometimes very destructive, but lives chiefly on Wild Roses. This sawfly is said to be fairly common, but on garden Roses I have only found it on Reine Olga de Wurtemberg. The larvæ are found in June and July; they pupate in the earth, and the flies appear in May.

The Rose Slugworm (*Eriocampa rosæ*).—The larvæ of this sawfly, unlike the Emphytus, which eats the whole leaf, only consume the upper surface, or sometimes the under surface only. Whichever way it works, it destroys the leaf. It is yellowish-green with an orange-coloured head; and two broods are produced in the year, one in June, the other in August or later. It is killed by spraying with nicotine, and either killed or checked by Abol and Cyllin.

Rhodites.—Another group of sawflies, the Rhodites, causes the well-known galls common chiefly on Briar Roses,

but occasionally found on garden Roses. There are three distinct types. The formation of the gall seems to be caused in part by the sawfly laying its eggs in the cambium layer, forming a protection for the egg until it hatches, and in part by the action of the larvæ when hatched.

Rhodites rosæ forms the well known and often very beautiful pincushion galls or "bedeguars" on the Dog Rose. They are said to originate from three leaflets, and the process of oviposition by the female sawfly is long and laborious.

Rhodites eglanteriæ produces a very different gall. This is pea-shaped, about ½ inch in diameter, smooth and green, or with reddish cheeks. It is found either on the upper or under side of the leaf, or sometimes on the leaf-stalk. The galls are readily detached, and when ripe they fall to the ground and the insect emerges in the following spring. Common on the Wild Rose, it has also been found on the Sweetbriar and the Moss Rose.

Rhodites spinosissimæ also produces roundish galls, which may be green or dull or bright red. They usually have more than one cell, and differ from the last named in always forming part of the plant. They are also rather less regular. They are said only to be found on the Burnet Rose.

Rhodites nervosus forms a gall attached by a narrow point to the underside of the leaf vein, and bearing four or five pointed spines.

These gall-making flies seldom do any great damage in the garden, but should they occur in sufficient numbers they might become a nuisance. The remedy would then be to pick off the galls and burn them.

Thrips (*Thysanoptera* or *Physopoda*) are chiefly harmful

under glass, but in dry summers they will occasionally be troublesome to the exhibitor, spoiling the petals of his Roses, especially Teas. The remedy is copious syringing, but this is as bad as the pest. Thrips are very small black and winged insects. Before 1911, during which year thrips were very numerous and did much damage to Rose blossoms, I only remember one year in which my Roses were seriously affected by this pest.

Red Spider (*Tetranychus telarius*) is only found under glass. The remedy is found in copious syringings with water.

CHAPTER XXIX

CALENDAR OF OPERATIONS FOR EACH MONTH IN THE YEAR

IN the days of Dean Hole it was thought that the month of September gave the rosarian little to do, and even Foster-Melliar held that the hard-worked rosarian might take his holiday in September. I can give him no hope nowadays of a cessation of work in the Rose garden even in that month. There is, in fact, ample work to occupy his time and attention during the whole year, and his holiday he must snatch when he can or when his business will allow him.

October.—The preparation of new Rose beds which should have been commenced in September ought to be completed by the middle of this month, except those intended for the reception of stocks for budding.

The ordering of new Roses from the nurserymen should be taken in hand and completed during the first week. If it has been done earlier, so much the better. Attend to the removal of leaves as they fall from all plants affected by fungous diseases.

The end of the month is the best time for taking cuttings of Roses in the open, especially of Ramblers and Wichuraiana Roses. Make Briar cuttings for stocks. Prepare a good heap of mixed manure for dressing the beds in spring. Do not *use* this in autumn.

November.—The last week in October and the first half of November is the best time for planting and transplanting Roses. Be careful to remove all foliage before planting. A partial clearing up of the wild growth on budded stocks may be made, leaving the branches where buds have taken. Fresh standard stocks may be got in and planted. Proceed with the pruning of Ramblers and Wichuraianas when time allows. Carefully collect and burn fallen leaves from diseased plants.

Pot up Roses intended to be grown under glass. These must not be forced early. Towards the end of the month bring indoors the first batch of Roses established in pots.

December.—Planting should be finished by the first week of this month. Towards Christmas begin earthing up the Teas, Chinas, and other tender Roses. The time for this will depend on the weather and the ripeness of the wood. It is little use earthing-up sappy shoots. See that the surface of the beds is "turned up rough."

January.—With the commencement of the new year bring in the main batch of Roses in pots. The sides of beds in the neighbourhood of big trees may be searched for invading roots. See to staking and tying. By the end of this month the pruning and training of rambling and Wichuraiana Roses should be completed. Prepare beds for planting Dwarf Briar stocks.

February.—Examine the heap of manure, and give it a turn over if it has not nicely mellowed. Take advantage of open weather to get the dwarf stocks planted that are to be budded in the summer. Head down dwarf stocks that have been budded, and shorten the budded standards to two eyes beyond the buds. Examine cuttings, and push

back and make firm those lifted by the frost. If Tonk or artificial manure is to be given, apply it about the middle of the month, at which time the digging in of a dressing of manure from the heap may be begun.

Prune Rugosa Roses, and at the end of the month the H.P.'s. Train Roses on walls. The last batch of Roses in pots may be brought indoors this month.

March.—This is the month for pruning. First finish the H.P.'s, then go on with the H.T.'s and Chinas. At the end of the month remove the earth from Tea Roses. Try to get the manuring finished. Remove the surface earth round standards, and cut off incipient suckers. Get the stakes put in position for the maiden plants. Indoors paint a little lime and sulphur wash over the pipes to check mildew.

April.—Prune the Tea Roses, and try to get the pruning finished soon after the middle of the month. Begin the summer hoeing. A "buco" is a good tool for a start. Watch for caterpillars, rose grubs, and greenfly, also for suckers. Tie maidens as they start growth.

May.—This is the month of pests. Watch for them ceaselessly. Begin syringing with Abol or Cyllin by the second week. Continue tying maiden growths, and shorten the growth from wild eyes left beyond the buds on standards as soon as the shoots are well away. Begin to apply liquid manure, especially after rain. If artificial manure is used, a dressing may be given in the middle of the month. Rub out eyes of Teas where too crowded. Hoe continually. Harden off plants in pots that have flowered.

June.—Continue (i.) watching for pests, (ii.) syringing,

(iii.) hoeing, (iv.) applying liquid manure at intervals, (v.) tying up maiden growths. Thin out superfluous buds. By the beginning of the month Roses will begin to come into flower. Note the time of flowering of different varieties, also the time the buds take to expand. The Rose Shows begin in the South the last week of this month. Have your shades ready at hand when wanted, also your boxes if you exhibit. Pot Roses should be plunged in coal ashes out of doors.

July.—The first half of this month is the time of Rose Shows. Note down in writing your experience of different varieties in your garden. Cut all flowers as soon as they fade. Some recommend another top dressing of manure as soon as the first bloom is over, others a summer mulch. If either is employed, this is the time to apply it. I hold both to be unnecessary and undesirable. Continue syringing and hoeing. Watch for mildew, rust, and black spot. Remove and burn all leaves affected by the two last-named diseases. Begin budding as soon as the Shows are over. Bud standard stocks first, because the sap ceases to run with them earlier than with dwarf stocks. Give liquid manure to Roses in pots.

August.—Finish budding this month. At the end of the month look over budded stocks and re-bud those that have failed to take. Continue to syringe, hoe, and watch for pests and fungous diseases. Collect and burn diseased leaves. During this month the work of pruning rambling Roses may be begun. Begin with those early flowering varieties that do not flower a second time in the season.

September.—Continue to hoe and watch for pests and diseases. Collect and burn leaves affected with fungus.

Continue to prune Ramblers, Wichuraianas, and Pillar Roses. Tidy up and tie in Roses grown on walls and as hedges. Budding may often be practised until the middle of the month or later, but it is risky, and only worth doing where a bud has failed. Towards the end of the month a little protection improvised for the China Roses and their near allies will be well repaid. Complete your plans for the "Autumn Manœuvres." Then begin again.

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