

THE PRACTICAL BOOK
OF OUTDOOR
ROSE GROWING



GEORGE, C. THOMAS, JR.



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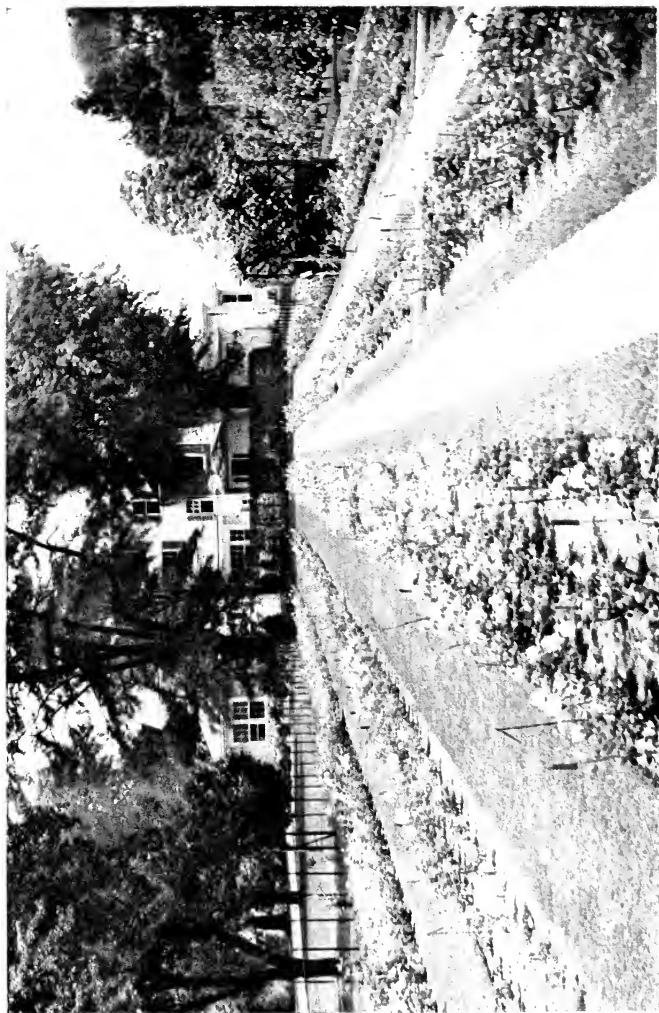
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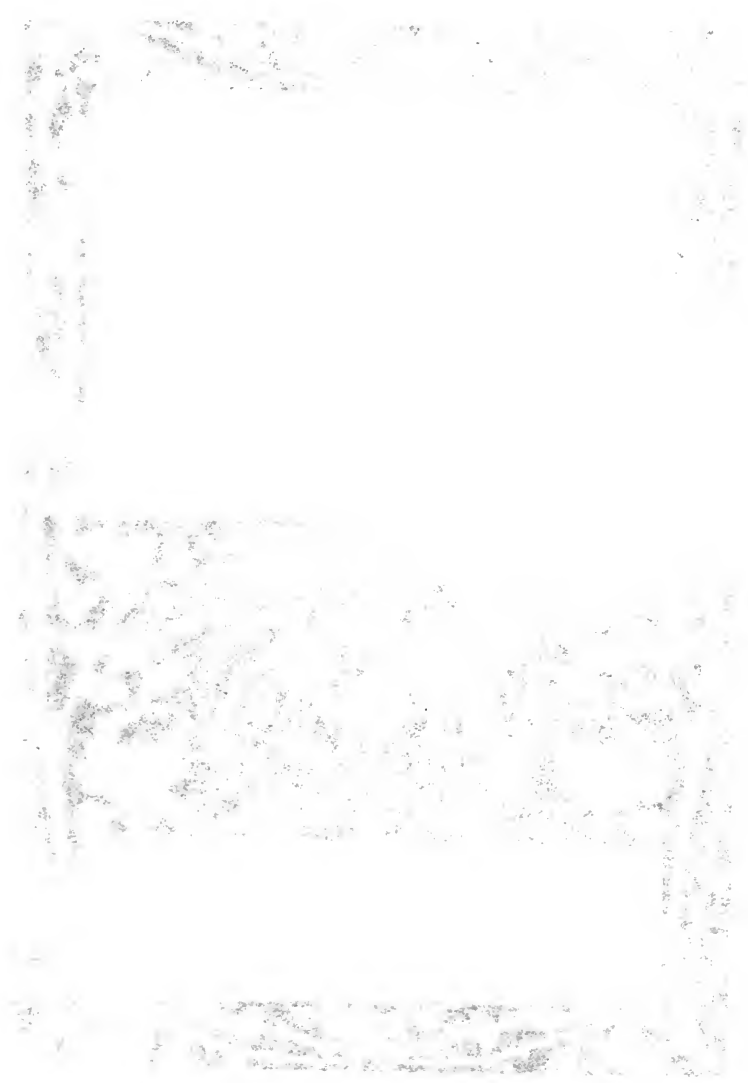
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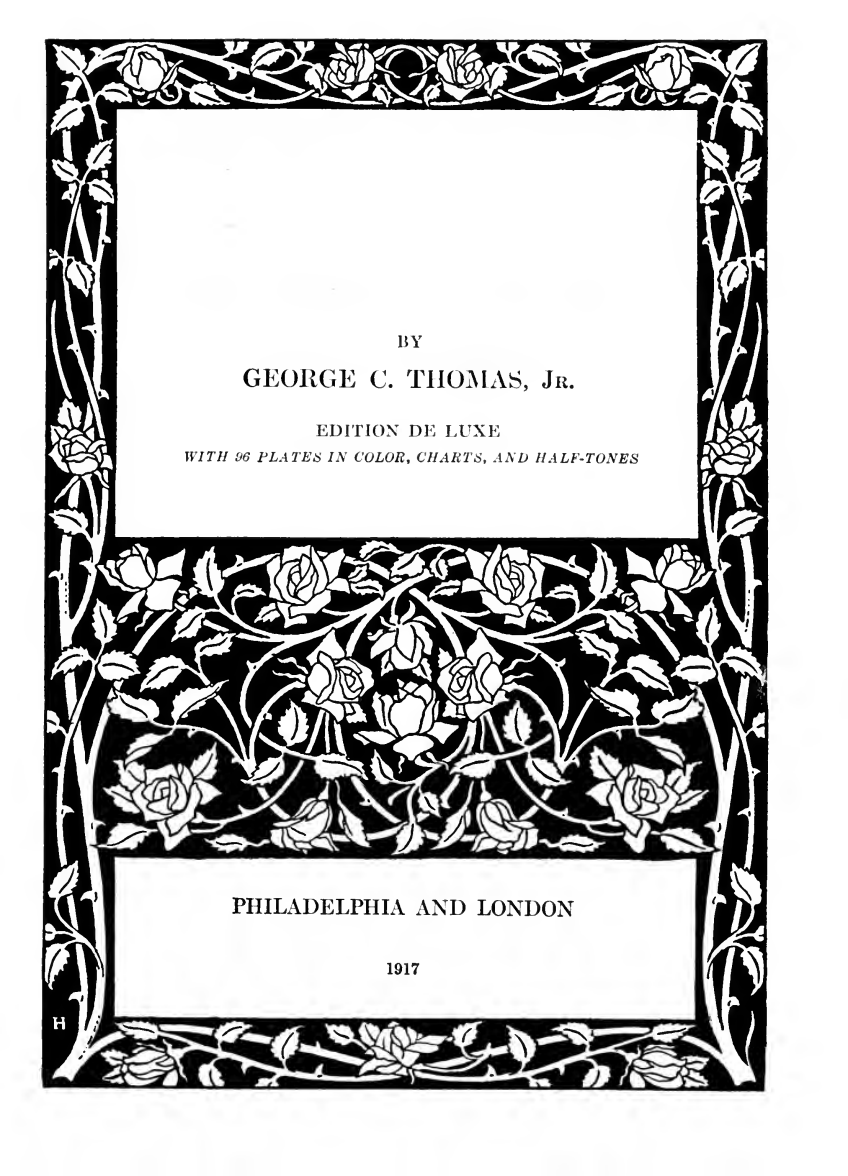
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TESTING BEDS
(Note Climbing Rose Ards Rover at right)

A decorative border of roses and leaves surrounds the text. The roses are in various stages of bloom, and the leaves are detailed with veins. The border is black on a white background.

BY
GEORGE C. THOMAS, JR.

EDITION DE LUXE
WITH 96 PLATES IN COLOR, CHARTS, AND HALF-TONES

PHILADELPHIA AND LONDON

1917

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THIS BOOK IS AFFECTIONATELY
DEDICATED TO
DR. ROBERT HUEY
WHO GAVE ME MY FIRST INSPIRATION IN
ROSE GROWING

145246

FOREWORD

THE first three editions of this book have proved the original contention that there is need for a practical book on roses for our American climate. Since the first edition of December, 1914, changes were made as needed, and new editions embodying them published during April, 1915, and January, 1916. The tests during the past summer have necessitated a complete revisal of the lists of best varieties both in the dwarf and climbing sections, in addition to which, there were so many new points of improvement in cultivation that it was imperative to rewrite almost the entire book.

In bringing out this edition thanks should be tendered to Messrs. Williams, Brown and Earle and to Hess Ives Corporation, both of Philadelphia, for the color work and half-tones, and also to A. N. Pierson, Incorporated, of Cromwell, Connecticut, for the use of a number of photographs. Acknowledgment is made to Henry A. Dreer, Incorporated, and the Andorra Nurseries, of Philadelphia, for their aid in securing and importing new varieties; also to George H. Peterson, of Fair Lawn, New Jersey, and Bobbink & Atkins, of Rutherford, New Jersey, both of whom have shown the greatest interest, and who have done

FOREWORD

everything possible to give information on varieties tested by them.

So many persons, both amateur and professional, have rendered great help by their courtesy and records that it would take too much space to mention all, but chief among these was Dr. Robert Huey, Philadelphia; Jesse A. Currey, Portland, Oregon; Herbert L. Wettern, England; Admiral Aaron Ward, Roslyn, Long Island; W. C. Egan, Highland Park, Illinois; J. Horace McFarland, Harrisburg; and J. N. Richardson, Baltimore.

G. C. T., Jr.

November, 1916

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EARL OF WARWICK
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EUGENE BOULLET
(On same plate with Edward Mawley)
EVELYN DAUNTESSY
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(On same plate with Countess of Derby)
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THE PRACTICAL BOOK OF OUTDOOR ROSE GROWING

I

THE PROPAGATION OF ROSES

ESTABLISHED VARIETIES

IN this chapter it is aimed to give the reader such general information as will enable him to comprehend the main principles of the propagation of the rose. In order that he may fairly understand the following chapters, and the general scheme of the selection of varieties and the ordering of the same, this chapter should be read carefully. It is not the intention to puzzle the home rose grower with all the scientific details of each phase of rose culture; but it is believed that the following paragraphs will give a good working idea of the methods employed. For those who may care to follow out such matters to their utmost conclusion, the names of exhaustive works are given.

Established roses are propagated mainly by the following methods: Seeds, layering and suckers; cuttings, budding and grafting, the last three being the principal methods.

OUTDOOR ROSE GROWING

SEEDS

In order to secure established varieties, seeds are used only in special cases, because they can only be relied upon to reproduce plants of their own kind when they are taken from original species. Seeds of hybrids are useless for this end, as their seedlings do not conform to the parent stock. In other words, hybrids do not come true from seeds, and their seeds are only useful for new varieties. "Experiments with Plants," by Osterhout, goes into the scientific treatment of seeds.

LAYERING

Many plants and some roses increase by layering, that is, throwing out a branch which becomes rooted and in turn sends out its branches to root themselves and carry out nature's work of increase. Layering is not practised to any great extent, as it is a longer process than the others and requires not only more time to accomplish results, but also more space either in greenhouse or nursery.

Layering is now only used for some varieties which do not root well from cuttings. Ellwanger cites Persian Yellow as one of these.

It is a simple and easy operation, and is accomplished by bending down a rose cane of a growing plant, scientifically notching it with a knife (technically known as tonguing), and then putting the

THE PROPAGATION OF ROSES

tongued portion into prepared ground, after which it is held in place by various methods. Roots are formed at the break and eventually the part so treated may be detached from the original plant and becomes itself a complete plant.

Pemberton, in "Roses—Their History, Development and Cultivation," gives very clear and explicit instructions on layering.

SUCKERS

Pemberton's description of suckers we quote as follows:

"Many of the species, such as *RUGOSA*, *ALPINA*, *SPINOSISSIMA* and *LUCIDA*, together with Provence and Damask hybrids, etc., increase by throwing out suckers, springing up at some distance from the parent plant, and forming roots at the place where they bend upwards. These rooted suckers, after being separated from the plant, should be pruned back to a foot or even less, and then treated as ordinary plants."

CUTTINGS

Cuttings are slips taken from plants which, when placed in sand and soil, grow roots of their own and become in turn rose plants, giving the same bloom as the plants from which they were cut. Very often they are given greenhouse care and while this is not necessary, it obtains, perhaps, surer and better

OUTDOOR ROSE GROWING

results. In experimental work, cuttings have been carried so far that they have been made successfully even from rose leaves, although this method is of no practical use. No doubt many persons who have followed to this point understand cuttings and have employed them not only in roses but in other plants, such as carnations and geraniums, which are propagated almost entirely by this method.

In their proper place cuttings as used in rose culture may be relied upon, but beyond this sphere their use is open to debate, as, in the opinion of nearly all the best authorities, they are not as satisfactory as budding. The main reason for their failure is that many of the new varieties are weak growers and cannot of their own accord win the fight for existence, even under favorable conditions. As conditions in our climate are most uncertain, only the exceptionally hardy plant succeeds on its own roots.

It would be easy for any one to make cuttings of his own, and this could be successfully done with the hardier roses, thereby saving the expense of purchasing. If roses are purchased, budded plants are strongly recommended, as the slight extra outlay would be fully justified.

While there are many good articles on cuttings, Pemberton's is the best, as it treats of cuttings under glass and also cuttings in the open.



FIG. 1
ROSE CUTTING READY FOR PLANTING

THE PROPAGATION OF ROSES

BUDDING

In budding roses a strong stock is secured and the variety selected is budded upon this stock, eventually becoming a part of it. The actual operation of budding is merely to cut off the dormant bud from the variety which it is desired to perpetuate and, cutting a slit in the bark of the stock, to introduce the bud into the same. When the bud so transplanted becomes somewhat established, all growth above it is removed and the whole vitality of a proved stock is thrown into the bud, giving it the nourishment which a tried constitution insures.

In England the two stocks most commonly used are MANETTI and BRIAR. In the case of roses with a preponderance of Hybrid Perpetual blood the Manetti stock is generally used; for those containing much Tea blood the Briar has been found the better stock.

A few growers in this country are trying Japanese Multiflora, and with some varieties secure stronger and better plants than those grown on the ordinary stocks as generally used. Sometimes Rugosa stock is used for budding and a very few roses do quite well on it.

Undoubtedly the ideal stock for all roses has not yet been discovered, and a great advance should be made in this most important section of rose culture.

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In order to secure a perfect rose list, budding on different stocks should be tried. If cuttings are employed, very many roses will not succeed as well for outdoor culture.

There are two objections to budded roses. First, they occasionally break off at the bud, but this has so seldom occurred in actual practice that it is not worth consideration. The second and main reason is that the stocks upon which the roses are budded throw up shoots of their own below the bud, usually called suckers, which, if left, take the entire nourishment of the roots and check the budded growth.

These shoots from below the bud may be very easily detected upon their appearance, because they come up from the ground outside the plant and also because of their different habit of growth, containing, as they do, seven and sometimes nine leaves on each lateral, instead of three and five as in most budded varieties. (Note illustration.) The foliage is of a much lighter shade of green than the shoots from the bud itself and its point of junction with the plant is below the bud. It is very easily removed by carefully digging up the ground, cutting it off with a knife at its union with the plant below the bud, and rubbing some earth over the cut. In addition, this main reason is not a valid objection, because it only happens with about one per cent. of the budded



FIG. 2

HYBRID TEA AND BRIAR FOLIAGE

At left, ordinary Hybrid Tea foliage showing five leaves on each lateral. On the right, a sucker showing plainly seven leaves on the lower laterals. Note also the greater number of thorns

THE PROPAGATION OF ROSES

plants, and can even then be easily detected. To keep this percentage down, roses on Briar and Manetti must be planted with the bud two to three inches below the surface of the soil, as hereafter advocated. If planted less deeply they will grow a greater number of suckers.

Fewer suckers develop from Multiflora than from Briar or Manetti, and on this account George H. Peterson recommends planting the bud from one to one and a half inches below the finished level of the bed. One reason for the lack of suckers is that the Multiflora is budded from seedlings, while the Briar is usually budded from cuttings, in which case there are dormant eyes below the point where the bud is inserted; whereas in the seedlings, the bud is inserted below the dormant eyes.

Very often cuttings have only greenhouse growth when shipped. At best they are generally propagated under glass and have not had much outdoor growth, whereas budded plants are budded in the summer out-of-doors, and have even as yearlings a whole season's outside growth before being sold.

In one particular instance the following experiment was made with own root stock.

One bed was made, and over fifty roses on their own roots and fifty budded roses were planted in it side by side, all of old and established varieties, and,

OUTDOOR ROSE GROWING

in the case of the own root plants, purchased from a grower who advocates their use. At the end of the first summer the difference was plainly apparent and was strongly in favor of the budded plants. At the end of two years there was no possible doubt as to the result; the budded plants were far superior. Experiments with other roses have endorsed this result, and budded roses are recommended for all outdoor work for the majority of roses contained in the lists, whether Hybrid Teas, Hybrid Perpetuals, Teas, Chinas, or Pernetianas.

The roses which do well on their own roots must be secured in two-year-old plants to obtain the best results, and should either be planted in the fall from dormant field grown stock, or planted in the spring from pots after the weather is settled, and for the best results procured from a nursery near at hand. Such plants will become established toward fall and usually give fair results at that time.

In the case of climbers and some few very strong growers the own root roses will give good results, but as a working rule they cannot be recommended. In one garden budded roses, originally planted in the autumn of 1900 and moved to their present place in 1907, are still strong and healthy, and of the original lot less than two per cent. have died in over fifteen years.



FIG. 3

Multiflora



FIG. 4

Own Roots

RADIANCE

On *Multiflora* and own roots both plants of the same age. This illustrates that the strongest growers may be successfully cultivated on their own roots, but that better results will be obtained by budding.

THE PROPAGATION OF ROSES

In another case budded roses planted over thirty years ago are still flourishing, and this certainly shows that their length of life is all that can be expected.

In the testing of new roses the great majority has been budded plants and the percentage of deaths has naturally been greater in these new varieties than in established kinds. In importing three hundred to a thousand roses of new varieties, twenty plants a year would cover all the deaths even of these new and untried kinds.

In other branches of horticulture budding and grafting have been tried with the greatest success. It does seem that a tried stock is better than a different stock with each plant, viz., its own.

Undoubtedly better stocks will be discovered for certain roses which do not do well on the regular stocks; but surely it is going backward to grow inferior roses on their own roots and be satisfied with them, rather than experiment to ascertain the best stocks.

“The Nursery Book,” by L. H. Bailey, should be read by any one attempting budding.

GRAFTING

Grafting is a modification of budding, and is a process which may give as good a result in the end with some outdoor roses; but for the first year, after

OUTDOOR ROSE GROWING

planting outside, the bush does not make as much progress, and the death-rate has been much greater with grafted stock than with budded plants. Unfortunately grafts do not take very well on the Briar, therefore grafters use the Manetti which, as explained above, is not the best stock for Teas and Hybrid Teas.

Grafting is mostly used to increase new varieties which, if budded, would necessarily have to be operated upon in the late summer, the bud not developing until the following spring; whereas, in grafting, a part of the plant desired to be propagated is grafted upon the stock indoors and growth at once begins; this is a very much quicker operation, but not so sure of success as budding for outdoor roses.

Grafting requires great skill and is used to obtain quick results. Seedlings to be tested are often grafted and a verdict quickly arrived at. There are numerous methods employed in grafting, but the principle is the same in all; the variety required is spliced on the stock and, as in budding, the strength of the stock all goes into the variety desired.

The books mentioned for cuttings and budding give the best articles on grafting, in addition to which "Parsons on the Rose" contains good, clear and explicit information on all these subjects.



KILLARNEY BRILLIANT

Hyacinth

McC. Dodson and Son, 1911 - Description page 84
The first known seed appointment



FIG. 5

MADAME SEGOND WEBER

The long stiff stems illustrate how useful this variety is for cut flowers



FIG. 6

LA FRANCE

Showing how valuable this rose may be with proper care. Note the number of blooms, bushy and stalwart growth. This plant is budded on Multiflora

THE PROPAGATION OF ROSES

NEW VARIETIES

New varieties of roses are developed in two ways: by sports and seedlings.

SPORTS

Sports are purely a matter of chance, and occur when any given variety shows a bloom or habit of growth different from the accepted plant. When this occurs propagation of the wood by cuttings, budding or grafting establishes the new variety.

As illustrations of sports, the two following are well known and are changes from the parent stock in the color of the bloom itself:

La France, color silver rose, sported with Paul & Sons, near London, in 1888, and gave the Duchess of Albany, called dark La France, a rich, deep pink. This was propagated and Duchess of Albany is now a well-established variety.

Camoens, pale rose color with the base of the petals yellow, sported with Boytard, in 1907, and the new rose was called Ecarlate, a brilliant scarlet.

With these two new varieties the habit of growth of the plants remained practically the same as their parents; it was only in the color of the rose that the change manifested itself.

In the past few years the old rose, Killarney, has sported a number of times, giving among others Killarney Brilliant, a rose of a deeper shade of pink;

OUTDOOR ROSE GROWING

White Killarney, a rose, as the name implies, of a beautiful white; and Double Killarney, a rose of greater substance in petalage than the stock from which it sprang.

Before so many hybrids were cultivated, and when roses were not grown to as great an extent as now, sports were naturally less frequent. Of course varieties which are crosses, such as the hybrids of today, are very much more likely to give different growth or different bloom than the old varieties, which were not so far removed from the original species.

Changes in habit of growth occur as well as changes in bloom, and a great many of the Hybrid Teas and some Polyanthas have produced sports which have much more of a climbing habit than the dwarf bush from which such new varieties originated. The bloom in form and color is practically identical with the parent stock, although its period of flowering is usually shorter and its bloom less profuse.

There is one very interesting illustration of a rose which sported, the new growth of which when propagated reverted to the original form of its parent stock. Heinrich Schultheis, a Hybrid Perpetual rose of deep, rosy pink, sported with Paul & Sons, of London, and produced Paul's Early Blush, a light silvery pink. Again it sported with Alex. Dickson & Sons, in Ireland, and produced another silvery



REVERSION OF MRS. HARKNESS

Note deep rose-colored blooms of Heinrich Schultzeis on right and Silver Pink of Mrs. Harkness on left. Prior to 1915 this plant gave nothing but the silver pink blooms of Mrs. Harkness



FIG. 7

SEEDLINGS SHOWING VARIED GROWTHS

On the left-hand side seedling of a Hybrid Tea. On the right-hand side seedling of a Wichuraiana. Both these plants are of the same age and have received identical care. Note different habit of growth even at this early stage in the life of the plants

THE PROPAGATION OF ROSES

pink, known as Mrs. Harkness. Both of these new roses were perpetuated and became quite popular before the Hybrid Teas came into general notice. In the year 1913 Dr. Robert Huey, of Philadelphia, still had plants of Paul's Early Blush and Mrs. Harkness. It was remarkable that specimens of both these plants partially reverted to the old form of Heinrich Schultheis, throwing up shoots with rose colored blooms.

While sports are of rare occurrence, nevertheless it would well repay all rose lovers to watch for such breaks, as valuable novelties may thereby be secured which otherwise would be lost.

SEEDLINGS

Seedlings, as the name signifies, come from seeds hybridized either by chance or by man's handiwork. Nearly all the older rose growers gathered their heaps containing the seeds in the autumn of each year and planted great numbers of these in nursery rows, hoping to secure new varieties; in this manner a great many of the Hybrid Perpetuals were discovered and introduced. However, of late years the commercial rose growers of Europe have hybridized different varieties of roses, and by careful selection and breeding for several generations are securing their new introductions.

OUTDOOR ROSE GROWING

In Europe this work is maintained on a very large scale. Thousands upon thousands of seedlings are raised each year, and only a very small percentage are of any practical use. In this country only a few men have achieved any great success in introducing new varieties—John Cook, of Baltimore, Maryland; E. G. Hill, of Richmond, Indiana; M. H. Walsh, of Woods Hole, Massachusetts; Dr. Van Fleet, of Washington; W. A. Manda, of New Jersey; and the late Jackson Dawson, of the Arnold Arboretum. In the American Rose Annual only twelve men are mentioned as having introduced new varieties in this country. Cook introduced My Maryland and Radiance, and lately he has brought out Panama; and Hill has given us quite a number of good roses, the best perhaps for outdoor culture being General MacArthur, which is one of the finest all-round outdoor red roses grown in America today. Walsh, Manda and Van Fleet have been particularly successful in developing new climbers—Walsh's most notable being Excelsa, Hiawatha, Sweetheart and Evangeline, all excellent additions and ranking with the best of this class.

Father George Schoener, of Portland, Oregon, is doing some very fine work, not only in new varieties of roses, but also in new stocks for budding. In addition, he is making crosses between different mem-

THE PROPAGATION OF ROSES

bers of the Rosaceæ order. His seedlings won a silver medal at Portland in the fall of 1915. It is hoped that ere long some of his novelties will be on the market.

Following will be found a tabulated record of the breeding of the main varieties in which the Hybrid Perpetuals and Teas figure. It has not been arranged at all in conformity with the usual botanical analyses of species and sub-species, but the information given has been taken from such books as Pemberton's and placed together so that the history of the breeding of the different varieties may be seen at a glance. There are several authorities who have noted that the exact breeding of the Hybrid Perpetuals is to some extent problematical. The roses named as the Hybrid Perpetuals' immediate ancestors are generally accepted as such, but some few other varieties were used in the gradual evolution of this class from the first Hybrid Perpetual until the list was completed. At the present time there are fewer Hybrid Perpetuals bred, as the Hybrid Teas have almost entirely superseded them.

The work of hybridization is a most interesting one, but unless carried out on a scientific scale it is almost entirely a matter of chance whether or not anything of value may be secured. No doubt any one cultivating roses to a large extent would greatly

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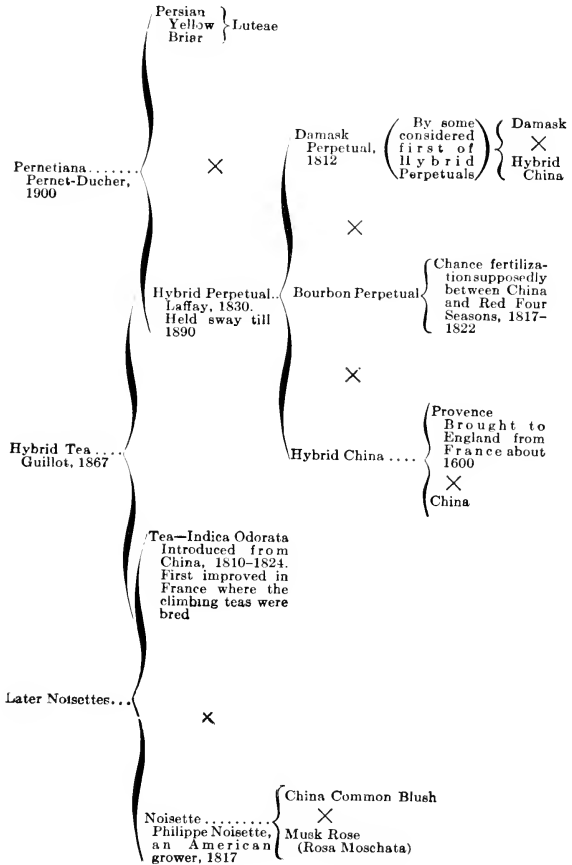




Fig. 8

ELLI HARTMANN

Considering the form and substance of this rose, the growth is remarkably strong. Picture taken in October after several frosts, hence the balling of bloom near the center of plant; usually the form of this rose is very good. Specimen is a two-year-old plant.



Fig. 9

JACQUES PORCHER

Note the fine, strong, bushy growth, and the wonderful way in which the plant holds its foliage. This specimen planted in the spring of 1915—picture taken October, 1916.

THE PROPAGATION OF ROSES

enjoy trying to introduce a new variety of his own breeding.

Ordinarily to hybridize roses properly one must have a greenhouse and it is astonishing what results may be obtained in a very small one.

In exceptionally dry climates the work may be carried on successfully out-of-doors.

Books on this subject which are interesting and practical are:

“The American Rose Annual.”

“Plant Breeding,” L. H. Bailey.

“Plant Breeding, Experiments of Nilsson and Burbank,” De Vries.

“Plant Life and Evolution,” Campbell.

“New Creations in Plant Life,” Harwood.

“Fundamentals of Plant Breeding,” Coulter.

In Chapter X will be found a few hints on hybridization.

II

THE BEST VARIETIES WITH THEIR CHARACTERISTICS

THE rose has been the Queen of Beauty among flowers as far back as records go. Down the ages she has held her position unchallenged. India, Persia, China, Japan, Greece, Italy, and the rest of Europe all pay her homage in verse and story. The rose is a native of all these countries, and those of the twentieth century are the gradual evolution from the original types to our almost perfect flower. At first this evolution was slow and greatly due to chance. Hybridization was neither understood nor practised. New roses came from seed, or from some new variety thrown out by an old stock and noticed and propagated. Nature's friend, the bee, did most of the crossing of varieties, but such progress did not suit rose growers, and from the gambling methods of chance seeds systematic hybridization became the order of the day. At once the rose list increased by leaps and bounds, for the field was of extreme fascination and boundless possibilities.

Without going into the history of all the various



FIG. 10

COMTE G. DE ROCHEMONT

This plant has not been disbudded and shows by the number of buds how good this variety is for garden decoration, in some cases the stems being strong enough for cut flowers



FIG. 11

ROBERT HEY

This plant has been pruned high as advised, yet the growth is mostly strong and upright

BEST VARIETIES WITH CHARACTERISTICS

steps, it is sufficient to say that about 1825 the Hybrid Perpetual began to take first place in the rose world. Perfectly hardy, of fine growth, having a longer period of bloom than its predecessors of equal growth and beauty, it became more and more popular, and held its sway until about 1890. Its disadvantage was its short period of bloom compared with Teas and Chinas which, while very much smaller in growth, were more constant bloomers and, as a general rule, superior to the Hybrid Perpetuals in foliage.

Tea roses had existed in England and France from early in the nineteenth century, and yet after the cross of the Damask and Hybrid China, which gave the rose world the first Hybrid Perpetual, it was not until 1867 that the first cross of merit between the Teas and the Hybrid Perpetuals made its appearance. At once the rose world obtained what it had so long desired, combining in a seedling the best of both parents, a rose as hardy, or nearly as hardy, as the Hybrid Perpetuals—a rose that bloomed practically as often as the Tea and that had fine foliage and perfume. This rose, the first of the great army of Hybrid Teas which was to follow, was *La France*, introduced by Guillot Fils, its parents being *Madame Victor Verdier* and *Madame Bravy*. *Madame Victor Verdier* was a Hybrid Perpetual, introduced by E.

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Verdier in 1863, and Madame Bravy was a Tea raised by Guillot, of Pont Cherin, in 1848.

The next Hybrid Tea that appeared and stood the test of time was Reine Marie Henriette, raised by Levet, in 1878, from Madame Berard (of Gloire de Dijon) and General Jacqueminot; the first of Tea blood, and the second a Hybrid Perpetual. This rose is listed in English catalogues of today in the climbing section as a Hybrid Tea, although still considered by some as a Tea, and so listed in the Dutch Rozennaamlijst of 1909.

After the introduction of these two roses, the work went on still further and cross breedings of hybrids obtained by hybridization soon began to swell the list of new roses.

Roses so obtained are known as pedigree roses and very seldom is their breeding given, although it seems an open secret that three generations are often required before a new rose of merit is secured. The breeders and introducers of new roses have guarded their breeding secrets with the greatest care in the past, and little or no information as to their special methods is obtainable. This secrecy has seemed eminently proper, but for the future improvement of the rose, the pedigrees of all new roses should be given to the world so that other breeders may try like combinations. The professional breeders would still be

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able to make their profit from their new roses, and the rose world would be greatly benefited by this knowledge.

While it is impossible, therefore, to give the breeding of the various pedigree roses, nevertheless a few examples of roses discovered by hybridization and cross breeding of one generation may be of interest.

In looking over the obtainable data it is at once noted that certain roses stand out as having been the most successful parents, and of these Madame Caroline Testout ranks among the first; bred with Souv. de M. Verdier, Aimée Cochet was obtained; with Merveille de Lyon, Frau Karl Druschki was obtained; with Fisher Holmes, George Laing Paul was obtained; with Viscountess Folkstone, Königin Carola was obtained; with Bridesmaid, La Detroit was obtained; with Ferdinand Jamin, Madame Edmée Metz was obtained.

In addition to this Caroline Testout has produced quite a number of sports, most noted of which are Admiral Dewey and Mrs. Longworth.

Another rose which stands out prominently is Lady Mary Fitzwilliam, a pedigree rose introduced in 1882, and one of the parents of Caroline Testout. In 1894 this rose with Dr. Grill produced Antoine Rivoire, a rose that is holding its own among the

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newer Hybrid Teas of today, and is still by far the best rose of its shade in this country. Crossed with La France, in 1894, Lady Mary Fitzwilliam gave Mrs. W. J. Grant (syn. Belle Siebrecht), a rose still popular; Kaiserin Augusta Victoria resulted when she was crossed with Coquette de Lyon. Kaiserin Augusta Victoria is unique in color and must be included in any large collection.

Ellwanger's chapter on "Seed Parents of Leading Roses," in his book, "The Rose," gives some very interesting data on this subject.

About 1890, owing to its longer period of bloom, the Hybrid Tea had pushed the Hybrid Perpetual out of first place in popularity, and from that time on has held sway as the premier class. While at first much was to be desired in some of the Hybrid Teas, gradually they have become improved, until today there is no question about their being the best for the outdoor garden; yet, in so deciding on them as the most useful class, many must be discarded as worthless in the climate of the Middle Atlantic States. The best of the Teas, and some others, must be included in a list which purports to include the best outdoor roses.

In addition to the hardy growth and long period of bloom common to the best of the Hybrid Teas, many of them have the long double bud on the stiff



FIG. 12

JONKHEER J. L. MOCK, GROWN ON MITTELLOHA
Picture taken in early spring. This plant is two years old and gives 31 blooms on Multiflora against 16 blooms on older plants on Briar. Note the bushiness, the characteristic usually lacking in this rose on Briar.

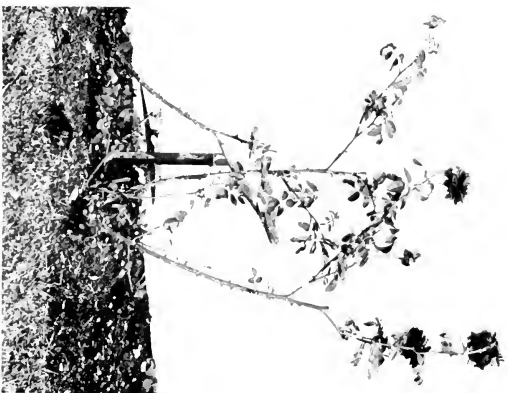


FIG. 13

CHATEAUF DE CLAUS VOTGROOT
Picture taken in the fall, showing the loss of foliage, also the peculiar growth of this variety.



LYON ROSE
Description p. 15

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erect stem so much desired in roses, and the best varieties open slowly and keep well after being cut.

During the past two years a new class has come into existence—Pernetianas, introduced by the great French hybridist, Pernet-Ducher. The first were crosses between Lutea and the Hybrid Perpetuals, and have been classed as Hybrid Teas and Hybrid Austrian Briars in many catalogues. While possessing many such characteristics, they are, nevertheless, often distinct as to foliage, and on account of their breeding should be classed separately. Many have the fault of losing their foliage early, Lyon Rose being a great offender in this respect. The new introductions vary greatly in value, but the best, Madame Edouard Herriot, is indispensable; and from the improvement shown it is evident that this new class will have great bearing on the future of the outdoor rose. Already traces of the new cross may be noticed in many of this year's introductions, especially in the foliage and color. Many seedlings with Pernetiana blood are so distinct that they may be readily picked out from other seedlings. The foliage is beautiful and distinct while it lasts, and undoubtedly a cross will soon be made which will show even greater improvement than Madame Edouard Herriot over Lyon—the latter rose is already nearly obsolete.

Unfortunately, it is difficult to find roses well

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suited to our climate. The winters are more severe and the summers hotter than the conditions to which imported roses and their forbears have been accustomed, so that many of the roses which flourish in Europe are worthless with us.

The main classes are grown in two ways, as dwarfs and as standards. Standards differ from dwarfs or bushes (ordinary form) in that they are generally budded on strong Briar and other stocks from two and one-half to four feet from the ground. They are most attractive and some are more easily reached than the dwarfs, as the blooms grow about the level of the eye, while all of them are adapted to formal gardens and landscape work. However, they cannot be recommended unless absolute winter protection is given, and this is best accomplished by placing boards around the plant, encasing it from the ground to above the bud and filling in with earth.

In the case of some of the climbers, which are used as standards, an attractive effect is produced by allowing the trailing shoots of such plants to grow downwards, more or less like the weeping willow tree, and these are called weeping standards, otherwise they are the same as the regular standard. In the case of some of the Teas, which are grown very close to the ground in this way, they can be more thoroughly protected in cold winters than they

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could be if grown as the usual standard. It is believed that Teas are especially prolific when grown in this manner. One well-known writer states that he has seen such a Tea with seventy-five blooms on it at one time.

Standards usually require more room than dwarfs and this is another reason why they are not planted so extensively. If used, the varieties contained in the main list are strongly recommended. Dwarfs are budded close to the root of the stock and the bud is planted below the ground level, hence they are hardier and much more easily handled in winter than standards. In experiments with standards they have been found to be most uncertain; sometimes they last for several years and again fully fifty per cent. die. An average of ten per cent. would be a conservative estimate for winter loss, unless most thorough winter protection is given.

Every year the commercial rose growers in England and the Continent bring out their new varieties; before a satisfactory verdict can be reached as to their adaptability to this country they must be tried for at least two years. In many cases new varieties are shipped as such small grafted plants that for the first year it is almost impossible to test them properly, and a year later larger plants must be procured. Very probably these small plants would do well

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abroad, but here they run the risk of being passed upon as worthless when many may be first-class varieties.

Owing to the difference in our climate, even the color of imported roses may vary somewhat from the European catalogued description. The average rose is generally somewhat lighter in color, owing to our extreme heat in summer. Killarney is an exception which proves this rule. This rose is catalogued in the European lists as "Flesh-shaded white, suffused pale pink"; in this country it is a solid light pink, the shade depending on the sunlight, being deeper in bright, hot weather. In the early spring and in the autumn the color of most roses is darker than in the summer, some varieties that usually have a slight yellow tint becoming almost pink under frosty nights and warm days. Mainly for the first reason given it is a lottery for the average rose grower to order new varieties; the greater part will prove utter disappointments, a waste of money, space, time and care, and the catalogued description must be more than discounted.

This book should guide the American purchaser to order those roses which will give him the best results. To secure a perfect list of such roses, every variety found in the best catalogues has been carefully tested, and in the lists at the end of this chapter



Fig. 14

MADAME JULIES BOUCHE

Picture taken in the fall; note the strong, erect and bushy growth and great amount of foliage even at the base of the plant



Fig. 15

OPHELIA

Growth not of the best, but giving long stems for cut flower purposes



MADAME JULES BOICHE

(NOTE. Illustration considerably less than actual size.)

BEST VARIETIES WITH CHARACTERISTICS

there have been included all which have come up to a certain standard. Those excluded have not proved successful after a test in which all had the same chance.

During the fall of 1914, when the list of the sixteen best all-round varieties was selected, the roses included were by all odds the best sixteen varieties for general cultivation. Since that time, however, the situation has greatly changed owing to the number of new roses introduced. Not only have many Hybrid Teas been brought out, but the new race of Pernetianas has further complicated the problem. In these two years during which all these domestic and foreign roses have been put on the market it has been very difficult to make comprehensive tests as to the value of each new introduction; nevertheless every new rose has been or is on trial, and information from other sections of the country carefully considered. Furthermore, it was most important to try as many roses as possible on different stocks, and to this end careful experiments were made to learn the best stock for each variety. In many cases the Multiflora has greatly improved certain roses; in many others there is little difference between Briar and Multiflora, while in a few instances the Briar is the best. Another valuable phase of the work has been the cultivating of weak growers and poor bloomers

OUTDOOR ROSE GROWING

in special beds; and here again no absolute rule was discovered, but it was proved that by the use of such beds remarkable results could be obtained in certain cases. Where of value, special stocks and beds are recommended hereafter.

There has been a great deal of kindly criticism and comment regarding the old sixteen, much of which is strictly to the point, and many of the suggestions received have been very valuable. It is therefore better to give a list of the forty-eight roses which have stood out as the best instead of making an arbitrary list of sixteen roses. In following out this scheme, twelve roses have been selected in the lighter shades, twelve in the pink, twelve in the red, and twelve in the yellow, the latter including the orange and copper colorings. It will be appreciated that the roses given under each main color will, to some extent, overlap from one section to the other; the darkest color under the lighter section will approach the lightest color under the darker section. By placing twelve roses in each list there will be little doubt that the best are included, and from the careful descriptions given the reader will be able to secure the roses most suited to his needs.

It will be noted that the original first sixteen have been displaced in some cases by other roses. This is not because they have not lived up to their reputa-



GRANGE COLOMBE



OPHELIA

BEST VARIETIES WITH CHARACTERISTICS

tion, as they have continued to do as well as they did formerly, but newer roses brought out and tested during the past few years have been improvements over them.

No Hybrid Perpetuals are included in the list of the forty-eight best garden roses because the Hybrid Teas, where they may be grown, are far superior. As an illustration of this, Frau Karl Druschki, tested near Philadelphia by Dr. Huey with two exceptionally fine plants, gave an average of thirty-eight blooms during 1916, and the blooming season was over in July. In very damp seasons Druschki will give scattering blooms in the early fall. Madame Jules Bouche gives more blooms than Druschki throughout the season, with better perfume, and is therefore considered of more value than Druschki except in the North.

LIGHT COLORED SECTION

There are many light-colored roses, and it is so difficult to know where they verge into the lighter pinks or lighter yellows that no arbitrary line can be drawn. The roses selected are placed in the order of personal preference.

The most beautiful of this class for cut flowers are Madame Jules Bouche, Ophelia, Souvenir du President Carnot, Antoine Rivoire and Mrs. Harold Brocklebank, although other roses are of fair enough

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form to do quite well in this respect. For garden decoration Madame Jules Bouche, Jacques Porcher and La Tosca, on account of their growth and number of blooms, excel. The perfume in light-colored roses is not as distinct as in the pinks and reds, the best being Ophelia.

MADAME JULES BOUCHE; Hybrid Tea; Croibier & Fils, 1911. White—center shaded primrose or lightest blush—varies.

Novelty..... In color, growth and blooming qualities.

Color..... Clear and very attractive.

Fragrance..... Mild.

Lasting..... Color good; fragrance brief; form almost perfect.

Shape..... Good in bud and open flower.

Substance..... Fair.

Petallage..... Perfect.

Size..... Medium, but varies.

Blooming.... May and June 11; July 22; August 7; Sept. 16; October and late 15; total 71.

Hardiness.... Strong; canes living 8 to 12 inches above ground level in the spring.

Foliage..... Occasionally susceptible to mildew; seldom affected by spot.

Growth..... Exceptionally fine; tall and plenty of canes.

Stem..... Long, and fairly upright.

Plant..... 24 inches.

Prune..... 6 eyes.

Note..... Personal preference for best light-colored rose.

GRANGE COLOMBE; Hybrid Tea,; Guillot, 1912. Cream white with salmon yellow and fawn center.

Novelty..... In color and blooming.

Color..... Clear and most attractive.

Fragrance..... Mild.

Lasting..... Color good; fragrance brief; form good.

Shape..... Bud almost perfect; open flower somewhat loose.

Substance..... Above the average.

Petallage..... Deficient.

Size..... Well above medium.

Blooming.... May and June 9; July 15; August 9; September 14; October and late 8; total 55.

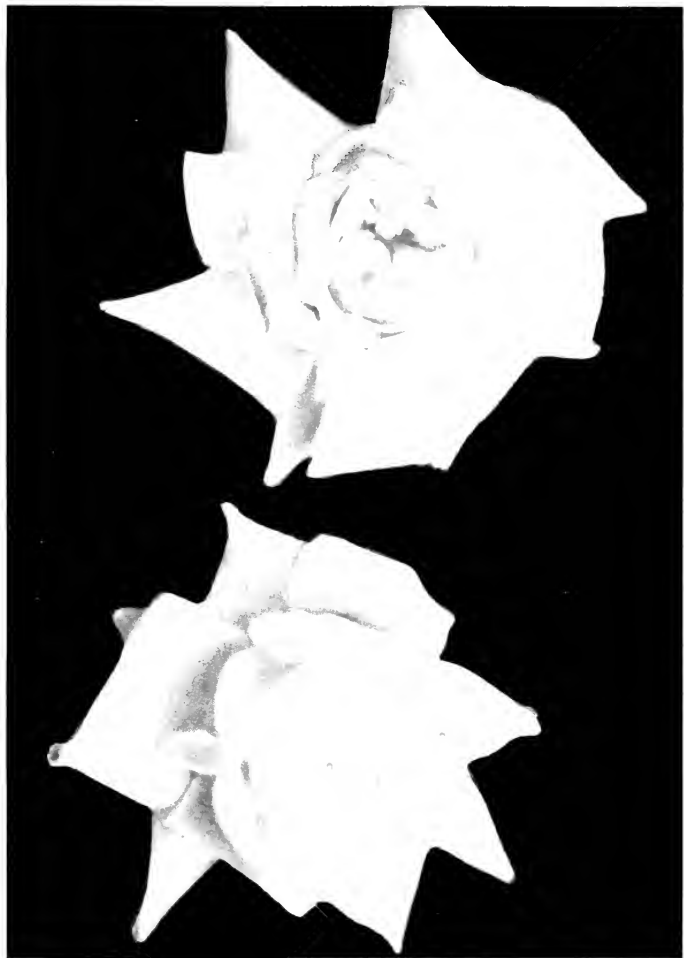
Hardiness.... Strong; canes living 8 to 10 inches above ground level in spring.

Foliage..... Slightly susceptible to mildew and spot.

Growth..... Sturdy and erect, with good number of canes.



JACQUES PORCHER



BEST VARIETIES WITH CHARACTERISTICS

Stem..... Strong, but not exceptionally long.
Plant..... 22 inches.
Prune..... 5 eyes.
Note..... Of distinct color and does best as an all-round rose.
 Needs a heavy soil. Has done well in the Pacific
 Northwest with Mr. Currey.

OPHELIA; Hybrid Tea; Wm. Paul, 1912. Salmon flesh, center shaded light yellow at base of petals.

Novelty..... In color, shape and lasting.
Color..... Distinct, clear and beautiful.
Fragrance.... Fair, very delicate.
Lasting..... Color good; fragrance fair, form very good.
Shape..... Very good in bud and open flower.
Substance.... Fair.
Petallage.... Perfect.
Size..... Medium, not affected by heat to any extent.
Blooming.... May and June 9; July 12; August 9; September 5;
 October and late 10; total 45.

Hardiness.... No deaths; canes living 6 to 8 inches above ground level in spring.

Foliage..... Somewhat susceptible to mildew and spot.

Growth..... Fairly good.

Stem..... Long, usually of good strength.

Plant..... 20 inches.

Prune..... 5 eyes.

Note..... Ophelia is an improved Prince de Bulgarie, which accounts for the omission of the latter in the list. Ophelia is strongly recommended on account of its beauty of color, although not as profuse a bloomer as the first two mentioned. It does better on the Multiflora than on the Briar.

JACQUES PORCHER; Hybrid Tea; Guillot, 1914. Passing from white shaded carmine on saffron center, to clear yellow with a darker center.

Novelty..... In color, foliage, blooming qualities and growth.

Color..... Very attractive.

Fragrance.... Mild.

Lasting..... Color good; fragrance brief; form good.

Shape..... Fair in bud and open flower.

Substance.... Fair.

Petallage.... Fair—varies.

Size..... Medium to small.

Blooming.... May and June 16; July 17; August 4; September 14;
 October and late 18; total 69.

Hardiness.... Canes living 6 to 12 inches above ground level in spring.

Foliage..... Almost perfect.

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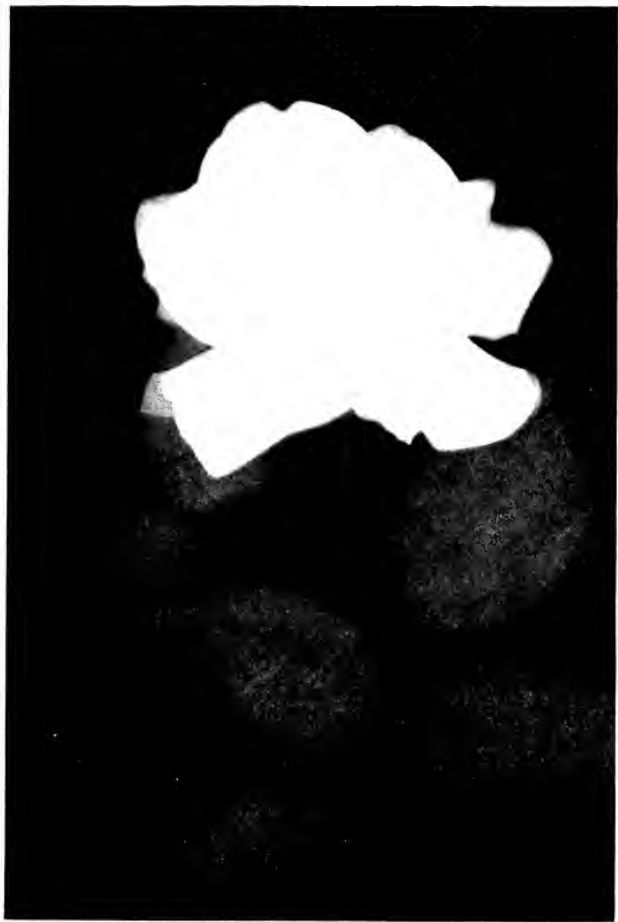
Growth.....Very large.
Stem.....Fair in length and strength.
Plant.....24 inches.
Prune.....7 eyes.
Note.....Especially recommended as an all-round rose. This variety may be hard to secure in quantity for some time.

SOUVENIR DU PRESIDENT CARNOT; Hybrid Tea; Pernet-Ducher, 1895. Flesh shaded white. With us, flesh to light shell pink center.
Novelty.....In color and shape.
Color.....Most distinct.
Fragrance.....Mild.
Lasting.....Color good; fragrance brief; form good.
Shape.....Very good in bud and open flower.
Substance.....Good.
Petallage.....Perfect.
Size.....Well above medium.
Blooming.....May and June 9; July 10; August 4; September 6; October and late 5; total 34.
Hardiness.....Canes living 8 inches above ground level in the spring.
Foliage.....Very good; only slightly susceptible to mildew and spot.
Growth.....Not of the best; tall but not uniform.
Stem.....Fairly long, but quite weak.
Plant.....20 inches.
Prune.....5 eyes.
Note.....One of the best light colored roses when grown on the Multiflora; not as good on the Briar unless grown in a special bed.

PHARISAER; Hybrid Tea; W. Hinner, 1903. Rosy white, shaded salmon.
Novelty.....In color.
Color.....Clear and attractive.
Fragrance.....Mild.
Lasting.....Color good; fragrance brief; form good.
Shape.....Attractive in bud and holding high pointed center when open.
Substance.....Above the average.
Petallage.....Perfect.
Size.....Good but not of the largest.
Blooming.....May and June 4; July 12; August 12; September 3; October and late 17; total 48.
Hardiness.....Canes living 4 to 10 inches above ground level in the spring.
Foliage.....Good; slightly susceptible to mildew and spot.
Growth.....Well above the average.
Stem.....Long, but sometimes a trifle weak.



PHARI-SER



GRUSS AN SACHEN

BEST VARIETIES WITH CHARACTERISTICS

Plant.....20 inches.

Prune.....5 eyes.

Note.....While always a good rose on the Briar, never one of the best until grown on the Multiflora.

GRUSS AN AACHEN; Polyantha; Geduldig, 1909. Delicate flesh pink and yellow, with deeper center; darker in bud form. Color quickly fades in hot weather, becoming almost white.

Novelty.....In color and blooming qualities.

Color.....Good, but not perfect as it contains some lilac.

Fragrance.....Mild.

Lasting.....Color fades; fragrance brief; form especially good.

Shape.....Fair in bud; attractive in open flower.

Substance.....Below the average.

Petallage.....Only fair; too many petals, which tend to be dwarf.

Size.....Medium to small.

Blooming.....May and June 19; July 21; August 0; September 17; October and late 1; total 58.

Hardiness.....Canes living 8 inches above ground level in the spring.

Foliage.....Immune from mildew, but susceptible to spot.

Growth.....Fair.

Stem.....Fair.

Plant.....20 inches.

Prune.....5 eyes.

Note.....Good for low decoration, with some value for cutting.

MRS. HERBERT HAWKSWORTH; Tea; Alex. Dickson & Sons, 1912.

Deeply zoned delicate ecru on milk white, becoming silky creamy white.

Novelty.....In color.

Color.....Most beautiful.

Fragrance.....Mild.

Lasting.....Color good; fragrance brief; form good.

Shape.....Fair in the bud; open flower cup shaped.

Substance.....Good.

Petallage.....Good, but trifle below perfect number.

Size.....Above the average.

Blooming.....May and June 9; July 8; August 5; September 9; October and late 3; total 34.

Hardiness.....Canes living 6 to 10 inches above ground level in the spring.

Foliage.....Susceptible to mildew and spot.

Growth.....Average.

Stem.....Average.

Plant.....20 inches.

Prune.....4 eyes.

Note.....Fair for all purposes.

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ANTOINE RIVOIRE; Hybrid Tea; Pernet-Ducher, 1896. Flesh to cream yellow peach center, sometimes with lilac shading.
Novelty.....In color, unique form, distinct foliage and stem.
Color.....Distinct and beautiful.
Fragrance.....Mild.
Lasting.....Color good; fragrance brief; form good.
Shape.....Bud not of the best; opens flat but attractive and pleasing.
Substance.....Fine.
Petallage.....Too many and small.
Size.....Very large in spring; medium in summer and fall.
Blooming.....May and June 8; July 11; August 0; September 6; October and late 2; total 27.
Hardiness.....Canes living 6 to 8 inches above ground level in the spring.
Foliage.....Leathery, and of great substance; seldom affected by mildew, but sometimes lost by spot.
Growth.....High and strong, but lacking in number of canes.
Stem.....Very long and strong, especially in the spring.
Plant.....20 inches.
Prune.....5 eyes.
Note.....Its worst fault is that in most seasons there is very little August bloom. Wonderful for cut flowers in the spring.

MRS. HAROLD BROCKLEBANK; Hybrid Tea; Alex. Dickson & Sons, 1907. Creamy white, center buff; base of petals soft golden yellow; outer petals frequently tinted salmon rose.
Novelty.....In color and shape.
Color.....Most distinct and lovely.
Fragrance.....Mild.
Lasting.....Color good; fragrance brief; form good.
Shape.....Good in bud and open flower.
Substance.....Very good.
Petallage.....Perfect.
Size.....Quite above the average.
Blooming.....May and June 13; July 7; August 5; September 7; October and late 6; total 38.
Hardiness.....Canes living 8 inches above ground level in the spring.
Foliage.....Practically immune from mildew, but slightly susceptible to spot.
Growth.....Slightly above medium.
Stem.....Fair length, but liable to be weak after the spring bloom.
Plant.....20 inches.
Prune.....5 eyes.
Note.....This rose marked in conjunction with the plants of Dr. Huey, who considers it one of the best light-colored roses. Great improvement when grown in a single-row bed and is so marked.



ANTOINE RIVOIRI

MILÉ SIMONE BEN MEZ



BEST VARIETIES WITH CHARACTERISTICS

MDLLE. SIMONE BEAUMEZ; Hybrid Tea; Pernet-Ducher, 1907.

Salmon white, sometimes tinged with Japan yellow in center.

Novelty.....In color.

Color.....Very beautiful.

Fragrance.....Mild.

Lasting.....Color good; fragrance brief; form fair.

Shape.....Beautiful in bud; quite good in open flower.

Substance.....Slightly above the average.

Petallage.....Perfect.

Size.....Above medium.

Blooming.....May and June 13; July 18; August 3; September 12;

October and late 3; total 49.

Hardiness.....Canes living 8 inches above ground level in the spring.

Foliage.....Somewhat susceptible to mildew and spot.

Growth.....Tall and strong, but lacking in bushiness.

Stem.....Above the average.

Plant.....20 inches.

Prune.....5 eyes.

Note.....Does much better on Multiflora than on Briar. A difficult rose to classify, as it could be included in either the light colored or yellow section, especially in the fall, when it is quite orange in the center.

LA TOSCA; Hybrid Tea; Vve. Schwartz, 1901. Silvery pink with deeper center.

Novelty.....In growth and hardiness and blooming.

Color.....Good.

Fragrance.....Mild.

Lasting.....Color good; fragrance brief; form fair.

Shape.....Bud fair; open flower loose.

Substance.....Only fair.

Petallage.....Varies greatly.

Size.....Medium.

Blooming.....May and June 11; July 16; August 12; September 5;

October and late 13; total 57.

Hardiness.....Varies—canes living from 8 inches to 2 feet in the spring.

Foliage.....Only slightly susceptible to mildew and spot.

Growth.....Exceptionally strong and vigorous

Stem.....Long and of good strength.

Plant.....26 inches.

Prune.....6 eyes, unless to be used for garden decoration or hedge, when dead wood only should be cut. In midseason strong growth of three feet and over should have 6 to 12 inches removed, as this will insure more fall bloom with this variety.

Note.....Fine rose for garden decoration. Does particularly well on the Pacific Coast.

OUTDOOR ROSE GROWING

PINK SECTION

This class comprises the largest of all colors, but many are so similar that it is not necessary to include any but the best and most distinct which have stood out here and also with other growers in different sections of the country. In this connection Lady Ashtown is omitted because this rose has not tested well either on Multiflora or Briar. Grossherzog Friedrich is a lighter salmon pink and Frau Margrethe Moller is a darker salmon pink, and both far exceed Ashtown in blooming; but if unable to secure these newer roses, Ashtown is suggested.

Madame Maurice de Luze and La France are most distinct in perfume. For beauty of cut flowers Lady Alice Stanley, Madame Segond Weber and Mrs. George Shawyer are recommended; but this whole class is an all-round one, and practically all the roses in it are useful to a great extent for cutting.

RADIANCE; Hybrid Tea; John Cook, 1912. Light silver flesh to salmon pink.
Novelty.....In fragrance, growth and blooming qualities.
Color.....Not of the clearest, and tends to blue slightly.
Fragrance.....Fair to strong.
Lasting.....Color quite good; fragrance endures; form good.
Shape.....Only fair; bud not long and pointed; flower does not open well.
Substance.....Very good.
Petallage.....Perfect.
Size.....Above medium.
Blooming.....May and June 15; July 21; August 2; September 10; October and late 3; total 51.
Hardiness.....Canes living 8 to 18 inches above ground level in the spring.
Foliage.....Slightly susceptible to mildew and spot.



RADIANCE



BEST VARIETIES WITH CHARACTERISTICS

Growth.....Very strong.
Stem.....Long, although not always strong.
Plant.....26 inches.
Prune.....6 eyes.
Note.....While not the best rose for cut flowers, it stands out, on account of its all-round worth and splendid constitution, as the best pink rose in cultivation today. Does best on Multiflora.

GROSSHERZOG FRIEDRICH; Hybrid Tea; Lambert, 1908. Carmine rose pink; with us, light pink.

Novelty.....In color, blooming qualities, fragrance and lasting.
Color.....Most attractive.
Fragrance.....Fair.
Lasting.....Color almost perfect; fragrance endures fairly well; form quite good.
Shape.....Bud not perfect, but open flower most attractive.
Substance.....Only fair.
Petallage.....Perfect.
Size.....Above medium.
Blooming....May and June 8; July 21; August 3, September 11; October and late 7; total 50.

Hardiness....Canes living 8 inches above ground level in the spring.
Foliage.....Mildews in certain seasons; practically immune from spot.

Growth.....Very good.
Stem.....Fair only.
Plant.....24 inches.
Prune.....5 eyes.
Note.....In marking for the season of 1916 this rose scored more points in the first summing up than any other rose in the garden, and it has no serious faults. Without disbudding, gives very much more bloom.

MADAME SEGOND WEBER; Hybrid Tea; Soupert & Notting, 1908. Rosy salmon.

Novelty.....In color, shape and lasting.
Color.....Most attractive and beautiful.
Fragrance....Mild.
Lasting.....Color very good; fragrance brief; form very good.
Shape.....Close to perfection.
Substance....Above the average.
Petallage.....Perfect.
Size.....Medium.
Blooming....May and June 11; July 20; August 9; September 4; October and late 5; total 49.
Hardiness....Canes living 6 to 8 inches above ground level in the spring.
Foliage.....Somewhat susceptible to mildew and spot.

OUTDOOR ROSE GROWING

Growth.....Fair.
Stem.....Quite good.
Plant.....20 inches.
Prune.....5 eyes.
Note.....Has improved greatly on Multiflora; when properly grown on this stock gives nearly twice as many blooms as well-established plants on Briar.

FRAU MARGRETHE MOLLER; Hybrid Tea; Poulson, 1912. Dark rose with clearer edges of petals.

Novelty.....In blooming qualities.
Color.....Not of the best as it blues slightly.
Fragrance.....Fair.
Lasting.....Color fair; fragrance brief; form good.
Shape.....Well above the average.
Substance.....Fair.
Petallage.....Deficient in number.
Size.....Medium.
Blooming....May and June 15; July 15; August 8; September 18; October and late 1; total 57.

Hardiness....Canes living 8 inches above ground level in the spring.

Foliage.....Slightly susceptible to mildew and spot.

Growth.....Fair.

Stem.....Fair.

Plant.....20 inches.

Prune.....5 eyes.

Note.....Needs time to become established.

MADAME LEON PAIN; Hybrid Tea; Guillot, 1904. Light silvery salmon, center orange salmon.

Novelty.....In color.

Color.....Most attractive.

Fragrance.....Quite distinct.

Lasting.....Color good; fragrance fair; form good.

Shape.....Good in bud and open flower; center holds well when open.

Substance....Average.

Petallage.....Perfect.

Size.....Trifle above the average.

Blooming....May and June 10; July 14; August 5; September 7; October and late 5; total 41.

Hardiness....Canes living 8 inches above ground level in the spring.

Foliage.....Attractive; only slightly susceptible to mildew and spot.

Growth.....Above the average.

Stem.....Quite good.

Plant.....20 inches.

Prune.....5 eyes.

Note.....A fine all-round rose.



MADAME SEGOND WEBER



MME. LEON PAIX

(The rose at the left is La Detroit, a fair rose but inferior to the newer pinks)



BEST VARIETIES WITH CHARACTERISTICS

LADY ALICE STANLEY; Hybrid Tea; McGredy, 1909. Deep coral rose on outside of petals; inside pale flesh.

Novelty..... In color and lasting.

Color..... Clear and attractive.

Fragrance..... Mild to fair.

Lasting..... Color good; fragrance brief; form very good.

Shape..... Bud not perfect, but open flower very attractive.

Substance..... Well above the average.

Petallage..... Perfect.

Size..... One of the largest.

Blooming..... May and June 7; July 13; August 3; September 9; October and late 1; total 33.

Hardiness..... Canes living 8 inches above ground level to the tips in spring.

Foliage..... Very little affected by mildew, but susceptible to spot.

Growth..... Fair.

Stem..... Strong, but usually not of great length.

Plant..... 20 inches.

Prune..... 5 eyes.

Note..... Especially good for cutting.

MADAME MAURICE DE LUZE; Hybrid Tea; Pernet-Ducher, 1907.

Deep rose pink, carmine center, reverse of petals paler in color.

Novelty..... In fragrance, which is wonderful, and growth.

Color..... Pleasing but tends to lilac.

Fragrance..... Strong.

Lasting..... Color blues quickly; fragrance endures; form good.

Shape..... Fairly good in bud and open flower.

Substance..... Above the average.

Petallage..... Perfect.

Size..... Above the average.

Blooming..... May and June 11; July 13; August 3; September 15; October and late 3; total 45.

Hardiness..... Canes living 8 to 18 inches above ground level in the spring.

Foliage..... Susceptible to mildew, and a slight extent to spot.

Growth..... Very good.

Stem..... Average.

Plant..... 22 inches.

Prune..... 6 eyes.

Note..... Does better on the Multiflora than on the Briar.

JONKHEER J. L. MOCK; Hybrid Tea; Leenders, 1910. Carmine changing to Imperial pink.

Novelty..... In color, size, stem and lasting.

Color..... Distinct, but sometimes muddy.

Fragrance..... Fair in spring and fall; mild in midseason.

OUTDOOR ROSE GROWING

Lasting.....Color blues slightly; fragrance endures except in summer; form almost perfect.
Shape.....Good in bud and open flower.
Substance.....Fine.
Petallage.....Slightly below the best, except in fall.
Size.....Very large.
Blooming....May and June 7; July 10; August 1; September 10; October and late 3; total 31.
Hardiness....Heavy canes living 12 inches above ground in spring—light canes vary.
Foliage.....Susceptible to mildew and spot.
Growth.....Exceedingly tall, but lacking in bushiness.
Stem.....Usually of great length and strength.
Plant.....22 inches.
Prune.....6 eyes.
Note.....Unpopular with some growers, but so distinct it must be included for its good qualities. Very much better on Multiflora than on Briar.

MRS. GEORGE SHAWYER; Hybrid Tea; Lowe & Shawyer, 1911.
Brilliant clear rose.

Novelty.....In color, lasting and stem.
Color.....Very good and attractive.
Fragrance.....Mild.
Lasting.....Color very good; fragrance brief; form very good.
Shape.....Good in bud and most attractive in open flower.
Substance....Very good.
Petallage.....Deficient in number.
Size.....Above the average.
Blooming....May and June 3; July 7; August 7; September 7; October and late 7; total 31, which may be expected to increase after the second year.
Hardiness....Canes living from ground level to 6 inches in spring.
Foliage.....Only slightly susceptible to mildew and spot.
Growth.....Well above the average.
Stem.....Good and long; of fair strength.
Plant.....22 inches.
Prune.....5 eyes.
Note.....Only tested for two years, but has shown marked promise and has every evidence of becoming a most popular rose.

KILLARNEY; Hybrid Tea; Alex. Dickson & Sons, 1898. With us, a soft clear light pink to light rose pink.

Novelty.....In color.
Color.....Brilliant and attractive.



LADY ALICE STANLEY



JONKHEER J. L. MOCK

BEST VARIETIES WITH CHARACTERISTICS

- Fragrance.....Quite distinct.
Lasting.....Color fades quickly; fragrance brief; form does not hold.
Shape.....Bud almost perfect; open flower not attractive.
Substance.....Very good.
Petallage.....Deficient in number.
Size.....Above the average.
Blooming.....May and June 9; July 14; August 5; September 7; October and late 6; total 41.
Hardiness.....Canes living 8 to 10 inches above ground level in the spring.
Foliage.....Most susceptible to mildew; also affected by spot.
Growth.....Above the average.
Stem.....Usually very good.
Plant.....20 inches.
Prune.....5 eyes.
Note.....Originally included in the first sixteen. A good all-around rose, but having several bad faults. At its best in the spring; fall bloom seldom attractive here. The sports of Killarney have proved most disappointing—Killarney Brilliant, Killarney Double Pink and White Killarney being poor bloomers. Killarney Queen is the best of the sports, giving almost as many blooms of greater substance than the parent plant.

MADAME CAROLINE TESTOUT; Hybrid Tea; Pernet-Ducher, 1890.

Satin rose with brighter center.

- Novelty.....In color and fragrance.
Color.....Most beautiful.
Fragrance.....Very distinct.
Lasting.....Color good; fragrance only fair; form good.
Shape.....Below the best in bud and open flower.
Substance.....Very good.
Petallage.....Perfect.
Size.....Above the average.
Blooming.....May and June 10; July 19; August 3; September 5; October and late 5; total 42.
Hardiness.....Canes living 6 to 12 inches above ground level in spring.
Foliage.....Slightly susceptible to mildew and spot.
Growth.....Good but not of the best.
Stem.....Sometimes tends to have a weak neck.
Plant.....22 inches.
Prune.....4 eyes.
Note.....A well-known rose and a universal favorite; grown to perfection in Portland, Oregon, where it is most remarkable.

OUTDOOR ROSE GROWING

LA FRANCE; Hybrid Tea; Guillot, 1867. Bright pink.
Novelty In blooming qualities and fragrance.
Color Quite good.
Fragrance Most distinct and beautiful.
Lasting Color blues slightly; fragrance endures; form good.
Shape Bud is not long and tends to ball, but open flower not flat.
Substance Average.
Petallage Perfect.
Size Medium.
Blooming May and June 18; July 20; August 7; September 11; October and late 11; total 67.
Hardiness Canes living 8 to 10 inches above ground level in the spring.
Foliage Susceptible to mildew and spot
Growth Well above the average.
Stem Only fair.
Plant 22 inches.
Prune 6 eyes.
Note This rose has been discarded by many, and if not properly grown has bad faults which are especially noticeable in wet seasons. If planted in poor ground in a bed which drains readily and not fed, it is well worth cultivating. It does best on Multiflora.

RED SECTION

There are very few roses to choose from in this section, the trouble being that nearly all the good ones are of practically the same shade, and it is impossible to secure twelve reds without including shy bloomers. Beyond question, a perfect red rose, comparing with the best of the pinks and light-colored roses, has not yet been discovered; they "blue" or "purple" more quickly than any other color, and many varieties have the same faults. However, Comte G. de Rochemur has stood out as the best for all-round purposes; it gives a large quantity of bloom, and if carefully disbudded is well worth cutting.



MRS. GEORGE SHAWYER



KILLARNEY

BEST VARIETIES WITH CHARACTERISTICS

Heretofore this place has been held by General MacArthur, but Rochemur exceeds it so much in blooming qualities, and in form and size in hot weather, that it is the preference. For cut flower varieties, Laurent Carle, Robin Hood, and George C. Waud, are the best. Robert Huey is the best hot weather red rose and holds its form under these conditions. Its fault has been that it does not give enough bloom. General MacArthur, Lieutenant Chaure and Cardinal are good all-round varieties. Chateau de Clos Vougeot is included for its distinct color, although it is in reality a collector's rose on account of its very shy blooming qualities. For decorative varieties Teplitz is supreme, not only among the red roses, but for any color. The trouble with Teplitz is that the stem is weak and the form of the rose is not good. It is absolutely the best rose for hedge purposes. The experiment of disbudding has been tried to increase the beauty of the bloom, but it does not succeed to any marked degree. A Teplitz, three years old or over, disbudded, will give close to a hundred blooms during the season, and not disbudded the amount will be at least double. Ecarlate is another splendid decorative rose, blooming constantly but being of little use for cut flowers. Mrs. Cant is the best of the red Teas and does well for Mr. H. J. Staples in Maine.

OUTDOOR ROSE GROWING

- COMTE G. DE ROCHEMUR**; Hybrid Tea; Schwartz, 1912. Fiery scarlet, tinted satiny vermilion, with bright red center and rosy white-edged petals.
- Novelty.....In blooming.
- Color.....Very much the same as MacArthur, perhaps a trifle darker.
- Fragrance.....Above the average.
- Lasting.....Color blues; fragrance quite good; form fair.
- Shape.....Not perfect, but fair in bud and holds center well.
- Substance.....Good.
- Petallage.....Perfect.
- Size.....Above the average.
- Blooming.....May and June 15; July 22; August 5; September 22; October and late 3; total 67.
- Hardiness....Canes living 8 inches above ground level in the spring.
- Foliage.....Slightly susceptible to mildew and spot.
- Growth.....Only average.
- Stem.....Average.
- Plant.....22 inches.
- Prune.....5 eyes.
- Note.....This rose holds its form better in hot weather than most reds of the same color, and the blooming qualities are especially good for a red rose with any pretension to form. This variety may be hard to secure in quantity for some time.
-
- ROBERT HUEY**; Hybrid Tea; Alex. Dickson & Sons, 1911. Warm carmine cerise, with wire edge of delicate pink.
- Novelty.....In hardiness, unique color and lasting.
- Color.....Good, but tends to blue slightly.
- Fragrance.....Mild.
- Lasting.....Color quite good; fragrance brief; form quite good.
- Shape.....Not perfect, but pleasing in bud and open flower.
- Substance.....Very good.
- Petallage.....Perfect in spring; somewhat deficient in summer.
- Size.....Very large.
- Blooming.....May and June 9; July 12; August 3; September 3; October and late 3; total 30.
- Hardiness....Almost perfect; canes living from 8 inches to 3 feet above ground level in spring.
- Foliage.....Liable to be lost from spot; slightly susceptible to mildew.
- Growth.....Tall but lacking in bushiness.
- Stem.....Long, but not especially strong.
- Plant.....20 inches.
- Prune.....7 eyes.
- Note.....A distinct red and especially noted for its beauty of bloom in hot weather, and on account of its hardiness can be recommended as a hedge rose. Unfortunately, the stock of this variety is extremely scarce at the present time.



COMTE G. DE ROCHEMUR

ROBERT H'EXY



BEST VARIETIES WITH CHARACTERISTICS

LAURENT CARLE; Hybrid Tea; Pernet-Ducher, 1907. Brilliant carmine.

Novelty.....In color, fragrance, shape and lasting.
 Color.....Beautiful and clear.
 Fragrance.....Fair to strong.
 Lasting.....Color good; fragrance endures; form good.
 Shape.....Almost perfect, especially attractive for a red rose.
 Substance.....Above the average.
 Petallage.....Perfect.
 Size.....Usually quite large, but varies slightly.
 Blooming.....May and June 8; July 11; August 2; September 3; October and late 7; total 31.
 Hardiness.....Canes living 6 to 8 inches above ground level in the spring.
 Foliage.....Susceptible to mildew and spot.
 Growth.....Fair.
 Stem.....Slightly above the average.
 Plant.....20 inches.
 Prune.....5 eyes.
 Note.....Does better on Multiflora, and exceptionally well in the special bed.

ROBIN HOOD; Hybrid Tea; E. G. Hill Company, 1912. Soft bright rosy scarlet, changing to bright scarlet crimson as season advances.

Novelty.....In foliage, stem and lasting qualities.
 Color.....Good and clear, but some little blue.
 Fragrance.....Above the average.
 Lasting.....Color quite good; fragrance endures quite well; form good.
 Shape.....Not perfect, but attractive.
 Substance.....Above the average.
 Petallage.....Practically perfect.
 Size.....Average.
 Blooming.....During second year—May and June 14; July 12; August 7; September 6; October and late 3; total 42.
 Hardiness.....Canes living 8 inches above ground level in spring.
 Foliage.....Especially good, almost immune from spot and mildew.
 Growth.....Very good.
 Stem.....Long and fairly strong.
 Plant.....22 inches.
 Prune.....5 eyes.
 Note.....Easy to establish; not yet tested on Multiflora.

GEORGE C. WAUD; Hybrid Tea; Alex. Dickson & Sons, 1908. Orange vermilion.

Novelty.....In color and fragrance.
 Color.....Clear and attractive.

OUTDOOR ROSE GROWING

Fragrance.....Quite marked.
Lasting.....Color good, little liable to blue; fragrance endures;
form good.
Shape.....Good in bud; pleasing in open flower.
Substance.....Above the average.
Petallage.....Varies; too many in spring, too few in summer.
Size.....Medium.
Blooming.....May and June 6; July 10; August 2; September 7;
October and late 1; total 26.
Hardiness.....Canes living 8 to 18 inches above ground level in
spring.
Foliage.....Susceptible to mildew and spot
Growth.....Average.
Stem.....Good.
Plant.....20 inches.
Prune.....5 eyes.
Note.....Does best on Multiflora.

GENERAL MACARTHUR; Hybrid Tea; E. G. Hill Company, 1905.
Bright crimson.

Novelty.....In fragrance.
Color.....Very good.
Fragrance.....Strong.
Lasting.....Color tends to blue; fragrance endures; form fair.
Shape.....Buds attractive; flower sometimes opens flat.
Substance.....Fair.
Petallage.....Perfect.
Size.....Medium; small in hot weather.
Blooming.....May and June 10; July 12; August 5; September 5;
October and late 3; total 35.
Hardiness.....Canes living 6 to 10 inches above ground level in
spring.
Foliage.....Almost immune from mildew; slightly susceptible to
spot.
Growth.....Above the average.
Stem.....Fair.
Plant.....20 inches.
Prune.....6 eyes.
Note.....Until the advent of Rochemur, was considered the
best all-round red rose. There are several roses
very much on the color of MacArthur, perhaps
the best being C. W. Cowan, Eugene Boulet and
Freifrau Ida von Schubert. Does a little better on
Multiflora.



LAURENT CARLE

GENERAL MACARTHUR



BEST VARIETIES WITH CHARACTERISTICS

CARDINAL; Hybrid Tea; John Cook, 1904. Cardinal red.
Novelty.....In perfume and blooming qualities.
Color.....Fair.
Fragrance.....Very good.
Lasting.....Color blues; fragrance endures; form fair.
Shape.....Fair in bud; not perfect in open flower.
Substance.....Above the average.
Petallage.....Perfect.
Size.....Medium.
Blooming.....May and June 13; July 13; August 4; September 14;
October and late 4; total 48.
Hardiness.....Canes living 6 to 8 inches above ground level in
spring.
Foliage.....Susceptible to mildew and spot.
Growth.....Bushy, but not tall.
Stem.....Average.
Plant.....20 inches.
Prune.....5 eyes.
Note.....Does better on Multiflora. Perfume and blooming
insure it a place among roses superior in other
qualities.

LIEUTENANT CHAURE; Hybrid Tea; Pernet-Ducher, 1910. Velvety
crimson red.
Novelty.....In color and perfume.
Color.....Distinct and clear.
Fragrance.....Fair to strong.
Lasting.....Color good; fragrance endures; form fair.
Shape.....Fair in bud and open flower.
Substance.....Good.
Petallage.....Deficient in number.
Size.....Medium.
Blooming.....May and June 5; July 7; August 3; September 6;
October and late 2; total 23.
Hardiness.....Reported good.
Foliage.....Some mildew, but little susceptible to spot.
Growth.....Fair.
Stem.....Fair.
Plant.....20 inches.
Prune.....5 eyes.
Note.....Doing well for Admiral Ward on Long Island.
Tested here for only one season, so the average
of blooms should be higher after the first year.

OUTDOOR ROSE GROWING

CHATEAU DE CLOS VOUGEOT; Hybrid Tea; Pernet-Ducher, 1908.
Velvety scarlet to dark velvety crimson.

Novelty.....In color and fragrance.
Color.....Absolutely distinct and beautiful.
Fragrance.....Strong in the spring and fall; fair in summer.
Lasting.....Color good; fragrance endures; form good.
Shape.....Fair in bud; keeps high pointed center when open.
Substance.....Almost perfect.
Petallage.....Varies; perfect in the fall, too many in spring and summer.
Size.....Slightly above the average.
Blooming.....May and June 7; July 7; August 1; September 6; October and late 1; total 22.
Hardiness.....Canes living 6 to 8 inches above ground level in spring.
Foliage.....Susceptible to spot—lost early; slightly liable to mildew.
Growth.....Above the average.
Stem.....Usually long and strong, but if cut there is very little left of the plant.
Plant.....20 inches.
Prune.....5 eyes.
Note.....Included on account of its unique color. Does best on Multiflora.

MRS. B. R. CANT; Tea; Cant & Sons, 1901. Deep rose on outer petals, inner petals soft silvery rose, suffused with buff at base.

Novelty.....In color, blooming and foliage.
Color.....White unique, is not of the very best.
Fragrance.....Mild.
Lasting.....Color good; fragrance brief; form good.
Shape.....Short in bud; only fair in the open flower.
Substance.....Fair.
Petallage.....Too many, and not of best shape.
Size.....Medium to small.
Blooming.....May and June 13; July 14; August 2; September 10; October and late 11; total 50.
Hardiness.....Canes living 8 inches above ground level in spring.
Growth.....Good.
Foliage.....Distinct and beautiful; impervious to disease and holds well.
Stem.....Good.
Plant.....22 inches.
Prune.....5 eyes.
Note.....While the form is only fair, it lasts well, and with its usually long stem, is fair for cutting. Does best on Multiflora.

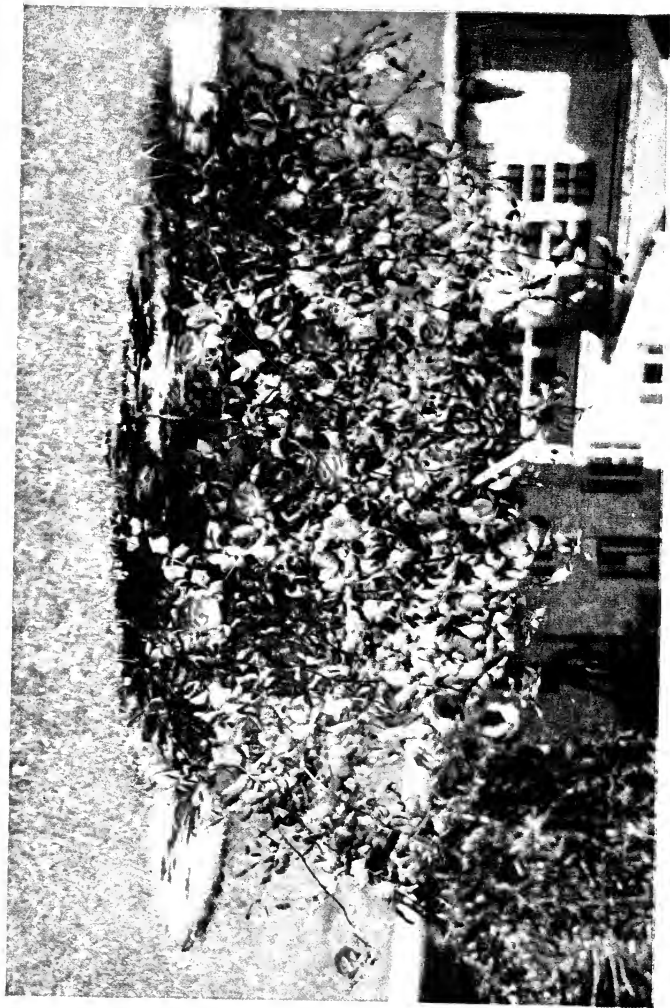
GRUSS AN TEPLITZ; Hybrid Tea; Geschwind, 1897. Bright scarlet crimson.

Novelty.....In blooming, growth, hardiness, color and fragrance.



CARDINAL

ZALIZEL NY SS. 1912



BEST VARIETIES WITH CHARACTERISTICS

Color..... Beautiful and distinct.
 Fragrance..... Fair to strong.
 Lasting..... Color fairly good; fragrance endures; form does not hold.
 Shape..... Bud short; flower opens flat
 Substance..... Above the average.
 Petallage..... Fair, but of poor shape.
 Size..... Medium to small.
 Blooming..... May and June 37; July 26; August 14; September 15; October and late 15; total 107.
 Hardiness..... Almost unique as only the tips winter kill.
 Foliage..... Immune from mildew; slightly susceptible to spot.
 Growth..... Perfect.
 Stem..... Weak and usually short.
 Plant..... 26 inches.
 Prune..... 8 eyes.
 Note..... Teplitz is the best tall decorative rose grown, and if not cut back may be used as a hedge; or if grown on Multiflora does very well as a low ever-blooming climber. Scores five times under novelty.

ECARLATE; Hybrid Tea; Boytard, 1907. Brilliant scarlet.

Novelty..... In blooming and growth.
 Color..... Quite good.
 Fragrance..... None.
 Lasting..... Color blues; form does not hold.
 Shape..... Fair in bud; very flat as rose opens.
 Substance..... Barely average.
 Petallage..... Deficient in number.
 Size..... Fair in spring and fall; small in summer.
 Blooming :

	May and June	July	August	Septem- ber	October and late	Total
Multiflora { 2 years	18	36	14	22	18	108
Briar { 2 years	12	34	19	15	13	93
Own Roots { 2 years	14	25	7	9	4	59

Hardiness..... Canes living 8 to 18 inches above ground level in spring.
 Foliage..... Almost perfect; immune from mildew; only slightly susceptible to spot.
 Growth..... Strong and bushy, but not exceptionally tall.
 Stem..... Fair for a rose of this character.
 Plant..... 24 inches.
 Prune..... 5 eyes.
 Note..... This is distinctly a decorative rose. Without disbudding, it will give many more blooms.

OUTDOOR ROSE GROWING

YELLOW SECTION

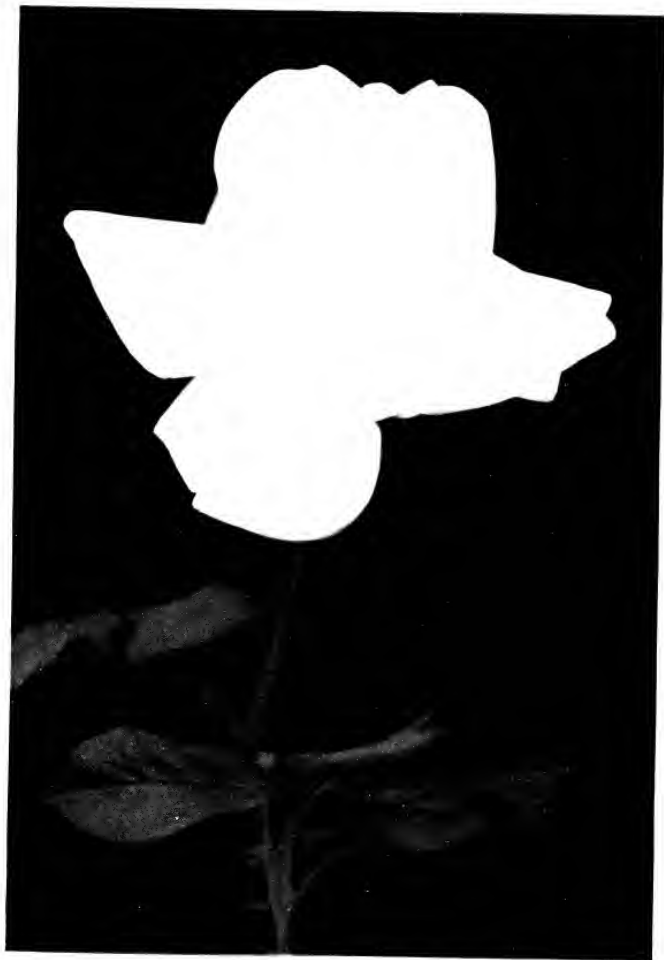
This section is a very difficult one to handle because there are few roses of this color which fill the requirements as well as the pinks and lighter roses. Among the yellows the rose is of good form, but small growth and shy blooming qualities, or loses by poor form and more profuse blooming. For strictly cut flower varieties it is necessary to go into collector's roses to secure blooms of beautiful colors which hold their form perfectly, especially in hot weather. The yellow roses selected are those which have proved the best for all-round worth, with fair lasting qualities.

On account of their great substance, *Duchess of Wellington* and *Harry Kirk*, in spring and fall, will last well in the house if cut in bud form. *Daily Mail* will hold its form fairly well, but the color does not last. *Natalie Bottner* will do very well. *Mrs. Ward*, while small, holds the form, as does *Senateur Mascuraud*. *Elli Hartmann*, with its fine petallage and substance, is also a good cut flower. *Madame Melanie Soupert* is especially noted for its great substance, and therefore endures when cut, although lacking in petallage. *Lady Pirrie* takes the place of *Betty* in the list, being much on the same color, but having an infinitely superior neck and lasting somewhat longer. *Lady Plymouth* has proved the best



DICHHESS OF WELLINGTON

(NOTE.—Illustration considerably less than actual size)



HARRY KIRK

BEST VARIETIES WITH CHARACTERISTICS

of the light yellow type found among the Teas, of which Maman Cochet, Mrs. Dudley Cross and Alexander Hill Gray were the forerunners. For decorative purposes Mrs. A. R. Waddell and Chrissie MacKellar stand out as the best of the bronze and lighter yellows.

DUCHESS OF WELLINGTON; Hybrid Tea; Alex. Dickson & Sons, 1909.
Intense saffron yellow stained with rich crimson which, as the flower develops, becomes deep copper saffron yellow. Here somewhat lighter.

Novelty.....In color, blooming, substance and size.

Color.....Beautiful; varies, lighter in summer; rose shadings in fall.

Fragrance....Slight spicy perfume.

Lasting.....Color good; fragrance brief; form quite good.

Shape.....Practically perfect in bud; not good in open flower.

Substance....Very good.

Petallage.....Deficient in number.

Size.....One of the largest.

Blooming....May and June 8; July 14; August 9; September 9; October and late 7; total 47.

Hardiness....Canes living 6 to 8 inches above ground level in spring.

Foliage.....Very good; almost immune from mildew; only slightly susceptible to spot.

Growth.....Next to the largest.

Stem.....Long and strong, only occasionally having a weak neck.

Plant.....24 inches.

Prune.....5 eyes.

Note.....More nearly fills the requirements than any other yellow in cultivation, having a wonderful record for many years.

HARRY KIRK; Tea; Alex. Dickson & Sons, 1907. Bright primrose to amber yellow. With us, light sulphur yellow.

Novelty.....In growth, foliage and extreme hardiness.

Color.....Beautiful and clear.

Fragrance....Slight; to some persons not pleasing.

Lasting.....Color fades except in cool weather; fragrance quickly becomes rank; form does not last.

Shape.....Almost perfect in bud; not good in open flower.

OUTDOOR ROSE GROWING

Substance.....Very good.
Petallage.....Deficient in number.
Size.....Fairly large.
Blooming.....May and June 7; July 15; August 1; September 8;
October and late 1; total 32.
Hardiness.....Splendid; living to tips on strong wood, 8 inches on
weak wood, in the spring.
Foliage.....Very good; little affected by mildew and spot.
Growth.....Fine.
Stem.....Fair.
Plant.....20 inches.
Prune.....6 eyes.
Note.....A good all-round rose, chiefly on account of its
great reliability as a bloomer and its hardiness;
adaptable as a low hedge.

MADAME EDOUARD HERRIOT or DAILY MAIL; Pernetiana; Pernet-
Ducher, 1913. Bud coral red shaded with yellow on base.

Open flower rosy coral red; lighter shadings are in salmon.

Novelty.....In color, foliage and hardiness.
Color.....Unique, attractive and startling.
Fragrance.....Mild.
Lasting.....Color fades; fragrance brief; form does not hold well.
Shape.....Attractive in bud, holding high center until half open.
Substance.....Above the average.
Petallage.....Deficient in number.
Size.....Above the average.
Blooming.....Two-year-old plants cut low; May and June 7;
July 17; August 1; September 4; October and late
3; total 32.
Hardiness.....Perfect; living to tips on strong wood; 6 inches on
weak wood in spring.
Foliage.....Beautiful in spring and early summer; lost later.
Growth.....Average.
Stem.....Average.
Plant.....20 inches.
Prune.....6 eyes.

Note.....Best of all the Pernetianas tested. By pruning
experiments, it has been found best to cut fairly
low as this gives better stems and helps hold the
foliage; a few more blooms will be secured by high
pruning, but this is not advocated unless for
garden decoration or low hedge purposes. Does
best on Multiflora.

NATALIE BOTTLNER; Hybrid Tea; Bottner, 1910. Soft flesh to creamy
yellow.

Novelty.....In color and shape.
Color.....Beautiful, clear and distinct.



MME. EDOUARD HERRIOT (THE DAILY MAIL ROSE)



NATALIE BOTTNER

BEST VARIETIES WITH CHARACTERISTICS

Fragrance.....Fair.
Lasting.....Color very good; fragrance brief; form good.
Shape.....Good in bud and open flower.
Substance.....Well above the average.
Petallage.....Perfect.
Size.....Medium to large.
Blooming.....May and June 5; July 16; August 4; September 11;
October and late 4; total 40.
Hardiness.....Canes living 6 to 12 inches above ground level in
spring.
Foliage.....Very good, being only slightly susceptible to mildew
and spot.
Growth.....Well above the average.
Stem.....Quite good.
Plant.....22 inches.
Prune.....6 eyes.
Note.....The only fault is an occasional tendency to ball in
wet seasons.

MRS. AARON WARD; Hybrid Tea; Pernet-Ducher, 1907. Indian
yellow, occasionally washed with salmon rose.

Novelty.....In color, shape and foliage.
Color.....Distinct.
Fragrance.....Mild.
Lasting.....Color fades quickly; fragrance brief; form good.
Shape.....Beautiful in bud and open flower.
Substance.....Well above the average.
Petallage.....A trifle above the perfect number.
Size.....Small; varies considerably.
Blooming.....May and June 10; July 13; August 2; September 5;
October and late 8; total 38.
Hardiness.....Canes living 6 to 10 inches above ground level in
spring.
Foliage.....Attractive color and leathery; little affected by
disease.
Growth.....Quite bushy, but not tall.
Stem.....Quite good.
Plant.....20 inches.
Prune.....5 eyes.
Note.....A popular rose with only two noticeable faults—
lack of size and the fading of the color.

SENATEUR MASCURAUD; Hybrid Tea; Pernet-Ducher, 1909. Cream
yellow with light yolk of egg center.

Novelty.....In color and shape.
Color.....Beautiful and clear.
Fragrance.....Mild.
Lasting.....Color good; fragrance brief; form good.
Shape.....Good in bud and open flower.

OUTDOOR ROSE GROWING

Substance Average.
Petallage Perfect.
Size Medium.
Blooming May and June 5; July 12; August 5; September 12;
October and late 3; total 37.
Hardiness Canes living 8 inches above ground level in spring.
Foliage Very good; little affected by mildew and spot.
Growth Barely average.
Stem Good.
Plant 20 inches.
Prune 5 eyes.
Note A very attractive little rose; while not of the very best, it is well balanced. Given the preference over *Souvenir de Gustave Prat* on account of its better stems. Does best on Multiflora.

ELLI HARTMANN; Hybrid Tea; Welter, 1913. Old golden yellow.
Novelty In color, growth, foliage and lasting.
Color Clear and attractive.
Fragrance Mild.
Lasting Color good; fragrance brief; form endures.
Shape Not of the best, but attractive in bud and open flower.
Substance Above the average.
Petallage Too many petals, some being too narrow in shape.
Size Medium; sometimes quite large.
Blooming May and June 7; July 7; August 4; September 3;
October and late 11; total 32.
Hardiness Canes living 8 inches above ground level in spring.
Foliage Very good; little affected by disease.
Growth Very good; tall and fairly bushy.
Stem Quite strong, although sometimes short.
Plant 22 inches.
Prune 5 eyes.
Note This rose may be hard to secure in quantity for some time. While not as profuse a bloomer as *Wellington*, it excels the latter in the lasting quality of the bloom and the beauty of the open flower.

MADAME MELANIE SOUPERT; Hybrid Tea; Pernet-Ducher, 1906.
Light cream to salmon yellow, with light carmine shades.
Novelty In color, substance, size and stem.
Color Very beautiful.
Fragrance Mild.
Lasting Color good; fragrance brief; form fairly good.
Shape Although not standard spiral, is beautiful in bud;
not so attractive when fully open.
Substance Remarkable.

SENATELE MASTRATU





ELLI HARTMANN

BEST VARIETIES WITH CHARACTERISTICS

Petallage.....Deficient in number.
Size.....Very large.
Blooming.....May and June 6; July 9; August 3; September 3;
October and late 4; total 25.
Hardiness.....Occasionally winter kills. Canes living 6 to 12
inches above ground level in spring.
Foliage.....Beautiful in color and substance; little affected by
disease.
Growth.....Tall, not bushy or uniform.
Stem.....Usually very long and strong, especially in the
spring.
Plant.....20 inches.
Prune.....5 eyes.
Note.....One of the most beautiful roses in cultivation, but
until grown on Multiflora was strictly a collector's
rose. Better on Multiflora than in a special bed;
the ideal method would seem to be Multiflora
stock grown in a special bed. This rose surpasses
Marquise de Sinety and Madame Charles Lutaud
in substance, stem, growth and hardiness.

LADY PIRRIE; Hybrid Tea; Hugh Dickson, 1910. Deep coppery
reddish salmon; inside of petals apricot yellow—varies. Lighter
with us.

Novelty.....In color, growth and blooming.
Color.....Very beautiful; varies greatly with the season.
Fragrance.....Mild.
Lasting.....Color fades; fragrance brief; form does not hold.
Shape.....Attractive in bud; open flower flat.
Substance.....Very good.
Petallage.....Deficient in number.
Size.....Above the average.
Blooming.....May and June 10; July 21; August 6; September 10;
October and late 9; total 56.
Hardiness.....Canes living 8 to 18 inches above ground level in
spring.
Foliage.....Susceptible to mildew; little affected by spot.
Growth.....Very strong and bushy.
Stem.....Well above the average.
Plant.....24 inches.
Prune.....6 eyes.
Note.....A fair decorative rose and good for cut blooms in
cool weather.

LADY PLYMOUTH; Tea; Alex. Dickson & Sons, 1914. Deep ivory
cream, very faintly flushed.

Novelty.....In color, lasting and foliage.
Color.....Excellent.
Fragrance.....Mild.

OUTDOOR ROSE GROWING

Lasting Color good; fragrance brief; form very good.
Shape Good in bud and open flower.
Substance Good.
Petallage Perfect.
Size Above the average.
Blooming Two-year-old plants, May and June 6; July 8; August
3; September 10; October and late 1; total 28.
Hardiness Canes living 8 inches above ground level in spring.
Foliage Especially fine.
Growth Bushy and with many canes, but not exceptionally
tall.
Stem Quite good.
Plant 22 inches.
Prune 5 eyes.
Note An improvement in the well-known type of yellow
Teas.

MRS. A. R. WADDELL; Hybrid Tea; Pernet-Ducher, 1908. Rosy
scarlet bud, opening reddish salmon; reverse of petals rosy
scarlet.
Novelty In color, growth and blooming.
Color Very attractive and distinct.
Fragrance Mild.
Lasting Color fades; fragrance brief; form does not last.
Shape Very good in bud; open flower loose.
Substance Fair.
Petallage Deficient in number.
Size Trifle above the average.
Blooming May and June 9; July 22; August 5; September 16;
October and late 5; total 57.
Hardiness Canes living 6 to 8 inches above ground level in
spring.
Foliage Only slightly susceptible to mildew and spot.
Growth Well above the average.
Stem Fairly long, but liable to be weak, and wilts quickly.
Plant 2 feet on Briar or Multiflora.
Prune 5 eyes.
Note Very good as a decorative rose on account of its
blooming qualities. Does best on Multiflora.

CHRISSE MACKELLAR; Hybrid Tea; Alex. Dickson & Sons, 1913.
Intense crimson carmine crayonings on rich, deep, ochrey
madder, becoming bright orangey-pink as the bloom develops.
Novelty In blooming, foliage, color and growth.
Color Attractive.
Fragrance Mild.
Lasting Color good; fragrance brief; form does not last.
Shape Attractive in bud; open flower flat.
Substance Average.

MADAME MELANIE - SOL PIERO





LADY PIRRIE

BEST VARIETIES WITH CHARACTERISTICS

Petallage.....	Deficient in number.
Size.....	Medium to small.
Blooming.....	Two-year-old plants, May and June 11; July 20; August 8; September 11; October and late 15; total 65.
Hardiness.....	Canes living 6 inches above ground level in spring.
Foliage.....	Almost perfect; good color and substance; practically immune from disease.
Growth.....	Splendid; high, strong and bushy, with many canes.
Stem.....	Fairly good.
Plant.....	24 inches.
Prune.....	6 eyes.
Note.....	Well adapted for decorative purposes and easily established.

A MAIN LIST OF ROSES

In the main list the numerals 2 and 3 appear in column marked "List."

The roses listed No. 2 are those which have stood the tests very well; they have surpassed the great main body of varieties which have been discarded as not coming up to the requisite standard. No. 2 is a list of honor and is for good, all-round roses, with the faults plainly noted under the various headings. Before putting these roses in this No. 2 list hundreds of roses have been carefully tested, and these are the ones which have been found most suitable for our climate and conditions as all-round varieties.

For a person wishing a greater variety of all-round roses than is included in the first forty-eight, No. 2 is recommended.

The roses listed No. 3 are special roses and should

OUTDOOR ROSE GROWING

be mainly ordered either for large gardens or collections, or by persons thoroughly understanding their failings, all of which are noted under the various headings.

It would be easy to make list No. 3 very much larger, but it is cut down on the theory that every rose contained therein should be the very best of its kind, or have some special merit. For this reason there may be some roses which it will be thought should have been included, but for average conditions, and particularly for the amateur rose grower who does not wish a very large number of roses, this list will be found more than sufficient, and this book is written for such persons.

In list No. 3 are included some weak-growing roses with beautiful blooms; they are not perfectly hardy and, in addition, are weak growers, but are so distinct in their beauty that they should be included in any large collection, particularly by a person understanding their failings. In list No. 3 some single roses are placed which, while good bloomers and of robust habit, are so much below the average in the form of their blooms that they should not be included in any list but No. 3.

It has been aimed to cover, under the columns of the main list, the principal points of each rose. Under the greater number of headings the letters

MRS. A. R. MADDELL.



BEST VARIETIES WITH CHARACTERISTICS

“A”—very good, “B”—good, “C”—fair, “D”—poor, “V”—varies, are used to describe each variety.

Under the heading “Form of Rose” the abbreviation “Si” indicates that the rose is single.

Under the heading “Size of Bloom,” “L”—large, “M”—medium, “S”—small.

It will readily be understood that under “Growth,” for example, all the roses marked “A” are not absolutely the same in growth, but for all practical purposes they form an approximate class under “A,” all of which come up to a certain standard. This principle applies to all headings. Growth is marked, not only for the height and strength, but also for the number of canes and uniformity.

Under “Hardiness” the system is changed to give the number of inches of good wood left in the spring. Where a rose kills down to the ground level the letter “G” is inserted in the column, and where a certain percentage winter kill, the letters “W K” have been added. Last year, with a new shipment of a thousand roses, chiefly new varieties, about twenty plants, or two per cent., have been lost, and some of the new plants were very small and weak. This immunity from deaths is due to the fact that the roses are “hilled up” every autumn, as described in the chapter on “Cultivation.”

OUTDOOR ROSE GROWING

On account of the number of new roses constantly being planted in the testing beds from all parts of this country and Europe, it is impossible to entirely eliminate disease, but in a way this has its valuable side, because the roses tested are brought in contact with disease and the varieties which are immune, or nearly so, stand out. It may therefore be that certain roses marked down for "Foliage" will do better with the average amateur than they will here. To receive "A," the foliage must be practically immune from mildew and spot, and must hold well throughout the season.

In marking for "Stem" a long strong stem is marked "A," short stems and those not able to sustain the weight of the bloom are marked "B," etc.

In "Size" a rose is considered "Medium" which runs from three and a half to four and a half inches in the spring. Smaller roses are marked "S" and larger roses marked "L."

It seemed best to give the actual number of blooms on all the varieties so that a grower would know the number of flowers he might expect. In this connection, it will be understood that the number of blooms varies greatly under different climatic conditions. As a usual thing the rose season here commences about the twenty-fifth of May, but testing beds in which the records have been made are about

BEST VARIETIES WITH CHARACTERISTICS

five hundred feet above sea level. In Southern Philadelphia, where the altitude is less, the bloom commences at least ten days earlier. Of course, in all localities the time of blooming is affected by the season. A month which gives cool weather and much rain increases the blooming of a rose, and a month of great heat and drought will naturally reduce the number of flowers; but as the records are taken from a number of years in the majority of cases, an average should be reached which is exact enough for all requirements. In a short test a rose may do well in one bed and badly in another. This has been insured against as far as possible by planting a number of roses of each variety, and having a test of never less than two years.

“Form” has been marked for the length and beauty of the bud and also for the substance of the open flower; petallage and size have both been considered; short buds and blooms which open singly or flat are marked “B,” etc.

“Lasting” refers entirely to the keeping qualities both before and after cutting.

“Color” is marked for the clearness and beauty of the color; “B” or “C” are used if the rose is either somewhat muddy or verges on a solferino shade, which is not considered of the first beauty in roses. The color descriptions of the blooms in the Main List

OUTDOOR ROSE GROWING

are mostly taken from the catalogue of Alexander Dickson & Sons, Ltd. It is noted where there is a very marked difference between this and roses tested here.

Where two letters are used, it will be understood that the description in question will range, for instance: from "B"—good to "A"—very good, etc.

The last two right-hand columns are a handy reference for planting and pruning, and the distances for planting may be followed implicitly. These have been changed in many places because during the last year experiments with spacing have proved that roses do better with more room. Therefore, while the marks given could be shaded to a slight extent, for general garden work they should be closely followed. They are based on the cultivation afterwards advised. It is most important that with these distances a mulch be used to protect the rose roots from the heat, otherwise they are too great. This is especially true in localities with open porous soil, or where local conditions cause quick drainage. As a rule, a rose will require more space on Multiflora than on Briar, on account of its greater growth on this stock.

The pruning column will be understood after the chapter "Pruning" is read; the number of eyes given for pruning being for the strongest wood, weak wood being cut lower down. "D.W." in this column stands for dead wood.

BEST VARIETIES WITH CHARACTERISTICS

Nearly every rose has some slight perfume, but in very many cases it is so mild that it is hardly noticeable. A column is therefore not added for perfume, but with roses in which the perfume is distinct, the same is noted under the description of the variety.

Where Multiflora is suggested in the left-hand column, the plant is marked for growth on Multiflora, and where special bed is noted, the rose is marked for special bed.

The Main List referred to will be found on the following pages.

MAIN LIST OF ROSES

Name and Description	Introducer	Class	Lat	Growth	Hardiness	Foliage	Stem	Size of bloom	Blooming Record					Distance to Plant in inches	Number of eyes to leave in spring pruning			
									July	August	September	October and late	Form of rose			Lasting	Color	
ALEX. HILL GRAY..... Use Multiflora. Deep lemon yellow. Use Multiflora.	Alex. Dickson & Sons, 1911	Tea	2	C/B	7	A	C	M	6	18	5	10	9	A	A	A	18	4
ALICE LEMON..... Blush white shading to brilliant salmon pink in the center.	E. G. Hill, 1912	Hybrid Tea	3	D	6	B/C	B	M	4	4	1	0	1	A	B	A	18	3
ANNEE BESANT..... Delicate salmon pink, suffused satiny flesh; often the same color as Antoine Rivoire; upright growth.	P. Nabonnand, 1910	Hybrid Tea	3	B/C	8	A	A	M	3	4	1	3	1	B/A	A	A	18	5
ARTHUR R. GOONWIN..... Copper orange red, passing to Munich pink—varies. Use Multiflora.	Pernet-Ducher, 1909	Hybrid Tea	3	C	G	C	C	M/S	9	7	5	3	4	A/B	B	A	15	3
BIRON PALM..... Pure velvety red, cleared deep yellow red and vermillion. Tall growth. Fragrant.	P. Lambert, 1914	Hybrid Tea	2	A	6/18	A/B	B	M/L	30	30	Through-out season	Through-out season	Through-out season	C/B	B	A	22	6
BEAUTE INCONSTANTE..... Coppery red, shaded with chrome yellow—varies. Fragrant. Low spreading growth.	Pernet-Ducher, 1893	Tea	3	C	6	A	C	M/S	35	35	Through-out season	Through-out season	Through-out season	C	C/B	B	18	3
BELLE SIEBRECHT..... (Syn. Mrs. W. J. Grant) Light imperial pink. Sweet. Use Multiflora.	Alex. Dickson & Sons, 1895	Hybrid Tea	2	B	8	C	B/C	M	15	12	3	4	1	B	B/C	A	20	4

BETTY Coppery rose, overspread golden yellow. Upright growth. Long stem but weak neck. Attractive bud.	Alex. Dickson & Sons, 1905	Hybrid Tea	2	A	7	B	B	M	12	18	9	8	7	B	C	A	22	5
CECILE CRISTERS Inside of petals lilac rose, outside deep rose pink. Double toned and clear.	M. Lecnders & Co., 1914	Hybrid Tea	3	B	8	B	B	M	1	13	1	10	3	C	C	B	20	5
CLARICE GOODACRE Biscuit chrome on ivory white. Tested by Dr. Huey for five years, and marked by him. (Color white.)	Alex. Dickson & Sons, 1916	Hybrid Tea	3	B	10	A	A	M	16	Throughout season				A	A	A	18	6
COLLEEN Brilliant rose, shaded rose pink, with deeper rose-crimson veining on a distinct creamy-yellow ground. New and distinct color. Sweetly scented.	S. McGredy & Son, 1914	Hybrid Tea	3	C	8	C	B	L	6	3	0	5	0	B	B	A	18	4
COMTESSE DE CAYLA Reddish carmine, tinted orange. Personal preference for best China.	P. Guillot, 1903	China	2	B	7	A	A	S	14	8	5	12	10	C	C/D	A	22	D.W.
CONSTANCE Orange yellow bud, streaked with crimson; open flower yellow cadmium, passing to golden yellow. Hard to establish.	J. Pernet-Ducher, 1915	Pernetiana	3	C	WK G	C	C	M	6	5	2	4	1	C/B/C/B	A	A	18	D.W.
COURTESSE OF SHAFTSBURY Silvery carmine; shell pink at edges of petals, deepening with age. Use Multiflora.	Hugh Dickson, 1911	Hybrid Tea	2	B	6	B	B	M	7	9	5	9	6	A	A	A	20	4
C. W. COWAN Warm carmine cerise. Strong perfume.	Alex. Dickson & Sons, 1912	Hybrid Tea	2	B	8	B	B	A	M	10	14	6	4	B	B	A	20	6
DEAN HOLE Silvery carmine, shaded salmon. Often not a clear color. In autumn usually muddy. Use special bed.	Alex. Dickson & Sons, 1904	Hybrid Tea	3	B	7	C	B	M	4	7	2	3	9	A/B	B	C	20	4

A—Very good. B—Good. C—Fair. D—Poor. L—Large. M—Medium. S—Small. Si—Single. C—Kills to ground. D. W.—Dead wood.

MAIN LIST OF ROSES—Continued

Name and Description	Introducer	Class	List	Growth	Hardness	Foliage	Stem	Size of bloom	Blooming Record							Distance to plant in inches	Number of eyes to leave in spring pruning	
									Partly and June	July	August	September	October and late	Form of rose	Lasting			Color
DONOVAN PAGE ROBERTS Coppery pink, suffused apricot yellow. Very tall, upright grower; dark green leathery foliage.	Alex. Dickson & Sons, 1907	Hybrid Tea	2	A	S	A	A	M	8	8	1	3	4	C/B	C	A	22	5
DONOVAN RATCHIFFE Light coral shaded yellow and fawn, becoming paler with age. Always plant three-year-old stock.	McGredy & Son, 1911	Hybrid Tea	3	C	WK G	B	B	M	12	Throughout season				A	A	A	15	3
DUCHER Double but flat. Pure white, decorative.	Ducher, 1870	China	2	B	4	A B	B C	M S	40	Throughout season				C	A	A	20	D.W.
DUCHESS OF SURRELAND Delicate warm rose pink, with salmon shading; olive green foliage. Upright grower. Briar perfume.	Alex. Dickson & Sons, 1912	Hybrid Tea	3	A	24	A	A	L	15	5	0	0	0	A	A	A	24	5
DUCHESS OF WESTMINSTER Dainty clear rose madder. Sweetly perfumed.	Alex. Dickson & Sons, 1911	Hybrid Tea	3	B	V	B	A	M L	4	3	2	2	1	A	A	A	20	4
DUSEBURG Deep dark rosy red. Blues quickly.	Hinner, 1909	Hybrid Tea	2	B	S	B	B	M	35	Throughout season				A B	B	B	20	5
EARL OF WARWICK Soft salmon pink shaded vermilion. Short stems. Use Multifloras.	Paul & Son, 1904	Hybrid Tea	3	C	S	D	C	M	7	13	1	7	2	B	B	A	20	5

EDU MEYER.....	Lambert, 1904	Hybrid Tea	3	B	7	C	S	15	22	6	15	20	SI	C	A	15	4
Bright coppery red and yellow.																	
Distinct color. Use Multiflora.																	
EDWARD MAWLEY.....	McGredy & Son, 1911	Hybrid Tea	2	B	6	B/C	M	8	6	3	4	2	C/B	B	A	22	4
Velvety crimson.							L										
Use Multiflora.																	
ELLEN WILMOTT.....	Bernaix, 1898	Hybrid Tea	2	B/A	6	A	M	6	9	7	8	7	B	A	A	20	4
Silver flesh to shell pink. Re-																	
markably fine foliage. Super-																	
seded by Souvenir du President																	
Carnot on the Multiflora.																	
ETINGELANTE.....	C. Chambard, 1914	Hybrid Tea	3	A B	6/12	B/C	M	10	8	1	9	6	B	A B	A	20	5
Bright brilliant red, shaded																	
with purple. Sweet perfume.																	
Use special bed.																	
ETUILE DE FRANCE.....	Pernet-Ducher, 1905	Hybrid Tea	2	B	8	C	A/B	M	9	7	4	6	D/C	B	B	22	5
Velvety crimson.																	
Liabile to																	
ball. Fragrant. Use Multiflora.																	
EUGENE BOULLET.....	Pernet-Ducher, 1910	Hybrid Tea	2	B	7	B	M	7	5	7	0	7	C	B	A	20	4
Crimson red, shaded carmine.																	
Fragrant.																	
FARBEN KÖNIGIN.....	Hinner, 1902	Hybrid Tea	3	B	7	B/A	B	M	17	Throughout season			A/B	B	A	20	4
Imperial pink.																	
Rather tall																	
growth.																	
FLORENCE PEMBERTON.....	Alex. Dickson & Sons, 1903	Hybrid Tea	2	A	8	A/B	B	M	8	10	2	7	10	B	B	22	6
Creamy white, suffused pink.																	
Use Multiflora.																	
FRAU BERTHA KIESE.....	Kiese & Co., 1914	Hybrid Tea	3	B/C	6	B	B/C	M	22	Throughout season			C	C	A	18	4
Pure golden yellow. Attractive																	
color.																	
FRAU KARL DRUSCHKI.....	Lambert, 1900	Hybrid per- petual	2	A	24	B/C	A	L	June and July 38— some late bloom in cool seasons				A	A	A	30	8
Large, upright growth; beauti-																	
ful, light green foliage. Snow																	
white, sometimes lightest pink																	
blush at center. Marked by Dr.																	
Huey, Philadelphia.																	
Marked also for bloom by J. C.																	
Currey, Portland, Oregon. Re-																	
ported of ever-blooming habit																	
in the South.																	

A—Very good. B—Good. C—Fair. D—Poor. L—Large. M—Medium. S—Small. SI—Single. G—Kills to ground. D. W.—Dead wood.

MAIN LIST OF ROSES—Continued

Name and Description	Introducer	Class	List	Growth	Hardness	Foliage	Stem	Size of bloom	Blooming Record					Distance to plant inches	Number of eyes to leave in spring		
									Early and June	July	August	September	October and late				
FRÄU MATH. NOEHL..... Lemon yellow. Fragrant.	N. Welter, 1914	Hybrid Tea	3	A/B	7	A/B	B	M L	2	4	7	2	3	A/B	A	20	5
FREIBAU INA VON SCHUBERT... Dark crimson red. Sweet per- fume	Lambert, 1912	Hybrid Tea	2	B	6/12	B	B	M	7	11	5	10	5	B/C/B	A	20	4
FRIEDRICH VON MARSHALL..... Dark carmine; fine foliage, often tea-colored.	P. Lambert, 1904	Tea	3	B	V	V	B	M	26	Throughout season				B	A	18	4
F. R. FAYER..... Cream buff; back of petals deli- cate warm pink to light orange pink; often with lilac shading. Tea perfume. Use special bed.	Alex. Dickson & Sons, 1909	Hybrid Tea	3	C	8	C	B	M L	21	Throughout season				A	A	18	4
GARDENROSE HAKKAWI..... Satinny flesh; more of a light salmon pink with us; color not always perfectly clear. Use Multiflora.	Leenders & Co., 1911	Hybrid Tea	2	B	8	C	B	M	6	13	4	6	5	B	A	22	5
GENERAL-SUPERIOR ARNOLD JANSSEN Bright crimson; with us dark pink. Perfumed.	Leenders, 1912	Hybrid Tea	2	A/B	15	B	B	M L	8	13	4	5	4	B	A	22	5
GRACE MOLYNEUX..... Carmine apricot with lighter flesh center. Fine for cutting in the spring.	Alex. Dickson & Sons, 1908	Hybrid Tea	2	A	8	C/D	A	M/S	6	11	1	6	9	A	A	22	5
GUSTAV GRÜNERWALD..... Carmine pink; center yellow. Fragrant. Use Multiflora.	P. Lambert, 1903	Hybrid Tea	2	A/B	8	B	A/B	M	6	13	6	9	4	A/B/A/B	A/B	22	5

	P. Lambert, 1914	Hybrid Tea	2	B/C	8	C	B	M	8	7	2	7	2	2	Throughout season	C	B/C	B	20	4		
H. F. EHLERS.....	Outer petals carmine rose, center carmine and slate blue red. Fragrant.	Tea	2	B	4	B	B	M		8	7	2	7	2	2	B	A	B	22	6		
HELEN GOOP.....	Sport of Manchu. Cochet. Delicate pink with deeper edges. Use Multiflora.	China	2	A	4	A	B	S							37	Throughout season	B	B/A	C	22	D.W.	
HERMOSA.....	Light bluish pink. Good decorative rose.	Hybrid Tea	2	B/C	6	C	C	M		11	14	5	2	9	B	B	A	20	5			
HERZOGIN MARIA ANTOINETTE.....	Deep orange. Sweet perfume. Use Multiflora.	Hybrid Tea	3	B	8	B	B	L		9	8	0	2	1	B	B	A	20	5			
H. V. MACGILL.....	Intensely black-stained, scarlet crimson. Classed as a Hybrid Tea, but with the blooming characteristics of a Hybrid Petal, only giving scattering bloom in fall.	Hybrid Tea	3	B	8	B	B	L		9	8	0	2	1	B	B	A	20	5			
HUGO KOLLER.....	Light canary yellow with claret, sometimes reddish lilac shadings—varies. Low growth. Very distinct in color.	Tea	3	C	WK G	A	B	M		8	8	1	3	2	A	A	A	15	5			
JACQUES VINCENT.....	Red with yellowish shade.	Hybrid Tea	3	C	WK G	B	B	M							12	Throughout season	Si	C	A	15	D.W.	
JEAN NÔTE.....	Chrome yellow, changing to creamy yellow. Use special bed.	Hybrid Tea	3	B/C	4	A/B	A/B	M		7	5	2	6	4	A	A	A	18	4			
JOSEPH HILL.....	Pink, salmon shaded; outside of petals pink copper. A beautiful rose. Does remarkably well in some situations, but not dependable. As an illustration of methods used in testing, three records are given of this rose. Multiflora, two-year plants. Briar, old plants. Special Bed, two-year plants.	Hybrid Tea	3	C	V	A	B	M							A	A	A	18	4			
				7	3	3	6	2
				3	7	0	3	0
				10	11	1	5	10

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MAIN LIST OF ROSES—Continued

Name and Description	Introducer	Class	List	Growth	Hardiness	Foliage	Stem	Size of bloom	Blooming Record					Distance to plant in inches	Number of eyes to pruning in spring		
									Early and June	July	August	September and October	late				
JULIET Outside of petals old gold; interior rich rosy red changing to deep rose. Very remarkable color. Fragrant. Use Multiflora.	Paul & Son, 1910	Pernetiana	3	B	V	D	B	M	9	June and first of July						24	D.W.
KAYSER ARCADEA VICTORIA..... Primrose. Very beautiful glossy leathery foliage. Prefers the Climbing Sport to the Dwarf. Use Multiflora.	Lambert & Reiter, 1891	Hybrid Tea	3	B	8	A	A	M	5	4	1	8	0	A	A	22	5
KILARNEY BRILLIANT Deep in color than its parent. Killarney. A disappointment.	Alex. Dickson & Sons, 1914	Hybrid Tea	3	C	6	C	B	M	4	4	0	2	2	A	C	18	5
KILARNEY GREEN Brighter in color than its parent. Killarney, and bloom slightly larger. Use Multiflora.	.....	Hybrid Tea	2	A/B	6	C	A	L	7	11	1	3	2	A/B	C	20	5
KÖNIGIN CAROLA Satiny rose; reverse of petals silvery white.	Turke, 1901	Hybrid Tea	3	C	8/24	C	A/B	M	19	Throughout season				A/B	B	18	6
LADY ASHTOWN A light salmon pink. Distinct color.	Alex. Dickson & Sons, 1904	Hybrid Tea	2	B	8/15	B	B	M	10	15	2	2	3	A	A	20	4
LADY BARHAM Deep flesh coral pink.	Alex. Dickson & Sons, 1911	Hybrid Tea	3	C	7	B	B	M	10	Throughout season				B	A	18	3
LADY BATTERSEA Cherry-crimson. Distinct shade of red.	Paul & Son, 1901	Hybrid Tea	3	C	7	C	B	M/S	17	Throughout season				A	A	18	3

LADY DE BATH.	Creamy white with yolk of egg markings. Use special bed.	B. R. Cant & Sons, 1911	Hybrid Tea	3	B	6	C.	B	M/S	2	9	2	4	12	A.	A	B/A	18	3
LADY DOWNE.	Buff shading to a deep yellow. Use special bed.	Wm. Paul, 1911	Hybrid Tea	3	B	7	C	A	M/L	10	10	2	6	2	A	A	A	18	5
LADY DUNLEATH.	Very cream white to egg yolk. Especially attractive in bud.	Alex. Dickson & Sons, 1913	Hybrid Tea	2	C	5	A	B	M/S	4	8	5	10	5	A	A/B	A	20	4
LADY GREXALL.	Saffron orange to creamy white; reflex of petals suffused shell pink	Alex. Dickson & Sons, 1911	Hybrid Tea	3	C	10	C	B	M		10	Through- out season			A	A	A	18	6
LADY HULLINGDON.	Deep apricot yellow. Very distinct color	Lowe & Sawyer, 1910	Tea	3	C	V	C	C	M	9	10	3	11	3	B/D	C	A	18	4
LADY KATHARINE ROSE.	Delicate pink. Sweet. Beautiful for cut blooms. Use special bed.	S. Bide & Sons, 1911	Hybrid Tea	3	A	7	A/B	A	L	5	9	0	3	0	A	A	A	20	5
LADY MARGARET BOSCAWEN.	Soft shell pink.	Alex. Dickson & Sons, 1911	Hybrid Tea	3	C	6	C	C	M		12	Through- out season			A	A	A	15	4
LADY MARY WARD.	Orange shaded deeper apricot with metallic veining. Sweet. Use Multiflora.	McGredy & Son, 1913	Hybrid Tea	3	C/D	4	C	B	M		16	Through- out season			B/C	C	A	15	D.W.
LADY ROBERTS.	Ritch apricot, base of petals coppery red, edges shaded orange. Especially good in Pacific Northwest. Use Multiflora.	Frank Cant & Co., 1902	Tea	2	B	7	A	B	M	13	8	1	13	4	B	A	A	20	6
LADY USTULA.	Flesh pink. Tall growth; good decorative; fair for cutting. Use Multiflora.	Alex. Dickson & Sons, 1908	Hybrid Tea	2	A	8/18	B	B	M/S	11	21	9	11	15	B	A/B	B	24	7
LADY DE BROOKE.	White, tinted flesh—varies.	Dubreuil, 1911	China	2	B	4	A	C	S M	10	2	2	5	12	B/C	B	B	20	D.W.

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MAIN LIST OF ROSES—Continued

Name and Description	Introducer	Class	Last	Growth	Hardness	Foliage	Stem	Size of bloom	Blooming Record					Distance to plant in inches	Number of eyes to leave in spring pruning
									Early and June	July	August	September	October and late		
LENA.....Glowing apricot, edges of petals primrose yellow. Tested only on Briar; should do well on Multiflora.	Alex. Dickson & Sons, 1906	Tea	3	C/D	WK G	B	B	S	25	Through out season				15	D.W.
LOUISE-CATHERINE BRESLAU.....Coral red shaded with chrome yellow. Wonderful glossy dark green leathery foliage which often is lost in late summer and fall. New and wonderful color.	Pernet-Ducher, 1912	Pernetiana	3	C	7	C	B/C	M	4	3	2	2	1	20	4
LOUISE WELTER.....Veined rose; large, regularly formed panicles; with us, light cream to flesh—very often coming singly on a good stiff stem. Almost identical with Gruss an Aachen in color and form, but with less petalage; longer stem; less bloom.	Welter, 1910	Polyantha	2	B	10	A	A/B	$\frac{S}{M}$	15	6	3	4	1	20	7
LUCIEN CHARRAS.....Flesh illuminated with clear rosy cream. Perfume. Fair in regular bed; a marked improvement in special bed, as given.	Souper & Notting, 1914	Hybrid Tea	3	B/C	10	B	B	M	8	18	8	9	3	18	4

LYON ROSE.....	Pernet-Ducher, 1907	Pernetiana	3	B	7	B/C/C/D	L	5	10	2	1	2	A/B	A	A	22	5		
Shrimp pink at ends of petals; center coral red or salmon, shaded with chrome yellow— varies. Stems usually weak for weight of rose. Perfume. Use special bed.																			
MABEL DREW.....	Alex. Dickson & Sons, 1911	Hybrid Tea	3	C	V	B	A	M	$\frac{1}{L}$	2	1	4	1	3	A	A	18	5	
Deep cream passing to an in- tense canary yellow. Sweet perfume. Wonderful bloom.																			
MADAME ABEL CHATENAY.....	J. Pernet-Ducher, 1895	Hybrid Tea	2	A	8	B	B	S	S	8	20	5	8	9	B	A/B	A	22	6
Carmine rose, shaded with sal- mon. Very popular in England. Use Multiflora.																			
MADAME BARDOU JOB.....	F. Dubreuil, 1914	Hybrid Tea	2	B	7	C	B	M	$\frac{M}{S}$	3	7	6	8	1	B	B	A	20	5
Chrome yellow and canary citron yellow. Especially good in bud.																			
MADAME CHARLES DUBREUIL.....	P. Guillot, 1913	Hybrid Tea	2	A	7	B	A/B	M	$\frac{M}{L}$	7	12	3	5	7	B	C	A	22	5
Salmon rose, shaded carmine on the reverse of the petals. At its best in cool weather.																			
MADAME CHARLES LUTAUD.....	Pernet-Ducher, 1912	Hybrid Tea	3	C	V	C	B	M	M	5	12	2	5	3	A/C	B	A	20	5
Middle, chrome yellow, slightly blended with bright rosy scarlet on the outer petals. Derived from Marquise de Sinety, and very similar in color but a better grower. Wonderful color. Use Multiflora.																			
MADAME EDMÉE MITZ.....	Souper, 1901	Hybrid Tea	2	B	8	A	B	M	M	8	22	8	9	19	B	A	A/E	22	5
Rosy carmine, shaded salmon. Use Multiflora.																			
MADAME EDMOND ROSTAND.....	Pernet-Ducher, 1912	Hybrid Tea	2	B	8	C	B	M	M	6	10	1	6	2	A	A	A	22	5
Pale flesh, shaded with salmon and reddish orange yellow in the center. Sweet perfume. An improved Prince de Bulgarie with less bloom.																			

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MAIN LIST OF ROSES—Continued

Name and Description	Introducer	Class	List	Growth	Hardiness	Foliage	Stem	Size of bloom	Blooming Record						Distance to plant in inches	Number of eyes to leave in sprigs pruning			
									Early and June	July	August	September	October and late	Form of rose			Lasting	Color	
MADAME JENNY GUILLEMOT..... Deep saffron yellow. Very attractive in bud.	J. Pernet-Ducher, 1905	Hybrid Tea	3	B	7	A/B	A	M L	4	7	1	2	2	2	A	B	A	20	5
MADAME JULES GROLEZ..... Bright china rose. Sweet per- fume. Use Multiflora.	Guillot, 1897	Hybrid Tea	2	B	8	A	B	M	14	10	6	6	7	B	A	B	22	5	
88 MADAME PHILIPPE RIVOIRE..... Apricot yellow with lighter center. Much like Madame Melanie Soupert, perhaps darker and larger.	Pernet-Ducher, 1905	Hybrid Tea	3	B	7	C	A/B	M L	3	5	3	2	4	A/C	B	A	20	5	
MADAME RAVARY..... Orange yellow. Use Multiflora.	Pernet-Ducher, 1900	Hybrid Tea	2	B	9	B	C	M	11	13	7	5	3	B	C	A	20	5	
MADAME ROLOPHE ARNAUD..... Deep pink, shaded yellow, suf- fused coral red. Sweet perfume.	Pedriolle, 1912	Hybrid Tea	2	B/C	8	B	B	M L	7	10	2	6	2	A	A	A	18	5	
MADAME VERMOREL..... Coppery yellow, center shaded red. Especially good in hot weather.	Mari, 1901	Tea	2	B	6	A	B	M						V	A	A	20	5	
MADAME WAHRAM COMTESSE DE TRUENNE Satinny rose, shaded flesh pink. Uses special bed.	Bernaix, 1895	Hybrid Tea	3	B	6	B	B	M	8	11	8	19	4	A	A/B	A/B	22	5	
MADAME MARIE MASCUAUD..... Light flesh to peach center. Good for cutting.	Bernaix, 1909	Hybrid Tea	3	C	V	B	A	M S	2	5	2	6	0	A	A	A	18	4	

MAJESTIC.....	Paul & Son, 1914	Hybrid Tea	3	C	8	C	B	M	19 Throughout season	C	A	18
Carmine rose.												
MAMAN COCHET.....	Sc. Cochet, 1893	Tea	3	A/B	7	B	A	M	2 1 2	A	A	20
Carmine mingled with salmon yellow. Use Multiflora.												
MARGHERITA CROZE.....	Ketten Bros., 1914	Hybrid Tea	2	B	8	C	B	M	4 3 3 16 6	A	A	20
Carmine purple, changing to purple rose, with deep rose pink shading at base of petals. Sweet perfume.												
MARIA SCHMITZ.....	Schmitt, 1912	Hybrid Tea	2	B	8	B	B/C	$\frac{M}{L}$	10 6 10 2 2	C	B	20
Sport of Madame Caroline Testout. Silky rose pink with brilliant rose center. Clear color but balls.												
MARIE VAN HORRIGT.....	Ducher, 1871	Tea	2	B	7	A/B	A/B	$\frac{M}{S}$	9 10 0 11 1	B	A	20
Yellow canary, deeper center, border of petals tipped with bright rose. An old favorite.												
MARQUISE DE GASAY.....	Guillot, 1910	Hybrid Tea	2	A	10	B	B	M	15 20 2 5 2	A/B	A	24
Silky rose. Sweet perfume. Use Multiflora.												
M. ACQUISE DE SINEY.....	Pernet-Ducher, 1906	Hybrid Tea	3	C	V	C	C	M	10 8 1 6 0	B/C	B/C	20
Golden yellow, shaded bronzy red. Distinct color. Use Multiflora.												
MARY, COUNTESS OF LICHESFER.....	Alex. Dickson & Sons, 1909	Hybrid Tea	3	B	8/24	A	A	$\frac{M}{L}$	5 3 1 4 1	A	A	20
Warm crimson carmine. Fra- grant. Fine for cut flowers.												
MIREILLE.....	Schwartz, 1914	Tea	3	C	7	A/B	C	S	27 Throughout season	B	B	18
Yellow, sometimes channels tinted rose. Attractive color.												
MEYBOU DONA VAN TERS.....	Leenders, 1913	Hybrid Tea	3	C	7	B	C	M	5 13 3 5 2	C	C	18
Glowing deep crimson with vel- vety shading. Perfumed. Won- derful color.												
MISS ALICE DE RONSHILD.....	Alex. Dickson & Sons, 1910	Tea	3	C	V	C	B	S	29 Throughout season	B	B	18
Rich deep citron yellow. With us, often a lighter canary color. Sweet perfume. Needs time to become established.												

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MAIN LIST OF ROSES—Continued

Name and Description	Introducer	Class	List	Growth	Hardness	Foliage	Stem	Size of bloom	Blooming Record					Form of rose	Lasting	Color	Distance to plant in inches	Number of eyes to leave in spring pruning
									Early and June	July	August	September and October	Late					
MISS CYNTHIA FORDE..... Deep brilliant rose pink, shading on the back of petals to light rosy pink. Sweet perfume. Very much on the order of Grossherzog Friedrich with a better stem and less bloom. Use Multiflora.	Hugh Dickson, 1909	Hybrid Tea	2	A	8	A	B	M L	5	8	0	11	3	B	A/B	A	24	6
MOLLY SHARMAN CRAWFORD..... Delicate eau de nil white. Use Multiflora.	Alex. Dickson & Sons, 1908	Tea	3	B	6	B	C	M	8	11	25 Throughout season			A/B	B	A	20	4
Mrs. AMBROSE RICCARDO..... Deep honey yellow, overlaid brighter yellow. Sweet perfume. Distinct color.	McGrady & Son, 1914	Hybrid Tea	2	B	6	C	C	M	8	11	3	10	2	B	B	A	20	4
Mrs. AMY HAMMOND..... A blend of ivory, amber and apricot. Sweet perfume.	McGrady & Son, 1911	Hybrid Tea	2	B	7	B	B	M	8	10	1	4	0	B	B	A	20	5
Mrs. ARTHUR E. COXHEAD..... Claret red, shaded vermillion towards the edge.	McGrady, 1911	Hybrid Tea	3	A/B	8	B	B	M L	5	5	0	1	0	C	C	A	24	5
Mrs. CHARLES CRISTIS HARRISON..... Deep crimson pink on front of petals; deep crimson carmine on reverse side. Short stems. Fragrant.	Alex. Dickson & Sons, 1910	Hybrid Tea	2	B	6/10	B	C	M L	6	10	4	9	2	B	B	A	20	5
Mrs. CHARLES E. ALLAN..... Pale neutral orange, passing to clear ochre and yellowish buff.	Hugh Dickson, 1911	Hybrid Tea	3	C	8	B	C	M	19	Throughout season			B	B/C	A	18	4	

	McGredy & Son, 1913	Hybrid Tea	3	D	4	C	M	12 Throughout season	A/B/A/B	A	15	3						
Mrs. CHARLES E. PEARSON..... Orange, flushed red, apricot, fawn and yellow. Sweet per- fume.	Hicks, 1914	Hybrid Tea	3	B/C	V	C	B/A	18	A/B	B	A/B	18	4					
Mrs. CHARLES REED..... Pale cream, tinted deep peach, base of petals soft golden yellow. Tea perfume.	Waban Conser- vatories, 1914	Hybrid Tea	3	C	8	B	A	6	2	0	1	0	C	B	18	5		
Mrs. CHARLES RUSSELL..... Rose carmine. Sweet perfume.	Hugh Dickson, 1912	Hybrid Tea	2	C	8	D	B/C	V	13	20	8	6	5	B/A	B	A	18	4
Mrs. DAVID BALLIE..... Madder carmine, with delicate reins on the petals, pencilled with a deeper shade. Fine in spring and early summer; very small thereafter.	Alex. Dickson & Sons, 1908	Hybrid Tea	2	A	10	A/B	B	M	9	9	8	14	1	B	B	B	30	7
Mrs. DAVID JARDINE..... Bright rosy pink, shading in outer petals to salmon pink. Sweet perfume. Tall growth. Use Multiflora.	Paul & Son, 1907	Tea	2	B	4	C/D	B	M	21	Throughout season	B	A	B	18	5	5		
Mrs. An improved Marie Houtte. Pale chamois yellow. In autumn develops rose shades.	Bernaix, 1911	Hybrid Tea	3	C	7	A/B/B/C	V	5	9	3	2	2	C	B/C	A	18	4	
Mrs. EDWARD POWELL..... Velvety crimson. Remarkable color. Best in spring.	Guillot, 1911	Hybrid Tea	2	B/A	6	D	C	S	19	17	10	15	13	A/B	A	A	24	5
Mrs. E. TOWNSHEND..... Soft rosy fawn, orange carmine on the reverse side. Fine decor- ative foliage mildews.	Alex. Dickson & Sons, 1910	Tea	2	B/C	8	B	B	M	22	Throughout season	B	A	A	20	5			
Mrs. FOLEY-HOBBS..... Delicate ivory white, faintly tinged clear pink on edge of petals.	Alex. Dickson & Sons, 1913	Hybrid Tea	2	A/B	8	B	B	M	3	17	5	5	8	B	B	A	18	4
Mrs. FORD..... Stained or flushed deep carmine rose, on delicate rose pink, zoned clear chamois yellow at base of petals. Very odd color, at times most attractive.																		

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MAIN LIST OF ROSES—Continued

Name and Description	I ntroducer	Class	List	Growth	Hardiness	Foliage	Stem	Size of bloom	Blooming Record					Distance to plant in inches	Number of eyes to pruning			
									Early and June	July	August	September	October and late			Form of rose	Lasting	Color
Mrs. FRANK BRAY..... Rich deep coppery cerise, developing into fawn and ivory shell pink as the flower opens. Small in summer and fall.	Alex. Dickson & Sons, 1912	Hybrid Tea	2	B	6	B	B	M	9	14	2	8	2	B/A	B	B	20	5
Mrs. FRANK STRAKER..... Orange crimson in the bud, developing as the bloom expands silvery fawn on front of the petals; delicate orange pink on back. Very fine in the spring.	Alex. Dickson & Sons, 1910	Hybrid Tea	2	B	V	B	B	S	12	14	2	7	0	A	A	A	18	4
Mrs. FREDERICK W. VANDERBLIT Deep orange red, shaded bronze apricot red. Sweet perfume. Wonderful color.	McCredy, 1913	Hybrid Tea	3	C	6	C/D	B	M L	7	Through-out season				A/B,A/B	A	A	18	4
Mrs. HERBERT TAYLOR..... Shell pink, the edges of petals being ivory white. If not double it is especially good as a fall decorative.	Alex. Dickson & Sons, 1909	Tea	2	A	6/10	B/C	V	M S	45	Through-out season				B	B	C	30	6
Mrs. JOSEPH H. WELCH..... Brilliant rose pink. Not good in very hot weather. Sweet perfume. Tall growth.	McCredy & Son, 1911	Hybrid Tea	3	A	24	A	C/D	L	5	7	5	2	0	SI	C	B	24	5

Mrs. LEONARD PETRIE..... Honey yellow, with delicate claret on back of outer petals, passing to pale sulphur yellow in the developed blooms. Won- derful color. Use special bed.	Alex. Dickson & Sons, 1910	Hybrid Tea	3	C	B	B	M	6	4	6	3	3	B	B	A	18	4	
Mrs. LONGWORTH..... An oddity only. Cream white, varied with light rose lines from end to base of petals.	Prince, 1908	Hybrid Tea	3	A	B	B	M	29	Through- out season	4	1	3	2	C	B	B	20	4
Mrs. RICHARD DRAPER..... Bright reddish satiny pink on the outside of the petals; inside of the petals silvery flesh.	Hugh Dickson, 1912	Hybrid Tea	3	D	D	D	M	8	4	1	3	2	A/B	A/B	A	15	3	
Mrs. S. T. WRIGHT..... Guard petals cadmium old gold; center petals delicate suffusion of pure rose pink on cadmium orange chrome—intense silk finished apricot. Sport of Harry Kirk.	Alex. Dickson & Sons, 1914	Tea	3	C	C	B	M	15	Through- out season	4	1	3	1	B	B	A	18	4
Mrs. T. HILLAS..... Attractive chrome yellow.	Pernet-Ducher, 1913	Hybrid Tea	3	B/C	A/B	B/C	M	3	10	1	3	1	A/D	C	A	18	4	
Mrs. WAKEFIELD CHRIS- TIE-MILLER Soft pearly blush, shaded sal- mon; outside of petal clear ver- million rose; loosely built with petals of good size.	McGredy & Son, 1909	Hybrid Tea	3	A/B	B/24	B	M	21	Through- out season	4	1	3	1	C	B	B	20	5
Mrs. WALTER EASTEA..... Crimson carmine, back of petals satiny crimson. Fair perfume. Use special bed.	Alex. Dickson & Sons, 1910	Hybrid Tea	3	B	8/24	C	A/C	M	12	16	2	10	6	B	B	B	20	5
Mrs. WEYMESS QUIN..... Intense lemon chrome, washed with delicate maddery orange— a golden orange which becomes deep canary yellow when the bloom opens. The guard petals are tinged crimson orange, with cold reflexes, tipped brilliant, coppery crimson. Fine foliage but lost early.	Alex. Dickson & Sons, 1914	Hybrid Tea	3	C	C	C	M	5	7	0	0	3	B	B	A	18	4	

A—Very good. B—Good. C—Fair. D—Poor. L—Large. M—Medium. S—Small. Si—Single. G—Kills to ground. D. W.—Dead wood.

MAIN LIST OF ROSES—Continued

Name and Description	Introducer	Class	List	Growth	Hardness	Foliage	Stem	Size of bloom	Blooming Record					Distance to plant in inches	Color	Form of rose	Lasting	Number of eyes to pruning in spring
									Early and June	July	August	September	October and late					
MY MARYLAND..... Light salmon pink with paler edges. Fragrant. Clear distinct color.	J. Cook, 1909	Hybrid Tea	2	B/A	7	B	B	M	9	14	0	7	5	A/B	A	A	20	5
ODETTE PEDRIOLLE..... Cream suffused carmine, lighter with us.	Pedriolle, 1911	Hybrid Tea	3	C	8	C	C	M	4	7	11	0	3	A/B	A	A	15	3
OLD GOLD..... Vivid reddish orange with rich coppery red and apricot shadings. Much to be preferred to Irish Fireflame.	McGredy & Son, 1913	Hybrid Tea	3	C	7	A/B	C	M	5	13	9	13	6	C	A	A	18	3
PERLE VON GODESBERG..... Almost identical with its parent, Kaiserin Augusta Victoria, perhaps a trifle darker. Use Multiflora.	Schaeider, 1902	Hybrid Tea	3	B	7	A	A	M	18	Throughout season				A	A	A	20	5
PRESIDENT W. H. TAFT..... Clear light salmon pink.	Paul & Son, 1910	Hybrid Tea	2	B	7	A	B	M	6	9	2	3	6	A/B	B	A	22	5
PRIMEROSE..... Melon yellow, with apricot shadings. Sweet perfume. Beautiful for cut flowers.	Souppert & Notting, 1913	Hybrid Tea	3	D	4	C	B	M	5	6	2	7	1	A/C	B	A	18	4
PRINCE DE BULGARIE..... Deep rosy flesh, shaded with salmon. Much like Antoine Rivoire in spring, but varies to orange cen'er in fall. If yellow throughout season would secure a place in the first forty-eight.	Pernet-Ducher, 1902	Hybrid Tea	2	B	7	B	A	M	5	12	7	5	6	B	B	A	22	5

PRINCE MOHAMED ALI PACHA.	Nabonnamd, 1912	Hybrid Tea	2	B	8	A	A/B	M	8	11	5	5	4	B	B	A	22	5
Satiny fleshy white, with salmon colored center. Balls in rainy weather.																		
PRINCIPAL A. H. PIRE.	P. Bernaix, 1910	Hybrid Tea	2	B	8	B/C	B	M	7	17	7	1	2	B	B	A	22	5
Bright silvery salmon pink. High growth.																		
QUEEN MARY.	Alex. Dickson & Sons, 1913	Hybrid Tea	3	C	V	B	C	M/S	8	9	2	3	2	C	C	A	15	3
Bright canary yellow—crayoned carmine. Remarkable color.																		
RAYON D'OR.	Pernet-Ducher, 1910	Pernetiana	3	C	WK	C	C	M	12	15	3	7	0	B	B	A	18	D.W.
Yellow cadmium toning to sunflower yellow. Bronze green, glossy foliage. Wonderful color. Good reports on this rose from Baltimore. Use Multiflora.																		
RED ADMIRAL.	Paul & Son, 1913	Hybrid Tea	2	B	7	B	B	L	9	14	6	3	2	B	B	A	21	6
Bright cerise red.																		
RED LITTLE DAY.	Alex. Dickson & Sons, 1914	Hybrid Tea	3	A/B	8	A/B	C	M/S	10	16	7	3	4	Si	C	A	20	D.W.
Velvety, brilliant, glowing scarlet crimson, reflex of petals satiny crimson scarlet. Decorative only.																		
RICHMOND.	E. G. Hill Co., 1905	Hybrid Tea	2	B/C	8	B	B	M	13	16	4	10	5	V	B	A	20	5
Pure red scarlet. At times varies greatly. Fragrant. Use Multiflora.																		
ROBERT HELLER.	Heller Bros., 1911	Hybrid Tea	3	B	2	A	A/B	M	2	5	2	4	3	A/B	A	A	20	D.W.
Deep golden yellow. Towards fall greatly resembles William R. Smith. Only tested on own roots.																		
ROSA MARIE.	Ketten Bros., 1914	Hybrid Tea	2	A	8	A/B	B	M/S			32	Throughout season		B	A/B	A/B	24	6
Pure deep rose pink. Tall grower. Best in spring and early fall. Good decorative. Fair perfume.																		
SARANO.	Beauregard, 1839	Tea	2	B	5	B	C	S	14	26	4	25	17	B/C	C	B	20	5
Bright apricot. An old-time favorite. A low decorative yellow. Use Multiflora.																		

A—Very good. B—Good. C—Fair. D—Poor. L—Large. M—Medium. S—Small. Si—Single. G—Kills to ground. D. W.—Dead wood.

MAIN LIST OF ROSES—Continued

Name and Description	Introducer	Class	List	Growth	Hardness	Foliage	Stem	Size of bloom	Blooming Record					Distance to plant	Color	Number of eyes to leave in spring			
									Early and June	July	August	September and October	Without dis-budding				Form of rose	Lasting	
SOLEIL D'ANGERS..... Deep ochre yellow, edged vermillion. Clusters. Use Multiflora.	C. Detriche, near, 1910	Pernetiana	3	B	V	D	D	M/S	63	5	Without dis-budding	0	0	0	C	B	A	20	D.W.
SOLEIL D'OR..... Varying from orange yellow to reddish gold, shaded with nas-turtium red. Wonderful color. Use Multiflora.	Pernet-Ducher, 1900	Pernetiana	3	B	V	D	B/C	M	14	1	0	0	0	B	B	A	20	D.W.	
SOUVENIR DE GUSTAVE PRAT..... Light sulphur yellow. Stronger than Senateur Mascaraud, but shorter stems. Use Multiflora.	Pernet-Ducher, 1910	Hybrid Tea	2	B	7	A/B	B	M	7	15	3	5	2	A/B	A	A	20		
SOUVENIR DE LOUIS PERIER..... Deep rose, shaded yellow; reverse of petals silvery rose; in the autumn gives its best blooms of finest color, although scattered. Tall growth.	A. Pedriolle, 1910	Hybrid Tea	3	B	V	C	A	M L	8	5	0	0	5	A/B	A	A	18		
SUNSHINE..... Cadmium yellow, with yellow orange center. Flowers of cupped form. Low spreading growth. Variable in color. Requires time to become established.	Pernet-Ducher, 1912	Hybrid Tea	3	C	V	B	B	M	5	2	1	2	2	A/B/B/C	A	A	15		

VISCOUNTS ENFIELD.....	Pernet-Ducher, 1910	3	C/D	6	C/D/B/C	M	7	9	3	3	4	B	A	15	4		
Coppery old rose shaded with yellow; inner petals deeply tinted with carmine. Difficult to grow well. Use Multiflora.																	
VISCOUNTS FOLKSTONE.....	Bennett, 1886	2	B	9	C	L	9	23	2	14	2	C	B	A	20	4	
Creamy silver pink; center salmon pink. Great petalage; bloom heavy, stem usually drooping. An old favorite. Very fragrant.																	
WALTHAM SCARLET.....	Paul & Son, 1914	3	A	6/12	B	C	M	70	Through out season without budding			Si	C	A	22	7	
Crimson scarlet. Decorative only.								20	Throughout season			A/B	B	A	20	5	
WHITE KILLARNEY.....	Waban Rose Co., 1909	3	B	7	C	B	M	6	5	2	5	2	A	A	A	20	5
A white sport of Killarney. Not as good a bloomer and with the same foliage. A disappointment.																	
WHITE MAMAN COCHET.....	Cook, 1898	3	B	6	A	B	M	6	5	2	5	2	A	A	A	20	5
A white sport of Maman Cochet. Use Multiflora.																	
WILLIAM SHEAN.....	Alex. Dickson & Sons, 1906	2	B	7	C/D	B	L	34	Throughout season			A	A	B	20	5	
Very large; pink but not always clear in color; plant varies, sometimes a fine grower—often small. Wonderful when well grown. Use Multiflora.																	
WILLIAM R. SMITH.....	Smith, 1908	3	B/A	6	A	A/B	M	5	1	3	4	1	A	A	A	20	6
White, tinged blush; with us has yellow shading also. Good for cutting. Use Multiflora.																	
WILLOWERE.....	Pernet-Ducher 1913	3	B/A	6/24	C	B	M	6	7	1	3	1	A	A/B	A	22	6
Rich shrimp pink, shaded yellow in the center and toning to cream pink towards the base of petals. Vigorous growth and erect branching habit; long continued coral red bud. Exceptionally distinct and clear color.																	

A—Very good. B—Good. C—Fair. D—Poor. L—Large. M—Medium. S—Small. Si—Single. G—Kills to ground. D. W.—Dead wood.

OUTDOOR ROSE GROWING

SCHEDULE OF POINTS FOR JUDGING OF OUTDOOR ROSES

ORIGINATED BY DR. ROBERT HUEY, JESSE A. CURREY,
GEORGE C. THOMAS, JR.

INDIVIDUAL QUALITIES

Novelty	5	
Color	10	
Fragrance	5	
Lasting	10	
		Total 30

FORM

Shape	10	
Substance	5	
Petallage	5	
Size	5	
		Total 25

HABIT AND GROWTH

Blooming	15	
Hardiness	10	
Foliage	10	
Growth	5	
Stem	5	
		Total 45
		Grand Total 100

INDIVIDUAL QUALITIES

NOVELTY [5]

The conditions to be considered in judging this quality shall be:

1st—With roses of any established class, the Improvement or Distinctiveness of the Color, Fragrance, Lasting, Shape, Size, Substance, Petallage or Stem, with regard to the bloom.

BEST VARIETIES WITH CHARACTERISTICS

The Improvement of the Hardiness, Foliage, or Growth, with regard to the habit of the plant.

2d—With roses of any new class, the Distinctiveness, Individuality and Improvement over classes already established.

Note.—Any new rose which is to receive an award as a new variety must have filed with the Society under whose auspices it competes, a certified pedigree if same is known, or certificate giving as many facts as possible with relation to its origin if the entire pedigree is unknown.

COLOR [10]

The conditions to be considered in judging this quality shall be:

Uniformity, both as to shades and markings; clearness and beauty of the color; and freedom from splotches, muddiness and objectionable shades.

FRAGRANCE [5]

The conditions to be considered in judging this quality shall be:

Abundance and refinement.

LASTING [10]

The conditions to be considered in judging this quality shall be:

OUTDOOR ROSE GROWING

1st—The lasting of the color of the flower, cut and uncut.

2d—The retention of the fragrance of the flower, cut and uncut.

3d—The lasting of the form of the flower, as a bud, as partly opened, and as a full-blown rose, cut and uncut.

FORM

SHAPE [10]

The conditions to be considered in judging this quality shall be:

1st—To consider the type of rose being judged and to compare the exhibit with a rose of perfect shape of that type.

In regard to exhibition varieties, the most desired shape is a long spiral bud, which, as the rose opens, maintains a high pointed center. Roses which are short in bud, and which open flat, should be adversely scored.

SUBSTANCE [5]

The conditions to be considered in judging this quality shall be:

1st—To consider the type of rose being judged and to compare the exhibit with a rose of perfect substance of that type.

2d—The weight or thickness of the petals.

BEST VARIETIES WITH CHARACTERISTICS

PETALLAGE [5]

The conditions to be considered in judging this quality shall be:

1st—To consider the type of rose being judged and to compare the exhibit with a rose of perfect petallage of that type.

In considering Hybrid Teas, Hybrid Perpetuals, Pernetianas, and other types of roses used for exhibition, first, the shape of the petals shall be considered; and second, the number of petals.

A rose of this type, to score the maximum under this quality, should have approximately forty (40) petals. A single rose shall be one which has from four (4) to ten (10) petals; a semi-double rose shall be one which has from eleven (11) to twenty-five (25) petals; a double rose shall be one which has over twenty-five (25) petals.

SIZE [5]

The conditions to be considered in judging this quality shall be:

To consider the type of rose being judged and to compare the exhibit with a rose of perfect size of that type.

HABIT AND GROWTH

BLOOMING [15]

The conditions to be considered in judging this quality shall be:

OUTDOOR ROSE GROWING

The length of the blooming season; the continuity of blooms; and the number of blooms produced.

Note.—In judging Hybrid Teas, Pernetianas, and other types of roses which bloom throughout the entire growing season, and which, on account of their beauty and length of stem, are useful for cut flower varieties, a plant which, after the first year, produces fifty (50) blooms should receive the maximum number of points for this quality.

HARDINESS [10]

The conditions to be considered in judging this quality shall be:

To consider the type of rose being judged and to compare the exhibit with a rose of perfect hardiness of that type, noting particularly the amount of winter killing, and the extent to which the variety is affected by extreme heat or other climatic conditions.

FOLIAGE [10]

The conditions to be considered in judging this quality shall be:

1st—The quality and substance of the foliage.

2d—The lasting qualities of the foliage during the entire growing season.

3d—The immunity of the foliage from mildew, spot and other diseases.

BEST VARIETIES WITH CHARACTERISTICS

GROWTH [5]

The conditions to be considered in judging this quality shall be:

To consider the type of rose being judged and to compare the exhibit with a rose of perfect growth of that type, special attention being given, not only to the vigor of the plant and the number of canes produced, but also to the uniformity and even balance of the growth.

In judging climbers or ramblers, the strength and length of the shoot bearing the blooms, and the branching habit, shall be especially considered.

STEM [5]

The conditions to be considered in judging this quality shall be:

The length and strength of the stem which carries the bloom.

In judging exhibition varieties the following points shall be scored:

A plant on which the stem carrying the bloom is 6 inches in length shall receive.....	1 point
From 6 to 8 inches.....	2 points
From 8 to 10 inches.....	3 points
From 10 to 12 inches.....	4 points
Over 12 inches.....	5 points

providing that, in each case, the stem shall be of sufficient strength to properly carry the weight of the bloom.

OUTDOOR ROSE GROWING

Name of Rose Madame Jules Bouche Type Dwarf X Standard Climber Plants No. 12
 Percentage not obtainable Date June - October 1916.
 Hybridizer broisier et fils Address France
 Planted December 1913 Location 2 W 2 Soil Regular Stock Briar
 Remarks The best light colored rose. good for cutting and garden decoration

SCORED			NOTES	BLOOMING (Exhibition)	
Max.	Quality	Marked		Date	No of Roses
5	Novelty	3	color blooming. growth clear and very attractive. color 2 fragrance 0 form 3. 4 points bud. 4 points open flower varies kills back 8-12 inches above ground mildew in August - trace in October very strong. high - bushy roses strictly in strength	May	11
10	Color	9		June	
5	Fragrance	2		July	22
10	Lasting	5		Aug	7
10	Shape	8		Sept	16
5	Substance	3		Oct	15
5	Petallage	5		Late	
5	Size	3			
15	Blooming	15			
10	Hardiness	10			
5	Foliage	7			
10	Growth	15			
5	Stem	4			
100	Total	79		Total	71

FRAGRANCE					LASTING					
Date	Strong	Fair	Mild		Date	How Tested	No. Hours Held Color			
Early Bloom			X		Early Bloom	On Bush Cut	48 good			
Mid Season			X		Mid Season	On Bush Cut	24 good 48 pale			
Late Bloom			X		Late Bloom	On Bush Cut	48 good 48 good			
SIZE					FRAGRANCE					
Blooms Measured					No. Hours Held Fragrance					
Date	Bloom	1	2	3	Early Bloom	On Bush Cut	48 gone 48 Rank			
Early Bloom	Bud Rose	2 1/2	2 3/8	2 1/2	Mid Season	On Bush Cut	24 gone 48 slightly Rank			
Mid Season	Bud Rose	1 1/4	1	1 1/4	Late Bloom	On Bush Cut	24 slightly Rank			
Late Bloom	Bud Rose	1 3/4	1 1/4	1 1/4	Early Bloom	On Bush Cut	48 not half open 48 half open			
		4	3 3/4	3 3/4	Mid Season	On Bush Cut	24 3/4 open 24 open 48 gone			
					Late Bloom	On Bush Cut	48 3/4 open 24 half open			
STEM (Exhibition)					FORM					
Length in Inches					No. Hours Held Form					
Date	1	2	3	4	Early Bloom	On Bush Cut	48 not half open 48 half open			
Early Bloom	15-7	20-7 1/2	16-6 3/4	8-12	Mid Season	On Bush Cut	24 3/4 open 24 open 48 gone			
Mid Season	12	16	10	12	Late Bloom	On Bush Cut	48 3/4 open 24 half open			
Late Bloom	15	18	15	16						
PETALAGE Blooms Counted					FOLIAGE					
Date	1	2	3	4	Date	Condition	Date Sprayed	Material		
Early Bloom	45	50	43	45	June 1	good after heavy rain				
					July 1	trace mildew		7/29	Bordeaux	
					Aug. 1	some mildew		5/16	do.	
Mid Season	37	35	38	42	Sept. 1	good				
Late Bloom	52	32	48	40	Oct. 1	trace mildew only				

Specimen Score Card by which roses are judged.

III

NEW INTRODUCTIONS AND SPECIAL CLASSES

It is better to keep new roses entirely separate from the main lists of varieties which have been thoroughly tested. Occasionally a new rose shows enough value to stamp it at once as worth while, but the vast majority are worthless. The ones which are mentioned hereafter are treated most conservatively, yet some have stood out as possessing merit, and others cannot yet be eliminated. Any one who plants untried varieties will find that, with few exceptions, they will not be worth cultivation.

ADMIRAL WARD; Hybrid Tea; Pernet-Ducher, 1915. Crimson red, shaded with fiery red and velvety purple. Named after the well-known rosarian. Beautiful color and form, and undoubtedly will be a fine collector's rose. Has not yet shown sufficient growth or blooming qualities to be included in the best of the reds.

CHEERFUL; Hybrid Tea; McGredy & Son, 1915. Pure orange flame, with distinct orange yellow base. Attractive color; fair growth and foliage. Worth watching.

CLEVELAND; Hybrid Tea; Hugh Dickson, 1916. Coppery yellow at base of petals, which are heavily flushed reddish copper on old rose. Beautiful color; quite good form; mild fragrance; only shows fair growth. Tested for one year, and cannot yet be classed in the list of dependable varieties.

COMTESSE DE RAFELIS ST. SAUVEUR; Hybrid Tea; Leenders, 1916. Reddish orange shaded coral red. Shows good growth; good foliage; good blooming qualities; undoubtedly only a decorative rose; semi-double, being little better than single; rather an attractive color.

GOLDEN MEYER; Hybrid Tea; Paul & Son, 1915. Golden yellow. Good light-colored rose; not yet showing enough growth to be seriously considered.

OUTDOOR ROSE GROWING

GORGEOUS; Hybrid Tea; Hugh Dickson, 1915. Deep orange yellow, heavily veined with reddish copper. Unique and beautiful color; fair form; hardy; has not shown enough merit to warrant its inclusion in the lists and cannot yet be recommended except for collectors.

HADLEY; Hybrid Tea; Waban Conservatories, 1914. Bright red. Growth only fair; foliage quite good. Color distinct; attractive bloom in the spring; small bloom in summer. Needs time to become established. Worthy of a further test.

HOOSIER BEAUTY; Hybrid Tea; Dorner, 1915. Glowing crimson with darker shadings. A remarkable color, but so far growth and blooming qualities below the average.

IMOGEN; Hybrid Tea; Paul & Son, 1915. Orange yellow in center, shading towards the outside to pale yellow and creamy white. Very attractive yellow rose; beautiful form; doing fairly well for the first year, although cannot yet be considered more than a collector's rose.

LOS ANGELES; Hybrid Tea; Howard & Smith, 1916. Flame pink shaded to yellow, toned with salmon. A cross between Madame Segond Weber and Lyon, the color being much on the order of Lyon. Undoubtedly most promising, but not yet thoroughly tested. Mr. McFarland, of Harrisburg, reports that it gives splendid growth outside and good bloom. Mr. Eisele, of Dreer's, is most enthusiastic about this rose, and considers it a particularly fine bedding variety.

MADAME COLETTE MARTINET; Hybrid Tea; Pernet-Ducher, 1915. Beautiful old gold yellow, shaded with orange yellow, golden yellow bud. A case in point of the danger of recommending a new rose—considered promising in 1915 on account of its most attractive color, good foliage and fair growth. Has not improved during the past season and can only be considered as a collector's rose.

MADAME MARCEL DELANNEY; Hybrid Tea; Leenders, 1916. Pale pink or soft rose, shaded with hydrangea pink. A rose planted in January, 1916, which has shown good growth, very good foliage fine long stems, beautiful color and good perfume. Not a profuse bloomer, but has done remarkably well for the short time tested. Undoubtedly a wonderful rose for cut blooms, and a possibility of its being a good all-round rose.

MARCELLA; Hybrid Tea; Paul & Son, 1913. Buds buff, opening flower salmon flesh. A wonderful bloom when you get it. Of most attractive coloring, but of extremely poor growth and useful only to collectors.

MELANIE NIEDIECK; Hybrid Tea; Leenders, 1916. Vivid lemon yellow. Showing really remarkable growth for the first year. Reported by Bobbink & Atkins, of Rutherford, N. J., to be one of the best new roses on the Multiflora with them. Good foliage which holds well. The bloom is medium, of attractive color in the bud, which, however, is not of the best form, and the color fades quickly. A good bloomer, and while having a good stem, will never be one of the best cut flowers as it does not last.

NEW INTRODUCTIONS AND SPECIAL CLASSES

MRS. BERTRAM J. WALKER; Hybrid Tea; Hugh Dickson, 1915. Clear bright cerise pink. Of attractive color, but has not grown well for the first year; loses its foliage, and gives practically no fall bloom. Undoubtedly only a collector's rose.

MRS. FRANKLIN DENNISON; Hybrid Tea; McGredy, 1915. Porcelain white, veiled primrose yellow deepening to ochre at the base. Showing good growth for the first year; attractive coloring, but with only fair foliage. A rose worth watching.

MRS. GEORGE GORDON; Hybrid Tea; Hugh Dickson, 1915. Bright rosy pink, flushed silvery pink at the edges of the petals. Good growth and good blooming qualities; fair foliage; semi-double and fades quickly. Needs to be tested further.

MRS. HUGH DICKSON; Hybrid Tea; Hugh Dickson, 1915. Deep cream with heavy suffusion of orange and apricot. A rose which has not shown up well, but which is attractive in color and foliage. Worthy only of a place in large collections.

MRS. MACKELLAR; Hybrid Tea; Alex. Dickson & Sons, 1915. Solid deep citron or delicate pure canary, passing to pearly primrose. A rose of perfect form in bud; somewhat shy in petals and does not open as well as the best; foliage holds well; the color is clear and attractive. Undoubtedly a variety which will need consideration in a short time if its improvement continues.

MRS. MONA HUNTING; Hybrid Tea; Hugh Dickson, 1916. Deep chamois yellow, opening to pure fawn. A very attractive color; fair form, with a good stem. Will probably not give enough growth to be included in the list, but is promising as a collector's rose.

MURIEL DICKSON; Pernetiana; Hugh Dickson, 1915. Deep reddish copper in the bud state, paling with age to cherry red with coppery shadings. Of wonderful color, but very weak growth; three plants out of four died during the past winter. When established, however, it may prove to be hardy.

NATIONAL EMBLEM; Hybrid Tea; McGredy & Son, 1915. Dark crimson, overlaid velvety crimson shading to vermilion towards the edges. A rose of beautiful and distinct color, and fine form for a red; good foliage and fair growth for the first year, combined with hardiness. This rose may go a great deal further.

NELLIE PARKER; Hybrid Tea; Hugh Dickson, 1916. Pale creamy white, with deeper cream center. Shows fair growth for the first season; good form; some fragrance; of medium size; usually having a good stem.

PANAMA; Hybrid Tea; J. Cook, 1916. Rich peachy pink, inside of petals creamy white. A rose well spoken of, but not yet thoroughly tested outside and therefore cannot be recommended as an all-round rose. Plants tested by J. N. Richardson, Baltimore, planted May, 1916, gave twenty-six blooms throughout the season.

PRINCE CHARMING; Hybrid Tea; Hugh Dickson, 1916. Deep reddish copper, with old gold base. Semi-double, of attractive color, with lasting qualities. Showing enough growth the first year to make it worth while considering further. Promises to be a good bedding variety.

OUTDOOR ROSE GROWING

QUEEN OF FRAGRANCE; Hybrid Tea; Paul & Son, 1915. Shell-pink tipped with silver. Hardy; shows good growth for the first year; fair in form, attractive in color. Evidently will not be a wonderful bloomer. Bears out the promise of its name to a great extent. Not sufficiently tested to be recommended for everyone.

RED RADIANCE; Hybrid Tea; As the name implies, a sport from the well-known pink rose, with more fragrance than the mother plant, and of attractive color. Not yet thoroughly tested outside, but from reports a rose worthy of cultivation.

SOUVENIR OF HENRY GRAHAM; Hybrid Tea; Alex. Dickson & Sons, 1915. Faintly blushed carmine on pearly delicate cream. Fair growth; foliage holds, but mildews. An attractive rose and worth watching.

TIPPERARY; Hybrid Tea; McGredy & Son, 1916. The color is midway between Lady Hillingdon and Melody. Color trifle less deep than Hillingdon, here a nice light yellow. Medium size; good foliage, fair perfume. Shows fair growth, but with Dr. Belville, of Germantown, shows good strong growth. During 1916 gave thirty-five blooms from dormant spring planting. Evidently will be quite a bloomer, and one of the most promising of the new varieties.

TITANIA; China; Paul & Son, 1915. Coppery crimson in the bud, changing as the flowers open to deep salmon red, the base of the petals being shaded with clear yellow. Very much the color of Daily Mail, although a trifle lighter, having better growth the first year, and more petals. Has been perfectly hardy, and is going to be a fine bloomer, with plenty of fall bloom. Medium to fair size, only a trace of fragrance. Promises to be a fine bedding variety.

Where the temperature goes well below zero for considerable periods, only the hardiest of roses will live through the winter, and in the very coldest sections some of these hardy classes must have winter protection. For such districts Hybrid Perpetuals for cut flowers, Rugosas and Hybrid Rugosas for massing and hedges, Wichuraianas and their Hybrids, and a few other hardy climbers, are the ones recommended.

In such localities, owing to the shorter season of growth and cooler summers, Hybrid Perpetuals bloom for a longer period than farther south; Rugosas give flowers from July to September, and the Wichuraianas seem to prolong their beauty.

NEW INTRODUCTIONS AND SPECIAL CLASSES

HYBRID PERPETUALS

This class gives large beautiful flowers on long stalwart stems, most attractive as cut flowers; some varieties are fragrant; but we have no yellow Hybrid Perpetual of merit.

There is no perfectly hardy yellow rose for the extreme North which compares in form with the Hybrid Perpetuals. Harry Kirk is the hardiest of the good yellows, but not hardy enough to stand the extreme Northern winters. The old Austrian Briars are very hardy, but their flowers are single and they bloom only for a short period in the spring. It would seem that some of the recent introductions in Hybrid Austrian Briars (Pernetianas) might do well in this section. Perhaps the best to try would be Soleil d'Or, a cross between the old Persian Yellow and a Hybrid Perpetual. This rose does not kill back at all near Philadelphia. While not of perfect form, it is large and double, and of most attractive color; and has been added to the Hybrid Perpetual list. In addition, four Hybrid Teas with Hybrid Perpetual characteristics have been included.

The best of the Hybrid Perpetuals for fall bloom are: Captain Hayward, Frau Karl Druschki, Margaret Dickson, Mrs. John Laing, Paul Neyron, Oskar Cordel and Urania, although Frau Karl Druschki

OUTDOOR ROSE GROWING

and Oskar Cordel are the only ones which may be depended upon.

The list given covers the best roses of the main shades, but the class contains over fifty well-known varieties.

BARONESS ROTHSCHILD; Pernet, 1867.

Pale rose.

CAPTAIN HAYWARD; Bennett, 1893.

Scarlet crimson. Perfumed.

FISHER HOLMES; E. Verdier, 1865.

Deep velvety crimson.

FRAU KARL DRUSCHKI; Lambert, 1900.

Snow white, sometimes lightest pink blush at center.

GEOFFREY HENSLOW; Alex. Dickson & Sons, 1912.

Orange crimson; classed as a Hybrid Tea, but with Hybrid Perpetual characteristics. Sweet.

GEORGE ARENDS; Hinner, 1910.

Delicate rose. Scented.

GLOIRE DE CHEDANE GUINOISSEAU; Guinoisseau & Chedane, 1908.

Bright vermilion red, shaded velvet. Very large.

GLOIRE LYONNAISE; Guillot, 1884.

Very pale lemon; wonderful foliage, and except in the extreme North may be grown as a pillar or hedge rose; small to medium-sized flowers; never develops seed pods; classed as a Hybrid Tea, but with Hybrid Perpetual characteristics. Tea fragrance.

HON. INA BINGHAM; Alex. Dickson & Sons, 1905.

Silver pink; semi-double; classed as a Hybrid Tea, but with Hybrid Perpetual characteristics.

J. B. CLARK; Hugh Dickson, 1905.

Deep scarlet, shaded blackish crimson; classed as a Hybrid Tea, but with Hybrid Perpetual characteristics. Fragrant.

MADAME GABRIEL LUIZET; Liabaud, 1877.

Light silvery pink.

MARGARET DICKSON; Alex. Dickson & Sons, 1891.

White, pale flesh center.

MERVEILLE DE LYON; Pernet, 1882. (Syn. White Baroness.)

White, center slightly peach.

MRS. GEORGE DICKSON; Bennett, 1884.

Delicate soft pink. Do not confound with George Dickson. Fragrant.

MRS. JOHN LAING; Bennett, 1887.

Soft pink. Fragrant.

MRS. R. G. SHARMAN CRAWFORD; Alex. Dickson & Sons, 1894.

Deep rosy pink—outer petals shaded with pale flesh.

OSKAR CORDEL; Lambert, 1897.

Bright carmine. Sweet.

FRAU' KARI, DRUSCHKI
(Description page 81)





GEOFFREY HENSLOW

NEW INTRODUCTIONS AND SPECIAL CLASSES

PAUL NEYRON; Levet, 1869.

Deep rose.

PRINCE CAMILLE DE ROHAN; E. Verdier, 1861.

Deepest velvety crimson; this variety has rather a weak stem. Fragrant.

SUZANNE MARIE RODOCANACHI; E. Verdier, 1880.

Catalogued as soft pink; in this country more of a cerise—very much the same shade as Dorothy Page Roberts. Fragrant.

ULRICH BRUNNER; Levet, 1882.

Cherry crimson. Sweet.

URANIA; M. H. Walsh, 1914.

Bright crimson.

XAVIER OLIBO; Lacharme, 1864.

Very dark crimson; a shy bloomer.

SOLEIL D'OR; Pernetiana; J. Pernet-Ducher, 1900.

Orange yellow to reddish gold, shaded with nasturtium red.

The new yellow Hybrid Perpetual, Ludwig Moller, has been tested for one year, but, both inside and out, is an absolute failure.

In the Pacific Northwest, near Portland, the Hybrid Perpetuals give very much better bloom throughout a longer period than they do in the East. For example, Mr. Currey, of Portland, Oregon, reports sixty-five blooms on Druschki, as noted in the Main List; and on Ulrich Brunner he gives the following record: June, 24; July, 11; August, 9; September, 4; October, 10; Total, 58. Of course, in ordinary seasons there would be further bloom in November and possibly even later.

Hybrid Perpetuals should be pruned on the same principle as Hybrid Teas; cut back in the spring to six and eight eyes on the strong wood and a less number on the weak wood. The dead wood should be

OUTDOOR ROSE GROWING

cut out and necessary thinning done. Plant from twenty-four to thirty inches apart. The roses in this class are generally budded on Manetti, although good results have been obtained on Multiflora, and many will do well on their own roots.

RUGOSAS AND THEIR HYBRIDS

The original Rugosas are from Japan and survive the long winters of the most northern of these islands, so that there is no question as to their great hardiness. They do very well by the sea, as they are strong enough to stand the heavy winter winds of the coast; they also thrive under hot, sandy conditions. The best of their Hybrids are extremely hardy, and after their bloom is over are attractive on account of the beautiful fruit which they bear.

ROSA RUGOSA ALBA.

Single; white.

ROSA RUGOSA ROSEA.

Single; pink.

ROSA RUGOSA RUBRA.

Single; red.

ATROPURPUREA; Hybrid Rugosa; Paul & Son, 1899.

Blackish crimson, passing to maroon crimson.

BLANC DOUBLE DE COUBERT; Hybrid Rugosa; Cochet-Cochet, 1894.

Double; paper white.

CONRAD FERDINAND MEYER; Hybrid Rugosa; Frœbel, 1900.

Clear silvery rose, especially good in bud form.

DOLLY VARDEN; Hybrid Rugosa; Paul & Son, 1914.

Light apricot pink with a yellow base; blooms well but is not of as large growth as the other varieties mentioned.

HANSA; Hybrid Rugosa; Schaum, 1905.

Double; reddish violet.

MADAME CHARLES WORTH; Hybrid Rugosa; Schwartz, 1890.

Semi-double; rosy carmine.

MRS. ANTHONY WATERER; Hybrid Rugosa; Waterer, 1898.

Semi-double; deep crimson.

NEW INTRODUCTIONS AND SPECIAL CLASSES

These roses should be planted two and a half feet apart, and after the first season no pruning is necessary except removal of dead wood and an occasional thinning.

DWARF POLYANTHAS

There are a number of other classes of roses, the best of which for garden decoration for the average amateur are the Dwarf Polyanthas. These give constant bloom, from frost to frost, mostly in trusses or panicles.

One of these, Gruss an Aachen, has been considered good enough to be included in the first list of light-colored roses.

Mr. Theodore Wirth, Superintendent of the Minneapolis parks, in the Rose Annual for 1916, gives the following list as best for that section: Mme. Levavasseur, Katherine Zeimet, Marie Pavie, Primula, Annchen Muller, Clothilde Soupert, Cecile Brunner and Etoile d'Or.

Reverend A. H. Scott, of Ontario, Canada, writing in the 1916 Rose Annual says: "Jessie cannot be beaten among the Dwarf Polyanthas."

Undoubtedly the above are all good, and in addition the following do well:

ELLEN POULSON.....	Dark brilliant pink.
GEORGE ELGER.....	Coppery golden yellow.
LEONIE LAMESCH.....	Bright copper red—golden center.
ORLEANS ROSE.....	Geranium red—white center.
RODEATTE.....	Clear cherry red.
YVONNE RABIER.....	White.

OUTDOOR ROSE GROWING

The removal of the dead wood of the past year, and some little thinning out, is the only pruning necessary with this class, and they should be planted twenty inches apart.

MOSS ROSES

The Provence roses are hardly worthy of cultivation except by collectors. The best of the Hybrid Austrian Briars, better known now as Pernetianas, have been included in the lists. The Hybrid Bourbon roses do not compare with other roses already mentioned. Moss roses are exceedingly hardy and suitable for the North, but give only a few blooms in the spring. The two best are:

BLANCHE MOREAU.....Pure white.
PRINCESS ADELAIDE.....Bright silvery rose.

Plant thirty inches apart; prune sparingly; cut out dead wood and shorten the laterals, pruning new wood of the last season to six eyes.

CHINA ROSES

The China roses are good fall bloomers as a rule, but outside of a few of the best colorings the Hybrid Teas are preferable. In addition to the ones given in the lists, the following may be depended upon to bloom throughout the season, and are of low, spreading growth, with good foliage:



HERMOSA
(Description page 83)

NEW INTRODUCTIONS AND SPECIAL CLASSES

ARETHUSA.....	Clear yellow, tinted apricot.
EUGENE BEAUHARNAIS.....	Amaranth; strong, semi-climbing growth; blooms in clusters, with good late bloom.
FABVIER.....	Dazzling crimson.
LAURETTE MESSIMY.....	Rose, shaded yellow.
LEUCHEFEUER.....	Dark velvety crimson; more liable to mildew than others in this class.
MADAME EUGENE RESAL.....	Rosy pink, shaded orange.
MRS. BOSANQUET.....	Palest flesh.
QUEEN MAB.....	Soft rosy apricot, center shaded orange, outside tinted rose and violet; a very beautiful color, but of weak growth and a shy bloomer.
VIRIDIFLORA.....	Green; is at best a freak and only useful as an oddity.

Plant twenty inches apart and prune sparingly, cutting out dead wood and thinning occasionally.

HYBRID SWEET BRIARS

The Hybrid Sweet Briars, which were introduced by Lord Penzance and are a cross with the common English Sweet Briar, are mostly of rampant growth; have perfect foliage; single or semi-double; bloom only in the spring; the flowers are of most distinct and attractive colorings.

For hedges plant four feet apart in two rows, staggered. For climbing plant eight feet apart, and note that Lord and Lady Penzance are much smaller growers than any in this class, and should be planted accordingly. Cutting out dead wood and thinning is all the pruning necessary.

SINGLE ROSES

In addition there are a number of single roses of distinct colorings which are good growers, and some

OUTDOOR ROSE GROWING

of which have fall bloom. It is hard to draw a line between many of these and the single roses among the Hybrid Teas. The best are:

ALEXANDRA ZARIFI.....	Vivid terra-cotta, changing to pale buff.
BARDOU JOB.....	Rich crimson.
IRISH BEAUTY.....	Pure white, golden anthers.
IRISH BRIGHTNESS.....	Vivid crimson, shading pink.
IRISH ELEGANCE.....	Bronzy orange scarlet, changing to apricot.
IRISH GLORY.....	Silvery pink to crimson.
IRISH HARMONY.....	Saffron yellow, crayoned or smeared claret; open flower creamy white.
MISS MURIEL JAMISON.....	Deep orange cadmium.
MRS. O. G. ORPEN.....	Bright rosy pink, golden anthers.

Plant two feet apart. Cut out dead wood and thin for garden decoration.

WILD ROSES

There are a number of wild roses, that is, roses of original species, many of which are attractive for lawn decorations, and all of which should be considered by large collectors or those desiring to go into hybridization. They are, however, of no value to the average grower.

In the American Rose Annual for 1916 there is a very interesting article, written by Charles Downing Lay, on wild roses for landscape effects; in addition to which in the same volume, and having especially to do with pollenization, will be found a further list and description of original species written by the well-known hybridist, Dr. W. Van Fleet, of the

NEW INTRODUCTIONS AND SPECIAL CLASSES

Department of Agriculture, Washington; while still further data are given by E. H. Wilson, of the Arnold Arboretum.

DECORATIVE ROSES

The best bloomers among the best all-round roses will give very much better results than the so-called decorative roses, which have no form and which cannot be used at all for cut flower purposes. As an example of this, the Hybrid Tea, Bouche, gives as much bloom as any other light-colored rose and is valuable for either purpose.

There are a few other attractive roses which give a fair amount of bloom and are odd in their color, such as Comtesse du Cayla, and these are included in the other sections. The best decorative rose of all is Gruss an Teplitz on account of its wonderful amount of bloom. The best of the Hybrid Teas in the other main colors are, Bouche, under the light; Lady Ursula, under the pinks; and Chrissie MacKellar under the yellows. These are very much to be preferred for ordinary decorative purposes.

For the edging of a bed, Baby Ramblers are most attractive, and any of the Polyanthas will do well for garden decoration; while the Rugosas and Irish Singles are good for hedges and massing.

IV CLIMBERS

UNFORTUNATELY there is not at this time any hardy climbing rose which blooms through spring, summer and autumn with great reliability. The so-called hardy ever-blooming climbers have been tested without success. The ones which are absolutely hardy bloom mainly in the spring, and those which bloom throughout the season need the most careful protection in the Middle Atlantic States.

In the lists which follow only the most dependable varieties of climbers are included.

To make the subject as clear as possible, the various climbers are divided into two classes; this is an arbitrary division and not at all in accordance with the ordinary manner of classification.

In the first division are included Climbing Hybrid Teas and some other climbers whose blooms have the general shape and size of the Hybrid Tea rose. Hybrid Tea climbers are mostly, as has been explained heretofore, sports from Hybrid Tea roses. They do not bloom as profusely as the Hybrid Teas, nor as constantly. They may be depended upon to give some blooms in the spring, and a few other blooms mainly in the autumn, although these are so

CHRISTINE WRIGHT



CLIMBERS

scattered that they cannot be called continually blooming roses. They need special protection here, but should do better farther south. In addition to these are included some other roses which have the Hybrid Tea form of bloom; unfortunately they bloom only in the spring and have practically no bloom thereafter, but are given for their great beauty.

ARDS ROVER. Hybrid Perpetual Climber; Alex. Dickson and Sons, 1898. Color is crimson shaded maroon; medium size, good form; blooms in the spring only; flowers come on short stems; has a fair petallage and is very fragrant. A hardy rose but in the North the canes should be given winter protection.

CHRISTINE WRIGHT. Hoopes Bros. and Thomas, of West Chester, Pa., 1903. Cross between Caroline Testout and a Wichuraiana seedling. Placed with Hybrid Tea climbers on account of the fact that its flowers are large and double; borne singly and in clusters; good form, with a perfect bud and good petallage; color is wild rose pink; requires no protection; blooms best in spring. A few scattering flowers in autumn. A very satisfactory climbing rose. Foliage lasts well.

CLIMBING AMERICAN BEAUTY. Hybrid Perpetual Climber; Hoopes Bros. & Thomas Company. Rich rosy crimson; strong, vigorous growth, hardy.

OUTDOOR ROSE GROWING

Gives remarkable amount of spring bloom, often with long stems; practically no summer or fall bloom. Loses foliage early.

CLIMBING KAISERIN AUGUSTA VICTORIA. Hybrid Tea; two firms claim introduction; 1897. Primrose, of same form and color as the dwarf rose of the same name; very beautiful, but only gives scattering blooms throughout the season. Requires heavy winter protection. The best bloomer of the Hybrid Tea sports.

CLIMBING LADY ASHTOWN. Hybrid Tea; Bradley, 1910. Salmon pink, not quite as good form as the dwarf rose of the same name; gives fair amount of bloom in spring and an occasional bloom during summer and early autumn. Requires heavy winter protection. Takes mildew more easily than most of this class.

CLIMBING MADAME MELANIE SOUPERT. Hybrid Tea; J. Burrell & Company, 1914. Salmon yellow, suffused carmine; large, full, perfect form; has given more bloom than majority of the Climbing Hybrid Tea sports. Requires heavy winter protection.

CLIMBING MRS. W. J. GRANT. Hybrid Tea; William Paul and Son; 1899. Imperial pink; medium to large and good form; blooms fairly well in the spring with scattering blooms in the summer and autumn. Requires heavy winter protection.



CLIMBING KAISERIN AUGUSTA VICTORIA

CLIMBERS

CLIMBING RICHMOND. Hybrid Tea; Alex. Dickson and Sons, 1912. Pure red scarlet; bloom similar to the ordinary dwarf Richmond; of fair form only and blooming less freely in the autumn and summer than in the spring. Requires heavy winter protection.

DR. W. VAN FLEET. Peter Henderson & Co., 1910. Reported to be a cross between a Wichuraiana and Souv. du President Carnot. It is a Hybrid Wichuraiana, but on account of the form of the bloom is placed with the Hybrid Tea climbers. Is more hardy than the Hybrid Tea sports and is of a soft flesh tint shading to delicate peach pink; gives a bloom on somewhat longer stem than the average climber; blooms well in the spring and scattering blooms thereafter. Foliage very good and lasts quite well.

Dr. Van Fleet has brought out through Lovett of Little Silver, N. J., another Wichuraiana Hybrid named "Mary Lovett," a cross between a seedling Wichuraiana and Kaiserin Augusta Victoria and termed a White Dr. Van Fleet. This rose has done remarkably well during 1916 and is strongly recommended. Loses foliage early.

MADAME HECTOR LEUILLOT. Hybrid Tea; Pernet-Ducher, 1904. Golden yellow tinted with carmine in the center; large, full; gives scattering blooms throughout the entire season, and most attractive color. Not as tall a grower as the balance of this class and requires heaviest winter protection. Should do very well south of Washington and in similar climates.

OUTDOOR ROSE GROWING

REINE MARIE HENRIETTE. Hybrid Tea; Levet, 1878. Madame Bérard (of Gloire de Dijon) × General Jacqueminot. Deep cherry red; blooms prolifically in the spring, the flowers being of good form and petallage and fragrant; it occasionally gives blooms in summer and autumn. Requires winter protection.

In the second division are placed all the other climbing or rambling roses which have given the best results, most of them being Hybrid Wichuraiana. Except in the extreme North they are hardy and of much more vigorous growth than the Hybrid Tea sports, though as a rule they only bloom for a short season in the early summer and a few have some autumn or summer flowers.

The breeding of this entire class is considerably involved, and different authorities and catalogues list the roses variously as Hybrid Wichuraianas, Hybrid Polyanthas, Polyanthas and Multifloras; for example, Hiawatha is listed in many places as a Hybrid Wichuraiana, whereas this rose is a cross between Turner's Crimson Rambler and Carmine Pillar; the first a Polyantha, and the second usually listed as a Climbing Hybrid Tea. Goldfinch is from Helene, which is a cross between Turner's Crimson Rambler and a seedling of the Polyantha Aglaia, yet this rose is sometimes listed as a Multiflora.

CLIMBERS

CECILE BRUNNER. Polyantha Hybrid; sprays; beautifully formed, small. This rose, if secured in three-year-old plants and given heavy winter protection, has proved one of the best bloomers among climbing roses. It is not as vigorous a climber as the Wichuraianas, but makes good growth of eight- to ten-foot canes, on which its miniature, perfectly formed flowers appear in sprays. The color is flesh cream with a shell-pink center. It must not be confounded with the dwarf Polyantha of the same name. It may be expected to bloom splendidly in the spring, quite well in summer, and also in autumn. There are a few other climbing Polyanthas already catalogued, and several new roses of this class have been introduced recently, the best known being Miss G. Messman, a sport of Crimson Baby Rambler; Marie-Jeanne, white; and Orleans Rose Climbing, a sport of the pink Polyantha Orleans Rose; but here these roses require protection.

Another climbing Polyantha which has done well for some growers is Climbing Clothilde Soupert. Unfortunately, plants of this variety have winter killed badly, but with special winter protection it should live up to its reputation as a constant bloomer, and south of Philadelphia it will do well. The blooms are double, the color silver flesh to shell pink.

AMERICAN PILLAR. Hybrid Polyantha. Conard, 1909. Large clusters; dark pink with a white center and yellow stamens. Very large, single. Similar to Evergreen Gem. Foliage lasts quite well.

OUTDOOR ROSE GROWING

AVIATEUR BLERHOT. Hybrid Wichuraiana; Fauque et Fils, 1910. Clusters; saffron yellow, center golden yellow. Foliage lasts quite well.

DOROTHY PERKINS. Hybrid Wichuraiana. Perkins, 1902. Trusses, single, light pink. Foliage lost quite early.

ELIZA ROBICHON. Hybrid Wichuraiana. Barbier, 1901. Trusses, single, rose, shaded old gold. Especially good for covering banks. Holds foliage well.

EVANGELINE. Hybrid Wichuraiana. Walsh, 1907. Single, white, tips of petals carmine pink.

EXCELSA. Hybrid Wichuraiana. Walsh, 1909. Trusses, double, brilliant scarlet. Crimson Rambler with good foliage, which lasts especially well. Bloom of Troubadour almost identical with Excelsa. The best red climber of the class.

GARDENIA. Hybrid Wichuraiana. Manda, 1899. Clusters, bright yellow, paler as flowers expand; very pretty in bud form. Foliage very good and lasts well. Do not confound it with Gardenia of Soupert & Notting, which is inferior.

GOLDFINCH. Hybrid Polyantha. Paul & Son. Pale orange, changing to white; semi-double, trusses. Reported stronger in the extreme North than the Hybrid Wichuraianas.

HIAWATHA. Hybrid Polyantha. Walsh, 1905. Single, crimson, center pure white to cream. Loses foliage early.

AVATEE R BLEBROT
at the left



GARDENIA
at the right



FIG. 16
MOONLIGHT, TWO YEARS OLD

Showing dwarf climbing habit and scattering blooms. Picture taken in September



FIG. 17

TAUSENDSCHON, AS GROWN IN CONNECTICUT

Photograph by courtesy of A. N. Pierson, Incorporated

CLIMBERS

JEAN GIRIN. Hybrid Wichuraiana. Description given by Admiral Ward, as grown on Long Island. Absolutely hardy as a climber; almost the same as Dorothy Perkins, and in the fall has a second blooming period, when it gives approximately half the number of blooms produced in the spring. Foliage lasts quite well.

SILVER MOON. Said to be a cross between Rosa Wichuraiana \times Cherokee. Extra large, single, silver white with golden yellow stamens, of remarkably strong growth; very distinct. Foliage lasts well.

TAUSENSCHON. Hybrid Polyantha. Soft pink; large clusters; foliage lasts fairly well. Reported hardier in the North than the Hybrid Wichuraianas.

VEILCHENBLAU. Hybrid Polyantha. Schmidt, 1909. Lilac changing to amethyst and steel blue; medium size; produced in large clusters; lower foliage lost early.

The greatest development in climbers, if the catalogue descriptions may be relied upon, are the following new additions, brought out in 1913-14-15, but not yet thoroughly tested:

LE MEXIQUE, Wichuraiana; introduced by Schwartz in 1913, color "pale silvery rose; clusters"; has been tested in this country and one grower claims that it gives scattering blooms until fall.

MOONLIGHT AND DANÆ, introduced by Reverend J. H. Pemberton in 1914, are listed as Hybrid Teas and catalogued as continual bloomers from June until autumn. The growth is similar to a Wichuraiana, but less vigorous; they bloom in clusters, and both give scattering blooms through the entire season, the last one being noted in November. Moonlight flowers on new wood; Danæ on that of the previous year.

In 1914 Pemberton introduced three other Ramblers, for all of which perpetual blooming is claimed. Their blooms in the first year are scattering; the growth is only fair; and they require winter protection.

CERES.....Blush, with yellow shading.
GALATEA.....Stone color.
WINTER CHEER.....Crimson.

OUTDOOR ROSE GROWING

In 1915 William Paul & Son brought out CORDELIA, which they claim is a perpetual flowering climbing rose. Buds coppery yellow, changing to lemon yellow; produced in clusters. This variety blooms on wood of the previous year's growth, and winter kills badly here.

M. Leenders & Company, of Holland, list an ever-blooming climbing rose in BLANCHE FROWEIN; color copper overlaid with golden yellow; but so far this has only shown semi-climbing growth.

P. Lambert also catalogues several ever-blooming climbers; and in Hugh Dickson's 1916-17 catalogue, the Wichuraiana, Bouquet Rose—color vivid rose pink changing to lilac white—is noted as perpetual flowering.

It would seem from these introductions that the long-looked-for hardy ever-blooming climbing rose may at least be a reality, but that the growth will be restricted.

Reports are constantly made that various hardy climbing roses have given summer and fall bloom. As a rule, while these reports are no doubt true, other growers cannot depend upon them as they are very often exceptional cases.

For climates in which there is little or no frost the following climbers are recommended. With the exception of Shower of Gold, which is a Hybrid Wichuraiana, they may be expected to give blooms quite well through the season.

ALISTER STELLA GRAY (Noisette). A. H. Gray, 1894. Deep yellow with lighter edges; flowers in clusters.

BELLE LYONNAISE (Tea). Levet, 1869. Canary yellow.

CELINE FORESTIER (Noisette). Trouillard, 1842. Fairly free flowering; old gold.

CLOTH OF GOLD (Noisette). Coquereau, 1843. Sulphur yellow, deeper center; large double.

GLOIRE DE DIJON (Tea). Jacotot, 1853. Buff, orange center; large and double. Perhaps the hardiest of the Tea climbers, but giving more bloom than the Hybrid Tea Sports, a two-year-old plant having two dozen blooms the first week of November, 1916. Should be budded on Multiflora, and grown on a south wall, in the Middle Atlantic States, for the best results.

MARECHAL NIEL (Noisette). Pradel, 1864. Bright rich golden yellow; large, full, fine form.

MADAME ALFRED CARRIERE (Hybrid Noisette). Schwartz, 1879. Pure white, very free; a good pillar rose.

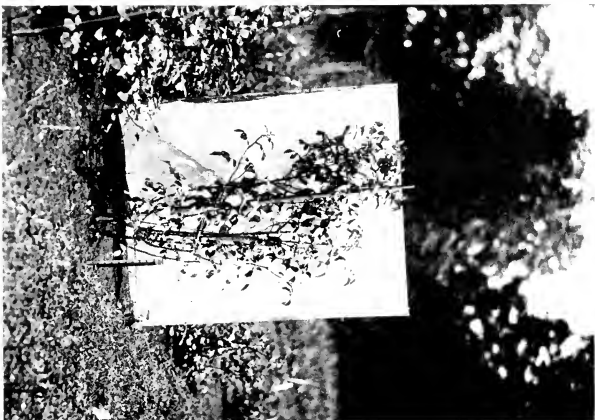


Fig. 18
Regular Bed



Fig. 19
Special Bed

FURSTIN VON PLESS AS GROWN IN REGULAR AND SPECIAL BEDS

The white background was the same in each case. This rose when grown in a special bed gives more bloom than in the regular bed, and does not tend to lose bloom by wood growth as is the case with some varieties in special beds. The indiscriminate use of special beds is not to be advocated.

CLIMBERS

W. A. RICHARDSON (Noisette). Ducher, 1878. Very deep orange-yellow; small, very showy and distinct.

SHOWER OF GOLD. Hybrid Wichuraiana. Paul and Son, 1910. Light cream to pale yellow; spring only; foliage fair.

In addition to the above, the Banksian and Cherokee roses give fine results for this section, and with some growers Pink Cherokee and Ramona are quoted as giving scattering blooms through a long period.

In the locality of Philadelphia for dwarf climbing bloom which may be depended upon, Gruss an Teplitz budded on Multiflora is suggested. This rose grows fully eight feet high without protection and gives a quantity of bloom throughout the season. In this connection, there is a climbing sport of Gruss an Teplitz on the market, but this has not been successful, as during the second year on two plants, less than a dozen blooms appeared during the season.

Among the white roses, Furstin von Pless is a strong growing Hybrid Tea which grows to a height of eight feet and gives bloom throughout the spring, summer and autumn. It is not quite as hardy as Teplitz, but even with some winter killing it will grow to the height given by the end of the season, and if thoroughly protected should do better.

Among the pink roses, Lady Ursula on the Multiflora gives a quantity of bloom throughout the entire season and is nearly as hardy as Teplitz, although

OUTDOOR ROSE GROWING

it will not grow to more than five feet in height if cut back; nevertheless, if not cut back and protected, Lady Ursula makes a very much better bloomer as a semi-climber than any of the Hybrid Tea sports.

Unfortunately, there is no yellow rose with the qualities of the three just given, although Harry Kirk more nearly approaches the mark.

These roses may also be recommended for hedges in sections with the same winter temperature as Philadelphia. Farther south and on the Pacific Coast many other of the strong growing Hybrid Teas, such as Madame Caroline Testout, do well. For the far north Rugosas make very effective hedges, are absolutely hardy, and give considerable fall bloom.

PLANTING CLIMBERS

In planting climbers the bed should be prepared in exactly the same way as for an ordinary bed, excepting that it should be much smaller, but the roots of the climbers will naturally take up more space underground than the roots of the dwarf bushes, and climbers should have a bed of some extent. This is particularly necessary for the Hybrid Teas, Teas and Noisettes. The bed should be made of the same depth and drained as the average rose bed noted under "Preparation." For each plant the bed should be at least two feet wide and not less than four feet in length.

CLIMBERS

In planting climbers, especially the Hybrid Teas, it is hardly necessary to say that they will not do well on the north side of any arbor or wall. Roses must have the sun in order to flourish and, besides, many climbers on a north wall would be winter killed to a very great degree. It would be easy in the case of all rustic benches, with rustic tops and arbors running east and west, to plant roses on their southern, eastern and western sides and secure plants which would entirely cover the structures. For an ordinary six-foot bench with a rustic top the same length, one good climbing rose planted on the southern side would be sufficient to cover the entire structure. The very hardiest climbers would make a brave effort to do well on a north wall, but unless this is the only available space we would not advise its use. There is one exception to north wall planting, as explained later.

PRUNING CLIMBERS

HYBRID WICHURAIANAS AND HYBRID POLYANTHAS. About the last of July or the first of August, when the blooming season is over, it is well to cut out some of the oldest and weakest canes; this gives new wood a better opportunity to develop and it becomes the flowering wood of the following season. The older wood blooms to some extent but not as well as the growth of the previous year. After

OUTDOOR ROSE GROWING

this August pruning it will hardly be necessary in the following spring to do more than cut out the dead wood and keep the plant within the prescribed bounds, which may be determined by the arbor or trellis on which it is grown. The new canes springing from the base which have grown during the previous season should remain untouched, excepting that the ends or tops of the longest should be somewhat shortened. The same process used in pruning recently planted Hybrid Teas applies in the case of newly-planted climbers, and especially weaker-growing varieties planted the previous autumn, viz., pruning back "wickedly" in the spring to a few eyes. This gives the roots less work to do and insures good growth for the following year. It gives no chance for flowers during the first summer, but at best the blooms on a newly-planted climber would be poor; the great point is that such cutting back gives the plant a better chance to become established and secures good flowering wood the second year and thereafter. But, if you insist upon trying for some flowers the first summer on newly-planted stock, be sure that such climbers as you do not cut back have well-established root systems with fibrous feeding roots and that they were planted the previous autumn, their root systems having been noted at that time.

Under no circumstances should the canes remain



EISENACH *Hybrid Wichuraiana*
KOSÉ & Co., 1910

Very much on the color of Hiawatha; holds the foliage better in the fall, but blooms for a shorter period, nearly all the flowers coming into bloom at once and lasting only for a short time

CLIMBERS

uncut on any imported climbers of winter or early spring planting, and the course above suggested cannot be recommended, though if it succeed with any varieties it should do so with the Wichuraiana or Polyanthas. With two- and three-year-old dormant American field-grown plants there is an even chance of success. Most certainly it would be well to give such plants special care, for example, the use of liquid manure as suggested in "Cultivation."

It is not necessary except in the extreme North to give winter protection to the canes of the hardy climbers; however, if they die back, bend them down to the ground in the future and cover with waterproof building paper and earth before the severe frosts set in.

In "Roses and Rose Growing,"* Miss Kingsley suggests for special effect cutting out all the old wood on Wichuraiana and training the pliant, new canes over wire frames in the shape of arches. Undoubtedly very pretty effects could be obtained by this method. She also states that the Banksias, some of the Multifloras, and one Noisette, Fortune's Yellow, "only flower on the sub-laterals, *i. e.*, on wood three years old." It will be readily understood how easily the above-named climbers could be spoiled by unintelligent pruning.

* "Roses and Rose Growing," by ROSE G. KINGSLEY (The Macmillan Co.).

OUTDOOR ROSE GROWING

Hybrid Tea and Hybrid Perpetual Climbers (other than sports) and tender Hybrid Polyantha Climbers, such as Cecile Brunner, should be treated on somewhat the same principle as the Wichuraiana Climbers. The difference is that their wood winter kills more easily, and therefore no thinning out of old canes should be done before spring, and then only when such canes crowd the new growths. The laterals on main canes should be cut back to from two to four eyes.

Climbing sports of dwarf roses, Tea Climbers and Noisettes should be pruned more sparingly. Old canes should only be removed as they become profitless, laterals but slightly shortened unless they are crowded. In the case of all climbers better results will be obtained if they are carefully and systematically trained and fastened in place. Most Hybrid Tea Climbers, Noisettes, and all the Teas need winter protection, as above described.

For all climbers, on account of the greater evaporation due to their larger growth, much more water is necessary than for dwarfs.

The peat moss mulch, noted later, is strongly recommended.

In the extreme North the summer thinning of the wood of the hardy climbers is advocated by some authorities so that the canes left will become thoroughly matured.

V

LOCATION AND PREPARATION

EVERY one cannot have an ideal location for roses, yet given enough sunlight it is astonishing what fine results may be obtained in a small bed bordering on a path or road should no lawn space be available. Too much shade will not give good results and the roots of trees are very detrimental to rose growth. Unless the trees overhang the beds, if you believe your plants will get direct sunlight at least half the day—there being no other place available—the chances are that your bed will succeed, but you must protect the rose roots from the roots of the trees. As a general rule a tree sends out roots in a circumference the radius of which equals its height, but the roots near the outer edge of the circumference are small and can be cut without injury to the tree; nevertheless where tree roots once grew they will come back again, and it is imperative that the roses be protected from them. The simplest and cheapest way is to line the outside of your rose bed with boards, but as these rot it is only a question of time before the tree roots will again force their way into the space reserved for the roses, so the boards must

OUTDOOR ROSE GROWING

be renewed. The best way is to put in a small wall of concrete four inches in thickness, which will protect the bed for all time from this interference of tree roots. Mr. E. M. Rosenbluth, of Wallingford, Pennsylvania, lines the sides of his beds with coated galvanized iron, while Mr. Maurice Fuld, of New York, suggests lime used as a concrete wall, not only to protect from roots, but also to give lime to the soil.

Providing the roses get at least half a day's sunlight and the tree roots do not interfere, the bed can be successfully made as above proposed. The ideal location is a south to southeast exposure, especially with a windbreak on the north and northwest sides from which the coldest winter winds come. Windbreaks may be in the form of trees, houses, or anything which will stop the direct force of the cold, bleak winds. Roses will do well even on a north slope if they get the sun and are properly cared for. Worse than a north slope is low land, which is not and cannot be easily drained, and where roses will get more late frost than they will on the exposed hillside.

Having looked over the ground and selected, in accordance with the general working directions given above, the most suitable place for the roses, consider next the shape of the bed, the extent of space to be given to it and the number of plants it will

TESTING BEDS ON DR. HUEY'S PLACE



LOCATION AND PREPARATION

accommodate. Unless formal or landscape gardening is desired the most practical form of bed for roses is one three to three and a half feet wide, as explained under planting, and long enough to accommodate the number of plants desired when they are spaced at an average distance of twenty inches, center to center.* Some of the weaker growing roses will do better if set only fifteen inches apart, while the stronger growing varieties should be placed as far apart as three feet; but for a working rule, unless you expect to order only the very largest roses, an allowance of twenty inches will be found to give roughly the number of plants which the bed will hold. On Multiflora allow a trifle more.

Having decided on the number of plants, consider what steps are necessary to make the beds properly and have them in absolute readiness for the arrival of the plants. Then proceed with the actual ordering of the varieties, instructions for which will be found in the following chapter. The beds should be made some weeks before planting to allow for settling and if they should have settled too much below the ground level additional soil may be added, although to conserve moisture the actual finished level of the

* "Pictorial Practical Rose Growing," by Wright, gives four very clever sketches for formal rose gardens. "Gardens for Small Country Houses," by Gertrude Jekyll and Lawrence Weaver, would be a great help to any one desiring to do more than lay out a few beds.

OUTDOOR ROSE GROWING

bed should be two inches below the surface of the adjacent ground.

The matter of soil, or of the best composition of soil, for the rose bed is a very interesting one, and when a person wishes to go into rose growing on a large scale, beds should be constructed for each particular kind of rose.

Pemberton goes most thoroughly into this subject of soils; any one contemplating the planting of a large collection of roses will do well to study his chapter on soils. He advocates for roses, where autumn blooms are desired, from forty to seventy per cent. of clay in the bed, and this statement of his has been borne out by our experiments with different soils.

The most complete and technical book on this subject which we have found is: "Soils," Lyon and Fippin; L. H. Bailey, editor.

A rule which seems to be endorsed by all rosarians is that Hybrid Perpetuals and the stronger Hybrid Teas do better in clay, and the weaker Hybrid Teas and Teas are more certain to thrive in soil containing some sand.

Until his death, the late Mr. Frederick W. Taylor, of Philadelphia, conducted a great many interesting and exhaustive experiments with different kinds of soils, particularly in relation to the growing of grass but to some extent in testing roses. Some of his



HUGO ROLLER
(Description page 83)

LOCATION AND PREPARATION

beds have been made up in most complicated and expensive ways, and while good results have been secured, nevertheless, from careful comparison between his roses and those in our ordinary beds, we cannot see enough advantage gained to warrant our recommending his beds for general use, primarily on account of the expense and trouble involved in their construction. He explained in "Country Life in America" his system of preparation for the growing of grass and golf greens. His experiments with roses were on the same lines, except that the germinating and food layers used for the seed in the growing of grass were not necessary in the case of the roses. The bed designed for grass was used for the roses except the top eight inches, which were composed of a blanket layer usually of clay and loam, sometimes of Jersey peat.

This special bed has given the best results with roses such as Lyon, which loses its leaves early, and also with very weak growing roses like Hugo Roller. Collectors who wish to grow such roses to their greatest beauty should make beds of this description. It is not well, however, for growers to use these beds without great care, because there are a number of varieties which do not thrive in them as well as in the ordinary beds. Just as La France needs the poorest kind of soil in which to be grown to perfection,

OUTDOOR ROSE GROWING

so many other roses would tend to grow wood and not produce bloom if placed in beds of this character. With good all-round roses the growth during the first year in the special beds exceeds that in the regular bed, but after the second year the difference is less marked and in many cases the blooming qualities are better in the regular bed. No doubt some one will eventually discover the best beds for each given type of rose, changes in the beds being made in accordance with the different habits of growth of the plants. When these new beds are developed it is hoped that their originators will bring them before the rose growing public and supply a long-felt want. It is our opinion that for the average rose lover who wants to grow his few dozen plants, such experiments, while interesting, would not as yet be practical and would certainly be very expensive. It is far better to order the best roses as carefully tested in the regular beds, and to construct beds from which good all-round and practical results may be obtained at a moderate cost. There is, however, one new feature of Mr. Taylor's experiments which seems very practical and useful and is so simple that we take great pleasure (with his permission) in recommending it for rose beds, *i.e.*, the covering of the bed in the spring with a blanket of peat moss. This is a non-conductor of heat and cold, and will not only keep the moisture



FIG. 20



FIG. 21

JOSEPH HILL

The smaller plant shows the growth in the regular bed. This plant is well established and considerably older than the larger plant, which is grown in the special bed, and is only two years old. Note spray on foliage

LOCATION AND PREPARATION

in the ground by protecting it from the sun's absorbing rays but also greatly reduce the actual temperature of the bed.

In July and August the ground temperature of beds covered with this mulch is several degrees lower than adjacent beds. Later, when the average ground temperature is below seventy, there is little if any difference. In addition to this it prevents some seeds of weeds from germinating, so that this cover practically eliminates constant weeding. It also gives the beds a neat and most attractive appearance. The best time to put on this peat moss is when the flower buds commence to form, except in very cool damp seasons, when it should be withheld until the ground surface becomes dried.

This peat moss may be secured from any nursery, and it should be ground fine by a machine, then sprinkled with water before it is placed on the beds, to keep it from blowing about. By putting on a six-inch blanket you will secure the finished depth required of from three to four inches.

In order to avoid breaking the rose canes the safest way to pack the moss properly into place is to trample on it carefully. It will be found that the roses so covered will give bloom about as early as plants left unprotected by moss, and during the hottest weather the covered plants will thrive to a

OUTDOOR ROSE GROWING

greater degree, while the moss renders watering less necessary, and thereby somewhat prevents the likelihood of mildew.

The beds tested with and without moss show that the covered plants bloom only one day later, but hold the bloom much longer.

In some of our beds we are putting a four-inch layer of peat moss at each side of the bed and at the ends, which should still further act in keeping the temperature low. We do not think this necessary, but in districts where dry, hot weather of long duration occurs, and in seashore planting, where soil must be imported, and where the existing extremely sandy soil surrounding the rose bed becomes very hot, such side protection should be of great benefit. The moss should go from the surface to the bottom of the bed and make a four-inch wall between the bed and the hotter ground around it. Where cement or boards have been used to keep out tree roots, this side protection is, of course, unnecessary.

Under normal conditions peat moss is worth about fourteen dollars a ton by the carload and one ton will cover over one hundred yards of rose beds, averaging three and one-half feet in width, the finished level of the moss being over three inches; in other words, two hundred pounds, at a cost of less than two dollars, would protect ten yards of rose bed, or about forty

LOCATION AND PREPARATION

plants. The hundred-pound price is a little more expensive than the carload rate. Since the European War the cost of peat moss has naturally increased. However, moss is being imported and, as far as can be discovered without an actual test, is practically the same. In England, one of the best growers, Herbert L. Wettern, who won the Amateur Championship of England, for exhibition and decorative roses, in 1915 and 1916, uses a mulch of spent hops on his beds. This may be secured from any brewery, usually for the cost of hauling, or for fifty cents a ton. Tested this year, it has proved a fair substitute for peat moss; the temperature of the beds covered with it has been about the same as other beds covered with moss, but it does not conserve moisture as well as the old mulch. It would seem that if a deeper mulch of spent hops was put on, it would be practically as good as moss. However, roses which lose their foliage early do better with the moss. Dr. Lewis Rumford, of Wilmington, Delaware, advocates the use of cut grass on beds in summer to protect them from heat; where moss or hops are not used this would undoubtedly be of value.

To return to the composition of the bed itself. We have found that there are two most important things necessary to insure success: First, the bed must underdrain, to get rid of any great surplus of

OUTDOOR ROSE GROWING

water, so that in very damp seasons the rose roots will not be too wet; second, the bed must, on the other hand, retain moisture to a certain extent so that in very dry seasons the roots will not be too dry. To obtain the drainage it is necessary in soil which is greatly composed of clay to underdrain the beds by a layer of crushed stone; where the soil is more open, gravelly or sandy, this is not needed. Under very bad conditions tile should be used, but never to the extent of draining all the moisture away. The bed should be made two and one-half feet in depth if underdrainage is necessary, with about six inches of crushed or broken stone put in the bottom; small crushed stone lies evenly, and the earth does not sift through it enough to clog the drainage. Large or uneven stone should be covered by something to keep the earth from sifting through. If the bed is made in a lawn the turf cut from the surface and turned upside down is a good expedient, or a couple of inches of fine cinders will be found all that is required. Fine stone is really the best. Of course, for a location which is gravelly or sandy, this stone will not be needed and a depth of two feet will be sufficient.

Mr. E. M. Rosenbluth, of Wallingford, Pennsylvania, secures better drainage for his roses by dynamiting the foundation of his beds.

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We will now consider that we have dug a trench, the bottom either covered or not covered with stone to the depth of six inches, but which is now two feet from the ground level. It should be noted that in digging this trench for the bed the top soil should be placed in one pile and the subsoil in another. The top soil is the soil on the surface, which runs to different depths, usually about six inches, and which is composed for the most part of decayed vegetation from the roots of many generations of grasses, etc. It contains a percentage of humus and is, therefore, very valuable as food to the rose roots. Usually it is darker in color than the subsoil and can easily be noted. In soils where there is a large percentage of clay or loam it will not be necessary to use subsoil other than that taken from the trench, as far as one-third of the mixture to be put back into the bed is concerned; but where soil is very gravelly or sandy it would be best to secure some heavy loam or clay to make the proper kind of bed. The finished bed should be one-third top soil, one-third heavy clay subsoil, and one-third cow manure. There will not be enough top soil taken from the trench to supply the one-third necessary for the bed, and more must be provided.

In localities where there is no heavy clay or loam there will often be found heavy, dark soil which con-

OUTDOOR ROSE GROWING

tains decayed leaves, roots, etc., which is a very good substitute. Subsoil containing sand in any quantity should have loam and clay added and top soil containing much sand should have other top soil added. Reverting to what has been said before, and to make the matter perfectly clear, it will be remembered that the soil should be heavy enough to hold moisture, be rich enough for sustenance, and yet must drain at the bottom.

The ideal way to mix the top soil, clay and manure in three equal parts would be by machine, but for all practical purposes we have found the following procedure to be all that is necessary: Cover the bottom of the trench with a given number of wheelbarrow loads of the rich, darker top soil, then add the same number of loads of the lighter, clayey subsoil, and then an equal number of loads of manure, after which the whole bed should be forked together thoroughly to mix the ingredients. After this first layer is thoroughly mixed, proceed as above with the wheelbarrow loads of each ingredient and mix again. After each mixing the bed should be thoroughly rammed, otherwise it will settle too much after it is finished.

In addition to the above, we would advocate adding, for every twenty-five feet of bed, the following: One bucket of lime, evenly distributed, to be added

LOCATION AND PREPARATION

after the first layer is mixed, and one bucket of bone meal, evenly distributed, to be added before the last layer is put in.

When making beds for autumn planting it would be well to realize that very often roses imported from the other side are delayed. The season may be very late with the European growers, and the leaves not fall from the plants until after our heavy frosts (which may be early ones) have frozen the ground. For this reason, when the beds are made the ground conditions must be carefully watched, and if frost appears they should be covered with a heavy litter. This will usually protect the ground so that if the roses do not arrive until well into the autumn they may still be planted. We have successfully planted roses after hard freezing and six inches of snow in December, our beds having been covered with a heavy litter before the snow fell. When planting we removed snow and litter and the following year our roses did well.

VI ORDERING

HAVING gone carefully over the chapter on "Varieties" and considered the lists of roses, the reader will be ready to order his plants. It is believed that the suggestions hereinafter given will aid in avoiding many of the errors and disappointments usually connected with this necessary work.

Ordering is indeed one of the most important features to be considered; when properly done it insures success, and when improperly done it is sure to bring disappointment. An understanding of the conditions which beset all nurserymen would do much to help. The main trouble is that the average man does not properly specify just what he wants and when he wants it, and he does not consider substitution.

The nurseryman receives his greatest number of orders in the spring and autumn when he and his entire force are overworked. He has only so many varieties and only so many plants of each, and his roses are in a certain condition, which may or may not be good. Therefore, the man who sends his order early, specifying exactly what he wants, stands the best

ORDERING

chance of securing what he desires. Later orders, unless very specific, naturally are filled from what stock is left, not always with what was desired, and the fault does not rest with the nurseryman. If the order is properly made out and request is made for its immediate filling, and the nurseryman who receives the order advises that he is unable to ship, then the purchaser has an opportunity to place his request elsewhere; but if the order is not properly made out and does not specify regarding substitutions the shipment may not be satisfactory.

In ordering roses the following requisites should be specified: Field-grown, two-year-old stock, or if possible, three-year-old stock; budded stock, not grafted or own-root roses, except in the case of the most vigorous varieties; dormant stock. In addition instructions should be given for substitutions.

Ordinarily dormant roses are much better for either spring or autumn delivery, but if roses are ordered after the growing season has started it is impossible to get dormant plants. In our opinion plants which have started growth are uncertain but with care will often do well.

If the ordering is done in the fall and the roses are so late in coming that, although the beds have been covered with litter, the ground is frozen hard to some depth and it is impossible to plant them,

OUTDOOR ROSE GROWING

do not, under any circumstances, have them kept indoors during the winter, for they will then generally sprout, and if planted early, will be set back by the late frosts, or if kept until later will be set back on account of their change after growth has started. It would be wiser to heel the plants in the open ground; that is, dig a trench deep enough to cover the roses half-way up the canes and place the plants therein, filling in with dry earth.

As we believe that the greater number of budded roses can be properly secured from almost any large nurseryman, the nearest one would be the best from whom to order.

Recently, as mentioned in "Propagation," there have been some American firms who have tried budding on Japanese Multiflora. We have grown these plants for a number of years past and have had very good success with them.

In ordering from such growers the planter has the advantage of securing stock more or less acclimated, and does not run the risk of having the heat of the steamers sprout plants directly imported; he is dealing with firms close at hand and is also aiding an American enterprise.

It is, therefore, suggested that when the desired varieties may be secured, the same can be obtained from the following growers, who are budding on the

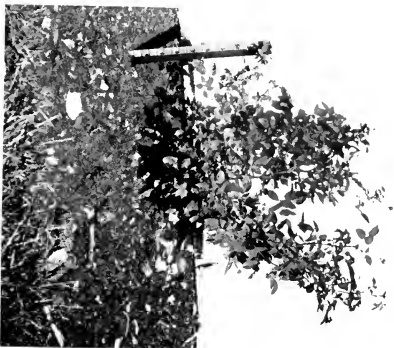


FIG. 22

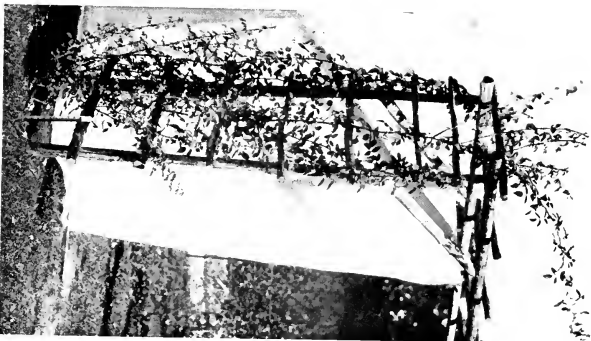


FIG. 23

TWO PLANTS OF CLIMBING HERMOSA

Both received from the same grower and planted in the same kind of a bed at the same time and under the same conditions. The large plant gave extreme growth with practically no bloom; the small plant gave continuous bloom with dwarf growth. Shows the necessity of careful testing of a number of plants of each variety before ultimate conclusions may be drawn.

ORDERING

Japanese Multiflora. There may be other firms who are using this stock, but at the present time these budded plants may be secured from George H. Peterson, Fairlawn, N. J.; Bobbink & Atkins, Rutherford, N. J.

The budding of roses by American firms is certainly a great advance in rose culture and of inestimable value to our rose growers. Where it is possible to secure the varieties desired, we recommend American field-grown plants, budded and grown out-of-doors by any well-known firm of nurserymen.

For all large collections when American field-grown stock cannot be obtained, it is suggested that foreign budded stock be ordered through the nearest nurseryman.

In closing, a few words should be added regarding the different times of the year in which planting may be done. The temperature of the ground is as important as the time of the year, and the condition in which the plant is received has more to do with future success than either. Unless the growing season has begun and is well under way plants must be received in a dormant condition. We have planted roses at all times of the year and have found that if the plants were in proper condition and properly handled they have nearly always done well; if plants were not in proper condition, no matter

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how much care was used, failure practically always resulted unless plants received greenhouse care.

The advantage of planting roses in the autumn is that if they are dormant, *i.e.*, if growth has stopped for the year prior to their shipment, and if they have not been subjected to heat during shipment causing growth to recommence, they will when planted become more or less fixed in their position, and little fibrous roots will have in most instances commenced growth before spring. Roses so planted and which have become so established will start off well in the spring, much better than a rose which has only been in the ground a short time.

This has been found equally true with own-root stock; in fact, if such stock is planted during the growing season little may be expected until the following year, and many deaths have resulted. Only a few own-root growers supply dormant field-grown stock, as most of them strike their cuttings inside. Own-root stock, field-grown, and two years old, is much stronger and better than greenhouse own-root plants, but even then only the very strongest varieties do well.

Our advice to all planters with whom the expense of replacing dead plants is not of much moment is this: From October to May plant your roses as soon as you have decided that you want them. Undoubt-

ORDERING

edly, you will lose some if you plant after the growing season has begun; perhaps if you plant the last of the winter you will not secure as good roses as if you set out perfectly dormant plants in the late autumn, but no doubt a great many of them will come through and be better plants the following year than if you had waited, say from the early spring to the following autumn. In addition to this there is the pleasure of having the roses.

VII PLANTING

LET us suppose that the beds are ready, the shipment has been ordered, and on one eventful morning it has arrived. You naturally take great pains to unpack carefully and to see that the varieties received check off properly with the order given. Sometimes one or more mistakes may be made in a large shipment, but as a usual thing great care has been exercised both in the selection and packing of the order, and it should arrive in good shape and the varieties should be as ordered. Very often the nurseryman will add a plant or two for good measure. The plants should be unpacked inside some building, unless perfect weather conditions prevail, viz., a damp, moist day—neither cold nor hot. After having been checked off, the plants should be carefully covered so that the roots will neither be frozen nor dried out by too much wind or heat. Usually the roses come packed in moss which should be left on them. If there is no moss, cover the roots with damp earth, and when taken outside keep them protected with any kind of wrapping, such as burlap or gunny sacks; or, better still, keep them in buckets or tubs of water, except in freezing weather, when you should not plant. This

PLANTING

is most important so that the roots may be placed in the ground in proper condition. Before taking the roses to their beds a small plan should be made of just how they are to be planted; if for a formal or landscape effect this has no doubt been all arranged beforehand. If, however, they are to be grown in the ordinary form of bed it is a very simple matter to have the bed arranged for their reception.

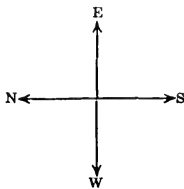
Knowing what roses are coming, and the distance apart in which they should be planted (covered in the lists), decide on the order in which they should be placed; planting alphabetically is the easiest way of telling where any particular rose is located.

The bed should be three and a half feet wide for the best Hybrid Teas and Teas; for Hybrid Perpetuals and the very strongest growers four feet is better; while for smaller growing roses a three-foot bed is sufficient. For all beds plant the roses ten inches from the edge and the proper distance apart. There should be two rows of plants, each row ten inches from the side of the bed. With one row plant the first rose ten inches from the end of the bed; with the other row plant the first rose twenty inches from the same end of the bed. This does not bring the plants opposite one another and gives them a trifle more room in which to grow, making them nearly the same distance apart each way. These beds as given are the most convenient and economical and

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give fine results. The most perfect results are obtained with a single row of plants in an eighteen-inch bed, but the difference is so slight that except where room is of no moment this is not advocated. When it is desired to form masses of color by planting blocks of roses in specially shaped beds, a trifle more room should be given to the inside plants because they will not receive the same amount of ventilation which they do in the beds as advocated.

For our own beds a drawing is made, as indicated by sketch below, which is found very easy to correct from time to time if a rose dies or is taken out for any reason and another substituted. Suppose, for example, it is decided to put in four roses each of the



BED

A A D D G G J K K P
A A D D G G J K K P

Name	Introducer	Stock	Date	Color	Notes
A—Antoine Rivoire.....
D—Duchess of Wellington.
G—General MacArthur....
J—Joseph Hill.....
K—Killarney.....
P—President Carnot.....



JOSEPH HILL
(Description page 83)

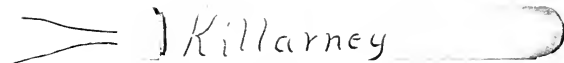


FIG. 24
PRACTICAL WOODEN LABEL USED IN TESTING BEDS



FIG. 25

Mr. J. Horace McFarland, of Harrisburg, uses a label formed from a wooden block of cypress thoroughly soaked in white lead and covered with a rectangular piece of zinc. The writing is done with a solution of platinum chloride—ten grains to four ounces of water, put on with a gold pen

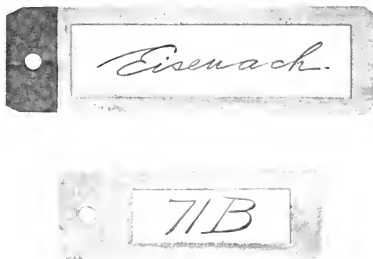


FIG. 26
CELLULOID LABEL

A thin piece of paper bearing name, etc., is cemented between two clear strips of celluloid. Cementation is effected by flowing a small quantity of amyl acetate (banana oil) between the strips of celluloid and paper, placed between two glasses under pressure until dry. A hole may be punched in end for string or wire and edges trimmed to make a neat appearance

Suggested by Mr. F. F. Christine, of Philadelphia

PLANTING

following: Antoine Rivoire, Duchess of Wellington, General MacArthur, Killarney, and two each of Souv. du President Carnot and Joseph Hill.

Make a compass drawing as outlined so that there may be no question as to the position of the bed.

This plan is suggested because labels are a delusion and a snare, do not last, and also become misplaced, so that while labels are kept in the beds we depend upon the written plan for positive information as to what each rose is, its location, etc.* It is but the matter of a few moments to make this record and the time so occupied will be well worth while.

Having run two lines ten inches from each side of the bed, and from one end to the other, space off the proper point at which each rose is to be planted by a stake, which can be measured with ordinary rule or line. Before starting work put on a pair of gloves to protect the hands from thorns. Bring out but a few roses at a time, and, in order to avoid any possible mixing of the plants, each variety should be kept absolutely separate and planted at one time before the next kind is placed in the bed.

Sometimes rose roots are injured in the shipment, in which case it will be necessary to cut off the broken

* A most practical label is made as follows: Cover a wooden label with white lead paint. Write on label with a soft pencil while white lead is fresh. Allow the white lead to dry and then cover with outdoor varnish. Labels received with new stock will be rendered more lasting by the use of varnish. Note illustration.

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ends. A good pair of pruning shears and a sharp knife are the two best implements for this work. Cuts should be sharp and clean and the roots should be cut off *above* the break. It will take only a minute to examine each plant before it is actually set and to cut off broken roots and any suckers in which growth may have started. (For further information on suckers, see page 20.)

The thing to be most carefully considered, and most important in planting roses, is to dig a hole about eighteen inches deep, the center of which is approximately the center of the mark for the rose. The earth should be taken out with a spade from this hole, and before finally replacing it, two things should be carefully noted—that the roots spread out at the bottom and do not cross one another. The more the roots are spread out, the more sustenance the plant will get, and the more room there will be for the little fibrous roots. It is particularly difficult to spread out the roots of pot-grown plants. The other important point is that the bud, *i.e.*, the point at which the variety has been budded to the stock, which may be easily noted, should be at a given distance below the ground level. On these two factors depends the size of the excavation. The bud should be not less than two inches and not more than three inches below the finished level of the bed, except with roses budded on Multiflora, which should

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be one and a half inches. This seems like getting down to very exact planting, but if the bud is higher it is not sufficiently protected in winter, and the rose does not do as well if it is planted lower.

The hole being properly dug, place the rose in it, carefully spreading out the roots so that they do not cross or touch one another at any point. This will take some time and care, but it is of the greatest importance to the future growth of the rose that it be properly done. Two persons can do the work much better than one. In planting always have a small bucket containing top soil and bone meal finely powdered in equal parts to sprinkle at the bottom of the hole and also on the roots; this is very helpful to their growth, because it precludes the possibility of any manure touching the roots (manure which, if too fresh and not well-rotted, will burn them) and promotes the growth of the very much to be desired fibrous feeding roots. After this preparation is put in, the helper adds the soil carefully, a little at a time, to fill up the hole. As he puts it in, tamp it firmly with a stick, and, as the hole gradually fills, take particular care that there is no space left just underneath the main root of the plant, for air space is most detrimental to the growth of the rose. Having filled up the hole to the ground level of the bed, consider the rose to be planted, and proceed to the next. When the first hole is dug, remove the earth and put

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it beyond the stake for the last hole, then use the earth from the second hole to fill around the first plant, and so on; this saves much work and insures keeping the entire bed the same level.

An easy way to get an almost exact depth below the ground for the bud is to have a lath, or other straight piece of wood, in the center of which a measure is nailed. This operation is very simple, if the main points, as enumerated above, are carefully carried out.

These rules are so important for the future success of the plants that they are repeated:

First, unpack indoors unless weather conditions are absolutely perfect.

Second, keep the roots well covered, preferably with moss if they have been packed in it, otherwise with damp earth, or coverings, or water.

Third, have a bucket containing a mixture of equal parts of top soil and bone meal to place around the roots.

Fourth, take plenty of time in digging the hole to get it large enough and wide enough at the bottom to spread the roots properly.

Fifth, do not let the roots cross one another.

Sixth, plant carefully and slowly, tamping down the earth with a stick, making sure by gently raising and lowering as the earth is filled in that no air space remains below the main part of the root.

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Seventh, for Briar, Manetti and Rugosa, do not place the bud more than three inches or less than two inches from the finished surface of the bed. For Multiflora, plant one and a half inches below ground. For own-root, plant just below former level.

If it is impossible to finish planting in any one day take particular care of the remaining roses. Keep them heeled in damp earth, or if the season is so late that this cannot be done, keep them well-covered indoors with soil. It is very easy to cover the finished beds with a heavy litter of manure and straw to keep the frost from them. If a quantity of soil is mixed and kept indoors ready for use, holes can be dug and the plants set in this soil as has been suggested in "Location and Preparation." This method has been used successfully in the very late autumn and at the end of the winter. If planting in the late autumn, it is well to protect the plants as much as possible. The best way to do this is to add a few wheelbarrow loads of soil to the beds after planting and make little mounds around each plant, hilling them up and then covering with litter. If this is done the coarse litter should be removed in the early spring and the fine manure remaining should be forked carefully into the bed, as this will be a good fertilizer during the summer. In autumn planting it will generally be found that rose plants

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have been cut back to about a foot from the ground, and if this is the case leave them as they are. If, however, they have the long, full growth they had when taken up or a large part of it, cut back to a foot and a half.

Hybrid Teas and Teas budded on Multiflora need more room than when budded on Briar or Manetti. In the lists extra room is allowed for such plants.

In moving roses it is best to take the earth with them as much as possible. In the case of a small plant a successful method is to take the bottom out of a galvanized iron bucket, and after thoroughly watering the ground around the plant, place the bucket over the same, forcing it into the ground until the top is even with the ground level. Then by moving from side to side and aiding with a digging fork underneath the bucket, the plant and dampened earth will come out with the bucket, and may be moved to its new location. In the case of a larger plant where this system is not practicable, it is necessary to dig out around the plant, using digging forks to take up the plant without cutting the roots. The earth may be kept in a ball by the use of canvas or burlap. It is well to thoroughly water the plant after moving, and some authorities advise filling the hole with water before planting.

VIII PRUNING

PRUNING is one of the most important parts of rose culture; just as it is most necessary to prepare the ground properly and to plant intelligently, so also should one be certain to prune systematically. The whole growth of the plant is changed by the manner of its pruning.

Under climbing varieties rules for their proper pruning have been given, and in this chapter will be taken up the pruning of all the roses contained in the lists. It is an easy matter when the theory of it is understood. Perhaps the simplest and clearest illustration which could be given would be to suppose a rose cane has fifteen buds or eyes on it; from these buds or eyes spring the shoots which afterward become the flower stalks of the plant. Now, if this were not pruned at all but the entire cane left, the sustenance received from the roots would be divided into fifteen parts. As a matter of fact the greatest amount would go to the end or top of the cane and to those buds nearest the top, for in all plant life it is more difficult to get the sap to break the buds nearest the base, especially if there is too great a distance from that base to the top of the lateral, limb, or cane.

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Roses will differ in growth and the strongest growers will naturally throw out more buds on any given length of cane than the weaker. In addition to this, plants of low, spreading growth, whose canes grow more or less parallel to the ground, do not send their sap as quickly to the ends of the growth as do plants whose canes are more upright. For this reason different varieties require somewhat different pruning, and in the lists are given the number of eyes or buds to which each variety should be cut back, provided, of course, the wood has not been winter killed below the point indicated. Returning to the theory of the sap and the illustration of the cane with fifteen buds: Cut off, say, ten of these buds from the cane and the five remaining will receive just so much more sap and there will be that much more chance of the lowest buds breaking and sending out their shoots. If the cane were not cut, the greater part of the sap would go to the few top buds and the lower buds would be late in growing, some possibly not breaking at all. Nature prunes the weaker varieties by killing back a portion of their wood, thus causing them to throw up strong new canes.

It will readily be understood that the larger the cane and the hardier and more vigorous the plant, the more buds could be left with still a chance for their breaking; conversely, the weaker the variety

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and the smaller the cane, the less sap would be contained therein and the fewer buds would break and grow shoots in any given length of cane. This is the main theory of pruning Hybrid Tea roses, provided that it is reasonable quality, and not quantity without much quality, that one wants.

The average rose plant in its second year should give from fifteen to fifty blooms, according to the variety, if it is cut back on this principle. Shy bloomers will not give fifteen flowers and the greater number of these will be borne in the spring.

Usually a good bloomer will have three or four flowering periods, the most profuse being in the spring and early fall.

In counting blooms only those with fair stems are considered and the usual amount of disbudding done, the rule being to count every bloom with a stem of six inches or over.

If more blooms of poorer quality are desired, do not prune the roses as far back as suggested below, but they will require a certain amount of thinning after the growing season starts, so that the various shoots do not crowd each other too much; all but the strongest varieties of roses which are so pruned should be staked, *i.e.*, fastened to a stake driven firmly into the ground. In so pruning and staking do not use wire but tie the bushes to the stakes

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with soft woollen string. This latter course of pruning is usually carried out with roses of the bedding type, on which the blooms are seldom fine enough for cutting; but so treated, the plants form a mass of color and are used for this reason for garden decoration.

Where high pruning is used it must be understood that with such treatment the stems will gradually become shorter and weaker, and the individual blooms less beautiful than where the plant is cut back by the ordinary method, but there will be a greater number of blooms. In the illustration of Daily Mail pruned high and low, the growth on the plant pruned high was the result of hard cutting back the previous season. If the high pruning is carried out a second year there will not be new strong growths such as those obtained by the low pruning.

The best and usually accepted way of pruning roses for cutting is to prune for the finest blooms. As a general working rule prune the strongest varieties to five buds or eyes, about six to ten inches, on the main strong canes, the small weaker canes being cut to three or four eyes, about six inches.

A plant can always be made to grow in any given direction by cutting to a bud which leads in that direction; *e.g.*, in order to spread the plant, if the fifth eye is on the inside of plant, cut to the eye



FIG. 27

Daily Mail pruned low to 5 eyes. Note the extreme strength of the stems



FIG. 28

Daily Mail with merely the tips cut back. Note the weak stems and greater number of blooms at the top of plant

Multiflora; pruned high an average of 47 blooms. Prune low for better cut flowers; prune high for more color in the garden. These plants are of the same age, on the same stocks, were planted at the same time, and were of almost identical size and condition when pruned

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above if it is a large cane, for the eye above is on the outside of the plant; or if the wood is somewhat smaller and weaker cut to the outside eye below. In this way the plant will be spread out and the shoots will not all crowd together on the inside, as would be the case in cutting to inside eyes. With weaker varieties cut to three and four eyes on the stronger-growing canes, and to two and three eyes on the very weak ones. Each of these buds left on the cane should throw up flower stalks.

In addition to this main theory, there are one or two other points which it is necessary to consider in pruning plants. They should not be too much crowded and the best way to prevent this is by cutting out the weakest growths. At first it may be somewhat difficult for one to be sure which canes should be removed, but by watching the plants after growth is started this will soon be understood. An absolute rule cannot be given for the number of canes to be left, but there must not be too much crowding, particularly in the center of the plant. All dead wood should also be removed. This can be easily detected and it should be cut back to the live wood, care being taken not to injure the bark of the latter and to make a clean, sharp amputation.

Where there is any doubt it is easy to cut high, and later prune low if the buds do not push properly.

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The rule has sometimes been given to cut away everything until the pith shows white. The method quoted is preferable, as it is often difficult to judge the condition of the pith and it is easy to prune low later, no harm being done by leaving the cane longer; this is equally true of climbers.

Quite a number of varieties have the unfortunate habit of throwing out one or perhaps two very large growths on one side of the plant, the opposite side being correspondingly immature and weak. In such cases, in order to balance the plant, particularly for succeeding years, cut back the one or two large growths very "wickedly," one or two eyes being the proper distance. Cut out all but the best of the remaining weaker stems, and after growth has commenced do not allow the stalks on the strong canes to get beyond control. This treatment will serve to equalize the growths on such plants.

In England, where the cold does not kill back the canes so far, the Hybrid Teas are pruned to a greater number of eyes. Pemberton, for example, advises leaving Caroline Testout from two to three feet, but in our climate this rose would be killed back to a foot or less and in the north to an even greater degree.

Pruning is usually done after the main body of frost has left the ground. Where frost does not occur pruning should be done at the season of the

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year when the buds commence to break; even in climates where there is no frost, roses will have a dormant season, and just before the buds begin to break will be the proper time to prune in these localities. Usually in such climates the dormant season of the rose is the time during which it does not get any water, that is, during the dry season. With the return of the rains the dormant plant commences further growth. This refers, of course, to climates in which there is practically no winter, *i.e.*, no frost.

In the spring pruning it will sometimes be found that canes of the weaker varieties have died back after a very severe winter to a smaller number of buds than above noted or given in the lists, though these exceptions should be rare. If the wood has died back to any extent it will be necessary to prune to the first good bud or eye below the winter-killed portion without reference to the number of buds, even if the cane is shorter than that left by the usual system. This information is a general working rule. There are some few varieties which, on account of their peculiar growth, should receive special treatment, and to cover this point thoroughly the number of eyes to which each should be pruned is given in the lists, the number referring to the strongest canes; on the weaker ones, of course, cut to a less number of eyes.

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In order that the rules for pruning may be more thoroughly understood the system is illustrated in Figs. 29 and 30 herewith given. The first is a Hybrid Tea rose which was not pruned in the spring but was allowed to develop. The second is the same plant properly pruned.

Fig. 29 shows the plant photographed after it was taken from the ground. On stem "A," in particular, it will be noted that none of the lower buds have pushed but that the top buds are well developed. This carries out exactly the theory that on a long, weak stem the sap will go to the top buds. To properly prune this weakest stem it should be cut off to two buds as is shown in Fig. 30. On stem "B," which is somewhat stronger, it will be seen that the lower buds have pushed, owing to some extent to the fact that this stem is not so long. Fig. 30 shows that stem "B" is pruned to the third bud, which is on the outside. The first bud is dormant and does not show clearly in the illustration. Cane "C" on Fig. 29 should be pruned in exactly the same way, cut to the third bud on the outside, and this is done in Fig. 30. Cane "D" in Fig. 29 is undoubtedly the one which should be removed, as it crowds the center of the plant, and in Fig. 30 this stem has been cut out. Note how much more space is left for the balance of the growth, particularly for the strong lowest

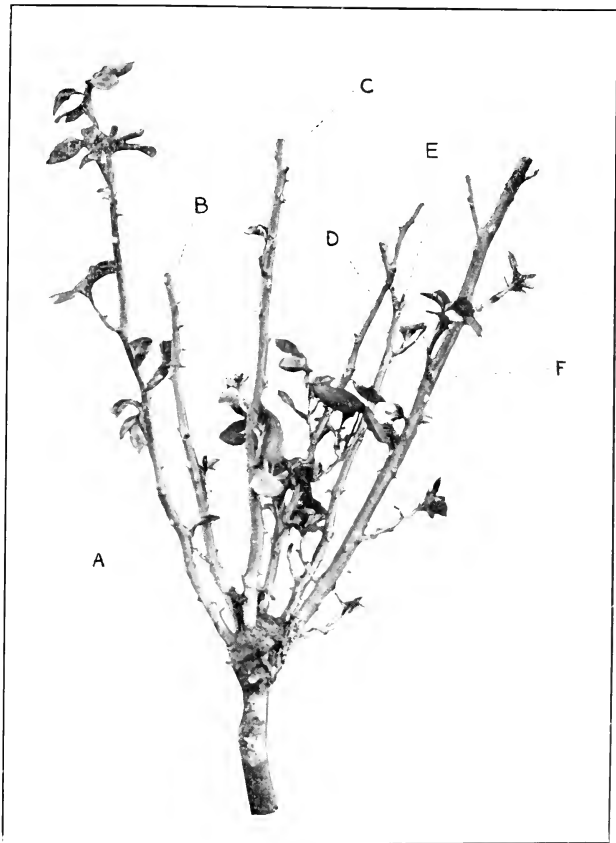


FIG. 29
HYBRID TEA ROSE, NOT PRUNED BUT ALLOWED TO DEVELOP

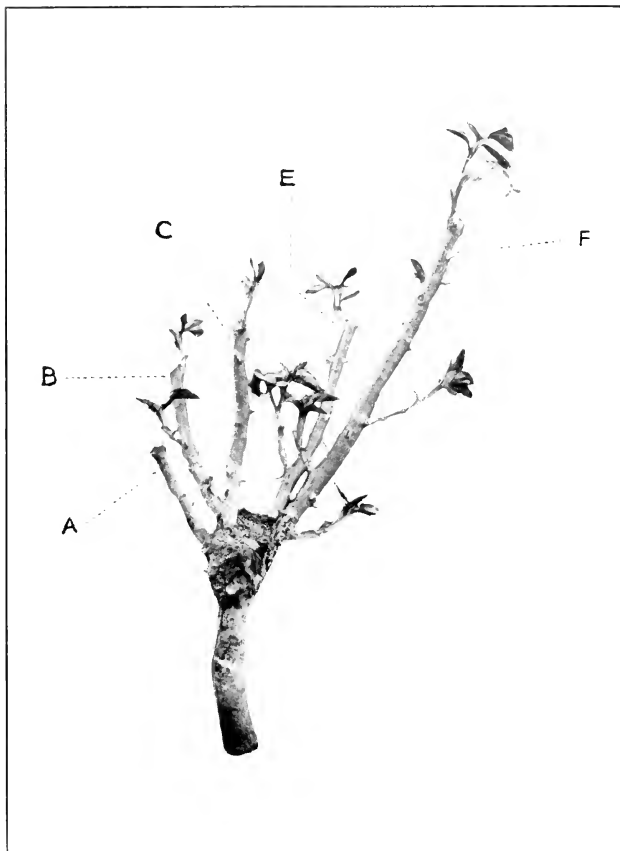


FIG. 30
SAME ROSE AS FIG. 29 PROPERLY PRUNED

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shoot of "E." "E" in Fig. 29 should be cut to the fourth bud on the outside, and this is shown in Fig. 30. "F" is undoubtedly the strongest cane and on its whole length the young shoots have started vigorous spring growth. Cut "F" to five eyes as in Fig. 30. Had this plant (Fig. 29) been pruned in the early spring the dormant buds on "A" and the lower buds on "B" and "C" would have been forced into growth, but as the stems were left long, the sap went to the top of these weaker-growing canes. If cane "F" had been somewhat larger, and "B," "C," and "E" had been as small as or smaller canes than "A," the plant would have been too one-sided and it would have been necessary to have cut "F" back, certainly to the third bud, which is on the outside, possibly to its lower bud to equalize the growth; but in this instance the three remaining canes in the center, "B," "C," and "E," are nearly as large as "F," and the cane "A" by being cut back to its second eye should throw out strong growths, as the two buds remaining will secure all of the sap of this stalk.

These instructions are given for general work to secure the greatest number of fine blooms. Naturally, if a person wishes exhibition blooms, and is willing to be satisfied with only a few of these, after growth has started and the shoots have broken, he

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should again go carefully over his plants and cut out all weak growths, keeping only the most promising shoots of the most vigorous canes. It will generally be necessary, in order to secure this result, to cut back to two shoots, but with a particularly vigorous and promising growth leave more, in which case, however, cut off the weaker growths below—in other words, following out the first theory, the fewer buds the more sap to each.

The English custom for exhibition varieties, as a general rule, is to wait until the flowers have been formed and then to cut out such growths as are not required, mainly because they are not promising, and to allow all the vitality contained in the sap to go to the blooms which are left. Such blooms, receiving all the nourishment, tend to be larger and more perfect than the average flowers. However, they do not surpass the average bloom recommended to any marked degree, and they cut down the number of flowers so greatly that they are not worth the sacrifice they entail except for exhibition purposes.

The bush should be carefully and thoroughly pruned according to the rules given above, an additional and very necessary point being that the cut ought to be made not less than one-quarter of an inch above the bud and not more than one-half of an inch from it. The cut should not be straight

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across, that is, parallel with the ground, but should be slanting. This will keep the water from rotting out the wood too quickly before the bud starts and the shoots are established. The cut should be clean. An ordinary pair of gardening pruning shears is the best implement for this work. These shears must be kept sharp, otherwise they leave rough edges and bruise the bark, which then will not heal.

The most comfortable way in which to prune is to have a heavy square of carpet placed on the ground on which one may either sit or kneel. It is impossible to do any great amount of pruning unless some such method is used; to keep the dampness from coming through the carpet should be doubled over at least once. Persons having trouble with their eyes should be very careful to use their glasses in this work, as more minute attention is required than one would think. The foregoing suggestions apply mainly to a large amount of pruning, but even where the plants are few it would perhaps be best to employ this method, as the operation would certainly be much more comfortable. In all pruning a pair of heavy gloves will be found a necessary protection.

In the autumn the only pruning necessary is to cut down the bushes so that the fibrous feeding roots will not be broken by the thrashing about of the tops in the heavy winter winds. It is quite

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easy to cut down to an approximate height until the early spring pruning, and when the plants have done blooming and the frost has set in severely cut to an approximate height of one foot and a half, except in strongest growing kinds and climbers. Do not cut to less. The buds liable to break are upper buds, and if forced in a warm, late autumn or early spring, after breaking they will certainly winter kill. If left short there are not enough buds remaining below to carry out the scheme of pruning; if left longer, no harm is done.

Under pruning it is well to include the cutting of the bloom. This is a part of rose culture which is usually neither considered nor understood. It is not easy to regulate by actual rule but if the principle is understood the proper cutting of roses is a very easy matter. In this, as in spring pruning, the method to be employed depends entirely upon what is desired. Cutting off the blooms insures more. If they are not cut new growth will not start so quickly. For this reason it is advisable to pinch off any blooms which may have been left on the plants. This should be particularly noted with all bedding varieties which are kept for garden decoration and are not usually cut. If a stem is left and the seed pod forms it takes the greater part of the nourishment on any shoot, the sap going to the top as has

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been previously noted. Nature thus provides for the greatest amount of sustenance going to the seed pod. By autumn, if blooms are not cut but pinched, the plant is more bushy and has perhaps somewhat better foliage. In the cutting of the stems be careful to leave enough buds below the cut on the shoot to provide other shoots, which will later in the season give more blooms. On the stronger varieties in the June blooming season, on a Hybrid Tea rose or a rose which is expected to bloom again, leave enough buds to give shoots for summer and for autumn bloom. Therefore, in such cuttings leave never less than two buds at the base of the shoot, and with very strong varieties three buds, always seeing that the bud is a strong one. If a long stem is left on the plant more flowers will be produced but they will not be on such stalwart stems, nor will they produce as fine blooms. If cutting from a Hybrid Perpetual, or from a rose from which no more bloom is expected, to cut to one bud will be sufficient. In this cutting of blooms, the same as in pruning, follow the well-known theory that on a weak growth you can cut farther back than on a strong growth. If, however, the plant is uneven in growth, care must be used to aid the spring pruning of such a plant by following out the work already started and cutting back harder on the stronger side.

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Approximately on an average growth leave, as above stated, two buds on the constantly blooming varieties. In late fall cutting it will be unnecessary to leave any buds below the cut as there will be no more bloom after frost. In the weak kinds, the frail, drooping stems are not needed on the bloom, but they should not remain on the plant; therefore cut harder on the weak growths and afterwards reduce the length of the stem. Unless the plant is hybridized or the seed is desired, the seed pods or heps are not needed, and if twice a week all old blooms are cut from the plants, the beds will be in better order and more flowers will be secured thereafter.

Spring pruning as given here applies to roses after the first year. For the first year they should all be cut back to three eyes on good wood and one eye on weak wood. This gives the young, unestablished roots less work to do and provides more time for them to prepare for the following year.

In pruning varieties not mentioned in the lists the main work to be done is always to cut out all the dead wood. This, of course, also applies to the lists.

Rugosas, Austrian Briars, Chinas and Bourbons require practically no pruning excepting the removal of dead wood and necessary thinning to prevent crowding. If pruned severely it tends to the devel-

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opment of wood instead of flowers, especially in the Austrian Briar.

To again enumerate the main points in this chapter: Prune when the new growth can be plainly noted; for medium fine blooms prune the strong varieties on the strongest canes to five and six eyes; weaker canes, to a smaller number. On the weaker varieties prune to three and four eyes on the strong canes; two and three eyes on the weaker ones. If the bushes are desired for garden decoration, do not prune quite so far down the canes; for a few exhibition blooms, cut harder, and, later in the season, thin out unnecessary and unpromising growths. For all plants cut out dead wood. In cutting roses during the spring and summer never leave less than two eyes on any cane. This gives summer and autumn blooms. On the very strongest varieties cut to three eyes—always cut to a strong eye. Be sure that the cut is a clean one and slanting, and from one-quarter to one-half an inch above the bud. Always cut to outside buds, except where special direction of the growth is needed.

In all pruning remember the working rule and so accomplish the purpose; the fewer buds the more sap they will receive, and the more buds the smaller amount of sap each one will get, and also that the buds near the base may not break.

IX CULTIVATION

IF the directions given in this book for location, preparation of bed, ordering, planting and pruning have been followed, the really hard work is over and the most pleasant part is ahead. The actual culture of the rose is very easy and agreeable. Beyond a little spring and autumn care, some spraying and the weeding of the beds, there is not much work to be done. In the spring, after the frost is out of the ground, take off the covering of the bed, whether it be litter or only leaves. The little mounds should now be raked down so that the bed is level, and if the roses were covered with litter the greater part of it, especially the straw, should be removed, and the manure that is left should be forked into the bed; but not to the extent of disturbing the roots. After the roses are pruned, the next thing is the feeding of the plants in order to give a particularly fine growth.

In the bed itself, there is enough manure to furnish the roots with food for many years, but to secure the best results feed the roots from the surface. Wood ashes and bone meal may be alternately forked into the bed after growth has begun. Another good



FIG. 31

Variety which does not require disbudding



FIG. 32

At the left, the result when disbudding is needed and not attended to; at the right, the improvement for specimen blooms given by careful disbudding

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food is liquid manure water in the proportion of half a bushel of manure to a barrel of water—"weak and often" is the old gardener's recipe. Dr. Huey advocates watering heavily during dry conditions before such feeding.

Blood diluted with water is sometimes used. Mr. Frederick W. Taylor applied this alternately with manure water; his recipe is five pounds of blood to a barrel of water. After mixing, permit the blood to settle, then draw off the greater part of the water; use the same blood in the same manner twice again, five pounds making three mixtures.

In April or May the shoots should begin to grow, and very shortly the buds themselves will appear and gradually turn into blooms. On certain varieties, too few unfortunately, there is only one terminal bud on each growth; on a great many, small buds will appear close to the larger ones; these should be carefully removed as naturally they take a certain amount of sustenance, and the main bloom will develop better and will be of finer quality if it receives all the nourishment. It does not take very long to go over the plants and disbud all these smaller flower buds, and unless nothing but a mass of color is preferred remove them. This can be easily and quickly done by hand.

It will be found that all the young buds and leaves

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are covered with little, light green insects—Green Flies or Aphides, which are common pests in rose gardens. There is a very effective remedy for them which will greatly check their future development; this is to spray with a solution of tobacco stems and whale oil soap. The best proportions are as follows: Two ounces of tobacco stems to a bucket of water, to which add an ounce of whale oil soap, first dissolved in a small quantity of hot water. It will take about three hours for this to dissolve. It should then be added to the tobacco mixture. Doctor H. A. Surface, the Zoologist of the State of Pennsylvania, recommends a mixture of one ounce of Blackleaf No. 40 with five gallons of water. This is more convenient than the infusion with tobacco stems and gives the same result. It may be bought at seed stores. Add $7\frac{1}{2}$ oz. of soft soap to the above so that the spray will adhere to the foliage. The Aphides are quickly destroyed with this spray and a gallon of the mixture by careful application is enough for from fifteen to twenty-five rose plants; by applying with an ordinary whisk broom it will take care of fifty plants and can be done as well, but it requires more time in applying than with the sprayer. Spray three days in succession.

By this time the ground will naturally need weeding. It seems hardly necessary to go into details



FIG. 33
Aphis at work on the young shoots



FIG. 34



FIG. 35

At the left, thrip on the under side of the leaves; at the right, the results of the thrip's inroads showing on the upper side of the foliage
Both these enemies easily destroyed by use of tobacco water

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regarding the proper method. An ordinary scratch hoe, as the gardener terms it, will quickly take out the weeds and also destroy some of those not yet up. Care must be taken not to hurt the rose roots.

As the days become warmer and the ground drier take more care of the plants. Keep the earth broken up in the beds and do not permit it to form a hard cake or crust, as it will do if left alone. This breaking up should be done twice a week. In addition to this consider feeding the roses further for the very best blooms. For this purpose ordinary manure water, as described above, is the best possible food and perhaps easiest to secure in most places. When the roses are fully formed, withhold manure water until after the first crop, apply again as each succeeding crop of buds commences to develop. Roses need a slight rest between crops. If a mulch has been used, there will be very little weeding and no breaking up of dried earth necessary and the moisture should be well conserved in the beds.

Watering is necessary in very dry weather if the ground becomes thoroughly baked, but *never* water late in the day. The plants should go to sleep with dry foliage, otherwise mildew will develop. Roses should always be watered early in the morning before the temperature rises—it is unnatural to water them during heat—they are accustomed to cool tempera-

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ture with rain. Mildew is a disease of the leaves which appears when there is too much moisture. The use of peat moss will render watering to some extent unnecessary.

One other plague to watch for is the rose slug, which chews the leaves. This pest must be destroyed by a stronger preparation than tobacco leaves, as it is very hardy and not as quickly disposed of as the little green bug. The very best remedy is powdered white hellebore. Make a solution of two tablespoonfuls in a bucket of boiling water, and after it has cooled apply it with a whisk broom under the leaves. For the larger leaf eaters and borers it is necessary to pick by hand.

Watch carefully for any sprouts of the Manetti or other stock, on which the roses themselves are budded or grafted. The cutting off of these suckers from the root itself is the proper remedy for this enemy to the growth of the plant.

Rose bugs or beetles are really the worst pests. The only cure has been to pick by hand, dropping them into kerosene.

Recently some growers claim success with the following kerosene emulsion:

$\frac{1}{2}$ lb. (202) hard soap.

1 qt. water.

2 qts. kerosene oil.

Dissolve soap in hot water and while hot add the oil. Shake 5 to 10 minutes in jug until it becomes a creamy mass.

Use 1 qt. emulsion to 6 qts. water. Spray roses from May 1st to June 15th every week, also spray ground under rose bushes.



FIG. 36

This borer has been taken from the hole in which he had concealed himself



FIG. 37

Commencement of work by the rose slug, showing two of his kind



FIG. 38

Two other leaf eaters and their destruction

Powdered hellebore is best for the slug—the other pests should be picked by hand

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For larger quantities:

$\frac{1}{2}$ lb. hard soap.

1 gallon water.

2 gallons kerosene oil—shake as before.

Use 3 gallons emulsion to 17 gallons water.

At the end of this chapter will be found a list of recipes for the diseases of roses.

So the plants work on through the hotter part of the summer and now towards its close the nights commence to become cooler and the days are still quite warm; the air itself is very moist and humid. This occurs usually in the latter part of August, and this change from eighty degrees or more in the daytime to sixty degrees or less in the night is one which the rose foliage does not like. When there is also great humidity mildew is liable to occur. A good remedy is grape dust, which can be obtained in any seed store. Another fine remedy is a solution of sulphide of potassium, one-quarter of an ounce to a gallon of water, to which add one and one-half ounces of common soft soap or one-half ounce of Fels-Naphtha soap. The soap should be boiled before being added to the solution. Always spray early in the morning, and if mildew has already appeared, spray early in the morning after each heavy rain. During the past year Bordeaux Mixture has proved the best preparation for the prevention of mildew. This may be purchased already mixed and with directions for use, at any seed store.

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Black spot is another disease which sometimes comes towards the end of the summer. It is experienced mostly in potted greenhouse plants. If only dormant field-grown stock is used the disease is not so prevalent. Dr. Huey concurs in this opinion and, as a cure, advocates picking off and burning affected leaves as soon as they appear. Last year a formaldehyde solution was used with fair success, but black spot is most difficult to eradicate.

The "American Florist," in its issue of June 14, 1914, has a very interesting article on black spot treatment, taken from publications of the National Rose Society of England. The main point in the article is that black spot is a fungous disease which invades the living tissues of the plant and there reproduces itself by means of spores on the leaves. To combat the disease formaldehyde is suggested and is supposed to be absorbed by the tissues of the plant and to kill the spores on the leaves. This article further states that it is considered advisable to use the formaldehyde as a spray, not only on the leaves and stems, but also to have the solution reach the plant through the soil. To accomplish this result it is advised that "the cool of a calm evening in summer when the soil had been previously loosened, and moistened if necessary, would be ideal." In the treatment referred to above it is necessary, in



FIG. 39

A plant which has lost all its foliage from black spot. No new growth shows and the plant is practically in a dormant condition



FIG. 40

What will happen if the leaf eaters are left undisturbed. Note how low this plant was pruned and the fine long stems for cut flowers resulting from such treatment

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order to secure the proper results, to spray as soon as the buds begin to open early in the spring, and for this early spraying two tablespoonfuls of commercial formaldehyde are diluted in a gallon of water; for later spraying when the plant is in full growth one-half strength is used, *i. e.*, one tablespoonful to a gallon of water, and the weaker spray used at intervals of a week or ten days through the growing season. Where black spot has gained a firm hold on the plants, it is also advocated that a solution of double strength be used in February.

Professor L. M. Massey and Professor Whetzel, of Cornell, are making investigations of diseases of roses. This work is most valuable and considerable progress has been made in dividing and classifying. It has been discovered that there are a number of different diseases which have generally been designated as black spot.

In this connection, it is most important that this research be given all the help possible throughout the country by rose growers, as the workers are most anxious to have specimens showing diseases on rose bushes sent to them. It would be best, where the entire plant is affected, to send the plant with the roots, but the soil is not of any moment. In the case of leaves, it is better not to wet them but to place in newspaper, and send by mail.

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It has been thought that black spot was merely a ripening of the leaves of the plant, and a natural condition. At Cornell it has been proved that black spot is absolutely traceable to a fungous growth, and Professor Massey is quoted: "The organism can be isolated at will, and the disease readily produced by inoculations."

As the nights become still colder the blooms will, of course, take longer to develop; nevertheless the roses make a fight to give flowers and the late bloomers continue to do so until about the middle of November. From the middle to the last of November is the time roses should be given proper winter protection.

The first thing to do with all ordinary bushes is to cut them down to an approximate height of a foot and a half. They will nearly all die down to this height or below in any event, and by cutting off the bushy tops damage by high wind is prevented. The mulch should at this time be removed and saved for the following spring.

The matter of hilling up has been noted, but is so important that it is repeated. It consists of heaping the ground up around the bush. It is well to add some top soil to the bed and hoe this up in a little mound around each plant to a height not less than six inches above the bed level.

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Mr. H. J. Staples, of Biddeford, Maine, who has tried a number of roses advocated in our former editions with very good success, claims that in his section it is better to make the hills around the roses twelve inches in height. By this method he lost only twelve out of seventy-five roses during the winter of 1915-1916. It is also interesting to note that he reports the blooming of the roses, with very few exceptions, to be identical with the records given for the Middle Atlantic States.

With the Hybrid Perpetuals and the very hardiest of the Hybrid Teas this hilling up is not really necessary, but there are very many beautiful varieties which must be brought through the winter by this method.

After the roses are hilled up, wait until the ground freezes before placing the litter on the beds. No insects or mice will then inhabit it during the winter and injure the green wood of the canes. Another good way is to fill the spaces between the little mounds with autumn leaves or meadow hay, with enough earth spread over the top to keep them from blowing away. This is an easy method and undoubtedly adds warmth to the beds.

In the extreme North, the best protection is to lay down and cover with waterproof building paper, which in turn should be covered with earth.

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After the winter is over it is better to remove the litter or leaves too early rather than too late, because they will rapidly heat up under the influence of the warm spring sun and the buds of the rose canes will be forced into breaking too early, when any later heavy frost will severely kill back the young shoots so started by the heat. It is therefore advisable to take this covering from the roses when the frost is out of the ground and before the heat of the sun becomes great and lasting.

Standard roses should be most carefully protected. Try placing around them a rough box made of boards and filling it with earth, covering well above the junction of the strong growing stalk with the rose itself. Another good method often used is to bend down the entire plant after carefully loosening the roots and to place it in a trench and cover it heavily with earth.

Most Hybrid Wichuraiana and other climbers will come through the winter well by themselves. Others, however, winter kill more or less, not enough to kill the plant itself but to destroy parts of the main stems. The Wichuraiana climbers bloom upon the wood of the preceding year, and if such wood is lacking and the rose has to throw up new shoots there will be no bloom. If the main shoots are killed back the few existing blooms will be low down, so that in

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the far north it would be well to bend down the canes and protect them with the usual blanket of earth and waterproof building paper.

RECIPES FOR THE DISEASES OF ROSES

Below are extracts from the best-known authorities, giving their recipes for mildew, black spot, rust, etc.

"THE ROSE BOOK" (Page 211). H. H. THOMAS suggests using a mixture, for mildew, of equal parts of fine quicklime and sulphur dusted on the affected areas.

"ROSES, THEIR HISTORY, DEVELOPMENT, AND CULTURE" (Page 303). PEMBERTON advocates the same dusting and also gives the following: 1 lb. flowers of sulphur, 1 lb. powdered quicklime. Add sufficient water to form a paste. Add one gallon of cold water. Boil for twenty minutes and when cool pour off the liquid and spray at the rate of half a pint of the above mixture to six gallons of water.

(Page 303). PEMBERTON recommends $1\frac{1}{2}$ lbs. of Calvert's carbolic soft soap in $7\frac{1}{2}$ quarts of water—a pailful; spray with one part of mixture to three parts of soft water, and he adds, "this is the remedy we apply."

"ROSES AND ROSE GROWING" (The Macmillan Co.), (Pages 137-138). MISS KINGSLEY advocates flowers of sulphur for mildew, distributed by a pair of powder bellows, and suggests applying before mildew appears. She uses Quassia Chips for Aphis, and recommends picking by hand for caterpillars.

"THE ROSE" (Page 89). ELLWANGER's recipe for mildew is sulphur and soot, applied while the dew is on the plants so that it will adhere.

"ROSES" (Page 52). The Garden Library of Doubleday, Page & Company suggests for black spot carbonate of copper compound, using five ounces of copper compound to three quarts of ammonia and sixty gallons of water. The spraying should be done once a week, using a hose with a nozzle that gives a fine spray.

"PICTORIAL PRACTICAL ROSE GROWING" (Pages 80-84). WRIGHT does not mention black spot, but the reference made to orange fungus or red rust is that it develops into black rust, possibly the same as the well-known black spot. This article is so clear that it is quoted verbatim.

"When the experienced rose grower observes orange-yellow spots on the leaves of his plants in early summer, he knows that

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he sees the advance guard of the fungoid disease known variously as orange fungus and red rust.

"Some suppose these to be separate diseases; on the contrary they are separate stages in the triune life-cycle of disease, *Phragmidium subcorticatum*. The first, or *Acidium*, stage gives the orange fungus; the second, or *Uredo*, stage gives the red rust; the third, or *Teleuto*, stage gives a black rust.

"Where the orange fungus has obtained a strong hold, and has caused trouble for several successive years, it cannot be exterminated at a single attempt. Repeated attacks on it must be made. Measures may begin by spraying the bushes thoroughly in the spring, before growth starts, with Bordeaux mixture.

"*Bordeaux Mixture*.—To prepare Bordeaux mixture take 2½ lbs. of sulphate of copper (bluestone), dissolve in a little hot water; 2½ lbs. of freshly burned lime, dissolve in cold water; 1 lb. of agricultural treacle, 1 lb. of soft soap. Pour together when cool; stir the treacle or soft soap well in and make up to twenty-five gallons with water.

"When the first signs of the disease appear in summer, spray with carbam, repeating if necessary. The solution should reach the under as well as the upper side of the leaves.

"To prepare carbam, take 1 ounce of carbonate of copper, ½ pint of liquid ammonia. Dissolve the carbonate of copper in the ammonia and mix with ten gallons of water."

Mr. E. M. Rosenbluth, of Wallingford, Pennsylvania, claims that, in planting, by placing one large handful of coarse sand and three handfuls of charcoal directly under the roots, varieties which ordinarily lose their foliage early, will hold the same quite well to the end of the season.

One point that all authorities seem to agree upon is the picking and burning of all dead and fallen leaves affected by black spot.

During 1915 there has been a new pest—the larvæ of the white tussock moth; this insect is greenish brown with yellow markings, like a small caterpillar. At first it is less than one-quarter inch but grows

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rapidly as it eats the leaves. Hand picking is the safest remedy.

During the past year Alphano Humus has been used by some growers with marked success. It may be placed, in conjunction with bone meal, around the roots when the rose is planted, and also applied as a top dressing during the growing season.

At the end of the season in order to destroy any chance of rose scale and also as an additional preventive against black spot, the following solution should be made and applied to the rose bushes after the tops have been cut off :

2 lbs. sulphur
1 lb. unslaked lime
1 gallon water
Boil one hour and add 7 gallons of water.

Spray the upper parts but apply with a stiff brush near the roots.

X

SOME GENERAL INFORMATION AND HINTS ON HYBRIDIZATION

In the climate of the Middle Atlantic States, it is not possible to grow some of the roses which succeed so wonderfully in the south of England and in France. However, there is a vast area in the United States in which all of those more delicate roses may be successfully grown, more particularly in the south-east and southwest; in fact in every part of our great country where there is little frost all these wonderful Teas and Climbing Teas and Noisettes may be successfully cultivated. In addition to which the Hybrid Teas will be found fine for garden cultivation, while the Hybrid Tea Climbers and many of the weaker Hybrid Polyantha Climbers will also do well.

In the very coldest climates the best method is to grow in good-sized pots or boxes, and in the autumn when frost comes move to a cellar or building where extreme cold will not penetrate. In the case of a cellar with an earthen floor the pots can be placed beneath the surface. The only thing necessary during the winter is to give the plants several waterings. In the spring the rose pots or boxes should be carried out and again placed beneath the surface of the soil

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in their old bed and as the rose increases in size a larger pot must be provided. Roses are being grown on the Gulf of St. Lawrence where the temperature reaches forty degrees below zero; they are protected during winter by the device of covering each bush with a small keg, filled with earth. The Hybrid Perpetuals do best in this locality; even the strongest of the Hybrid Teas tried give poor results. In the more moderate climate of the Middle Atlantic States and in approximate temperatures it would be possible to grow many of the more delicate roses with the heaviest winter protection.

One of the best means of protecting roses from the cold and the wind is a good brick or stone wall. It is expensive, but even a low wall will make it possible to grow the smaller Teas, and a four-foot wall would be of great use in protecting low bushes from the heavy winds, while with a six- or eight-foot wall it would be possible to care for the wonderfully blooming Climbing Teas. The tender Cherokee rose is being successfully grown near Philadelphia on the south side of a wall. The ideal exposure would be a wall facing the south or southeast and, as the winter approaches, the climbers could be taken down from their fastenings on the wall and covered over with earth and the smaller roses cut back and heavily covered. In an ideal rose garden, with such a wall

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completely surrounding it, there would be a great opportunity not only for the proper growing of many of these very beautiful varieties which otherwise one cannot hope to raise, but by utilizing both sides of the wall it would be possible to bring roses into bloom at different times. On the north side only the very hardiest of the climbing roses would do at all well. Wichuraianas and hardy Polyanthas would be roses to try, and if four such roses of the same variety were planted on four different exposures they would come into bloom at various times, thus lengthening the period of bloom.

A difference in soil and situation affects the time of bloom to some extent. A north slope will come in slightly later than a southern exposure; but in colder sections, and particularly in sections where late frost is liable to occur after growth is started, a north slope is a safe exposure. In such a situation the early spring sun will not reach the roses as it would on a southern slope, and they will not be forced into growth only to be killed back afterwards by the late frosts. It has been well proved that high ground will not have as much frost as low, well-sheltered ground, for in the latter the frost will settle in the late spring and cause damage, whereas on the high ground the air will have free access and will



The first bloom on two Hybrid Tea seedlings, crosses of Primrose and Duchess of Wellington. Both seeds taken from the same seed bag. These plants were about two months old from germination when the blooms were produced. Note the difference in color of seedlings of the same breeding.

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not allow the frost to remain, as it seems to do in low-lying ground.

Proximity to the ocean or any large body of water often gives a more even temperature than is found in inland sections. Near the sea coast of New England, where cool summers are encountered, wonderful beauty is shown by many roses.

There is a very interesting list of roses for the locality of Chicago published in "How to Make a Flower Garden," in which Mr. W. C. Egan gives his experience with roses near Jackson Park, Chicago. From the list which he selects it would seem that the hardiest Hybrid Teas would do well there, as his article included with the Hybrid Perpetuals several Hybrid Teas and Teas which are not among our hardiest varieties.

On the Pacific Coast roses do wonderfully well. In Santa Barbara, California, they come into bloom before Christmas, and the growing season there begins after the period of summer drought; what we in the East would call early autumn is, in reality, spring in southern California. Farther north on the Pacific Coast roses are most successful.

Professor R. T. Stevens, of the University of California, in his very excellent article in the American Rose Annual for 1916, gives the following informa-

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tion which, with the permission of the editor, Mr. McFarland, is quoted verbatim:

“As most people know, roses even in California demand a period of rest if the best results are to be obtained. California winter temperatures are not low enough to produce the necessary degree of dormancy, and the rose bush, if irrigated during the summer, will produce an ordinary grade of bloom more or less throughout the year, depending on the type of rose. On the other hand it will, in most cases, not only fail to furnish the finest blooms, but will soon deteriorate and die prematurely, due to the continual forcing of growth. It has become customary, therefore, to force dormancy upon the plants by withholding water in midsummer, a time when, because of dry weather, few good blooms are produced. Toward the close of the spring crop, or about the first of July, depending on the condition of the soil, water is withheld from the plants until the first of September. They are not allowed to suffer, but made to ripen their wood and recuperate from the strain of the season's bloom.

“During August the plants are gone over and all stubs and weak growth removed, after which a heavy mulch of cow-manure and a liberal amount of water are applied. Irrigation is kept up until the first new bud is blown, when it may be discontinued to allow

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the wood to ripen for the winter pruning. In this manner an abundant supply of fall bloom is produced, almost equal to that of spring, while at the same time the plants are insured against an early deterioration.

“Heavy pruning is performed in January, at which time the wood of the previous season’s growth is well ripened. In early spring the beds are again mulched and the plants sprayed with Bordeaux as a preventive against mildew. After the rains have ceased, the garden is given a thorough cultivation and overhauling, after which little attention is required until the summer rest, except an occasional irrigation, followed by a superficial working of the soil. Under this treatment the first flowers of the spring crop appear in February or early March, and continue until about the first of July.

“The superiority of budded roses is believed to be generally recognized. Some types, especially Teas, are too weak and delicate for ordinary outdoor culture unless worked on a more vigorous root, and the majority seem to be more or less improved when so treated. Budded plants are here not only more vigorous and longer-lived, but are more adaptable to wet and poor soil conditions, and will produce larger and earlier flowers in greater quantity than own-root plants.

“While climbing roses are widely grown in California

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they are not always exhibited to the best advantage. Too often they are seen covering a residence instead of a structure especially built for such purposes. The possibilities of roses of the Noisette type, used on columns, arbors and pergolas as ornamental garden features, are great, while many varieties, as the Cherokees, Gloire des Rosomanes and Agrippina, prove particularly adapted to cover fences and to serve as hedges. Because of the mild climate, climbing roses are apt to greatly overgrow their position and often become unsightly in shape and appearance. Intelligent pruning and thinning are necessary to correct these conditions.

“Roses grow easily and bloom freely in this equable climate, but it is believed much finer and more satisfactory results would originate from a close study by the amateur of the correct culture and treatment of the various types of roses adapted to California, with particular reference to their summer rest.”

HINTS ON HYBRIDIZATION

This chapter would not be complete without further information on the most interesting part of rose growing, that is, hybridization to secure new varieties. The books noted in the chapter on propagation will take the reader very thoroughly through this most fascinating subject, and they should be secured by any one who proposes to attempt such work.

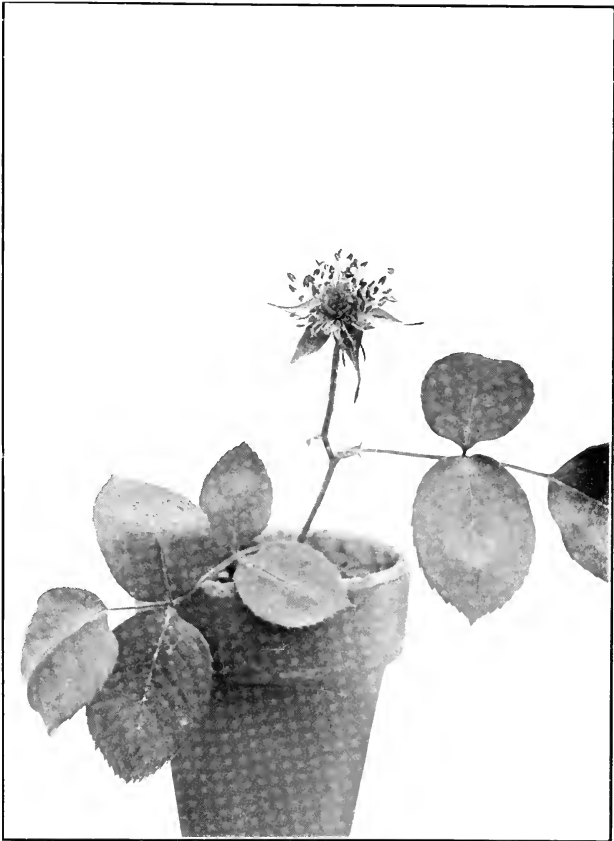


FIG. 41
ROSE WITH PETALS REMOVED, SHOWING THE STAMENS AND ANTHERS
WHICH BEAR THE POLLEN

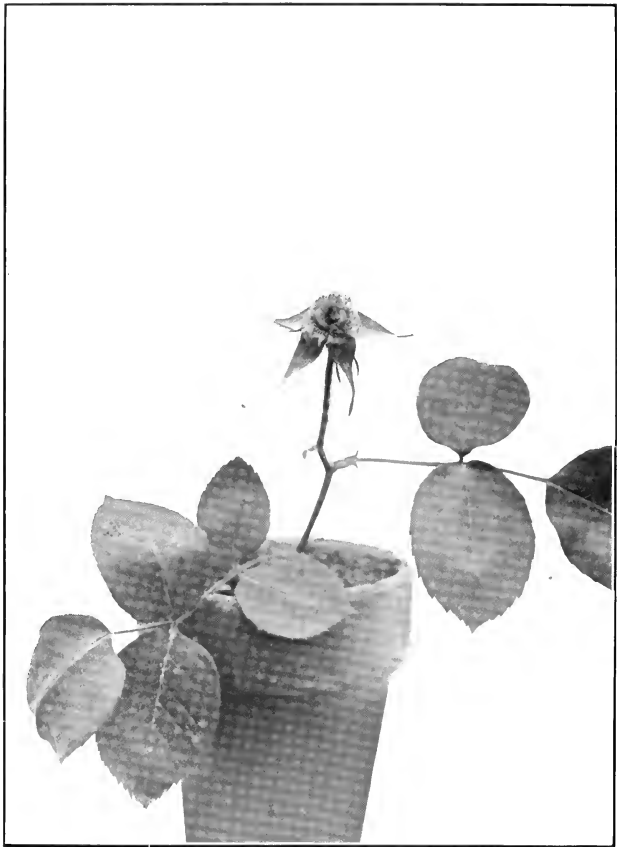


FIG. 42

SAME ROSE AS FIG 41 WITH MOST OF STAMENS AND ANTHERS REMOVED,
SHOWING THE STYLES AND PISTILS—THE FEMALE ORGANS

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It will be found by the person who wishes to have some interesting work for the winter, and who can give up part of his greenhouse, that a great deal may be accomplished even in a limited space. A conservatory would also give one an opportunity to make interesting experiments.

The Hybrid Tea list, with the addition of Pernet-Ducher's Pernetiana, makes this section of outdoor roses very complete, but there is still a large field to work upon, particularly in the climbing section. Any one who can breed a hardy seedling climber which will bloom reliably from frost to frost will be giving the rose world a most important addition. By securing a few potted plants in the early autumn, quite a number of crosses could be made, although the chances of securing what is desired would not be as great as if one had more plants with which to experiment.

As most of the books state, a rose will become fertilized with its own pollen more quickly than by the pollen of any other rose. The main point for success is to watch most carefully the rose which is to be bred so that before the pollen becomes ripe the anthers and stamens may be removed. It is very easy to tell when the pollen is ripe because it will then drop in small yellow particles upon the petals of the rose, and if one's finger is rubbed across

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the anthers the yellow dust will at once be noticed. Pluck off the petals of the selected rose *before* the pollen reaches this stage. After the petals have been removed a small pair of scissors should be used to cut off the anthers. As this is done turn the rose and only take off the stamens from the under side, thus precluding any possibility of the immature pollen reaching the pistils. Some few of them will be bent over and not yet fully developed, and these should be carefully removed from the plant because later on they will be dangerous to the experiment. The pollen contained on such anthers if kept in the sun will be developed and can be used on any other flower. Having prepared the seed parent or female flower, now secure the pollen from the other parent selected. If the plant from which the pollen is taken is not needed for a seed parent, it will be unnecessary to secure the pollen as above suggested, but the whole flower may be cut.

All authorities agree that a bright, warm day is the best on which to breed roses, as in damp, cloudy weather the pollen is not active. When the pollen is falling from the anthers in small, yellow dust, your rose will be properly fertilized, it being only necessary to shake the pollen on to the pistils of the rose selected as a seed parent for the hybridizing to be complete.



FIG. 43

SEED POD ON A HYBRID TEA ROSE WHICH HAS BEEN HYBRIDIZED

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After roses have been hybridized, allow the seed pods to develop, and when the weather becomes warm in late spring or early summer take the plants from the greenhouse or conservatory and plant the pots in soil out-of-doors to enable the heps to mature properly. In order to protect seed pods from birds or other interference it is advisable to cover the hybridized plants with wire netting. Towards early autumn the seeds should be taken carefully from the heps and planted, each lot being kept separate.

In mature seeds a little rose plant will sprout in a month or thereabouts with greenhouse care, bottom heat, and carefully-selected soil for germination. In the course of another six weeks very small blooms will appear on many of them, with the exception of the climbers.

Commercial firms who grow new varieties of outdoor roses at once bud or graft on Manetti or Briar stocks to propagate the wood.

As a rule, inside grafting is not done the latter part of the winter, the sun being too hot.

Briar as a stock is not used in indoor work, as during the winter it "goes to sleep."

For these reasons seedlings of Wichuraiana, of Rugosa and of sorts which grow especially well on their own roots should first be tested on their own roots.

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For a temporary inside test, budding on strong blooming plants will be found to give quick results.

After a satisfactory test, the surest and best method to increase the stock is to bud the varieties outside the following August. The plant is then ready for the outdoor ordeal if it is to be used as a garden variety. It will thus be seen how much time is required before a new variety may be passed upon as of value.

In experiments with cuttings and with budding it was found that while the information contained in the text books on these subjects seemed very complete, work was not successful until instruction was received from men who did this work themselves. Cuttings are so generally used in greenhouse work that it is easy for anyone who wishes to make them to learn at first hand how the operation is accomplished; but they are only valuable for the hardiest varieties.

Budding is more difficult, and it is doubtful whether it would pay the average amateur. Those who desire to bud on a large scale should buy the books previously referred to, in which the descriptions are most accurate and thorough, but they should also take a lesson from some practical budder.

The disadvantage of budding is the length of time required to secure results. It is necessary in the fall

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to procure seeds of the stock to be used. There is then the work of planting these seeds in February, taking care of the young seedlings, and setting them out in nursery rows as soon as the weather is suitable. Such seedlings are ready for budding in August of the same year. After they have been budded they are ordinarily left until the following spring when, if the bud takes, flowers will be produced. These plants can be moved only in the spring at great risk, and should be carried over in the nursery beds until the fall, when they may be moved. It therefore takes a year from the time the seed is gathered before the budded plant may be placed in its garden bed. Other methods are to procure plants or cuttings of the stock desired, place them in nursery rows in the fall or following spring, and bud them likewise in August, after which time the procedure is the same.

On the other hand, with the majority of field-grown, budded stock selling at an average of fifty cents apiece, the amateur may secure his plants in one fall and have bloom the following spring, thereby saving a year.

A quicker method, but which requires the use of a greenhouse, is to have the stocks budded in August, and in the fall when the plants become dormant, pot and give greenhouse care during the winter. Such plants are put out in the spring after the season is

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settled, and by this method blooms on new varieties and tests of new seedlings are quickly secured. The disadvantages are: First, the great amount of care necessitated by the greenhouse; and second, the fact that after the plants are removed to the garden beds they have already had a considerable period of growth and their constitutions are impaired by the lengthened outdoor season before dormancy again prevails in the fall.

All this work, however, is most interesting for those who desire to go into rose growing to the fullest extent. There is one point, not generally mentioned in the books on budding, which seems to be worth recording. Most handbooks advise that after the bud is cut, the wood be removed from the bark and only the bark with the small immature bud left. This result is obtained by a quick short jerk which severs the weak and immature bud from the hard wood of the cane. This was found most difficult to accomplish, as unless the plant was in exactly the right condition, the immature bud was often broken. The men who taught budding did not use this method, but after cutting the bud, shaved the same down until there was only a very small portion of wood left with a large surface of bark. In this shaving down, the point emphasized was that the edges should be as clean as possible. This expla-

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nation will be understood in conjunction with any book on budding.

Where a grower is unable to procure additional plants of a particular rose it is suggested that he send wood of the variety to the nearest nurseryman, who can bud it for him.

For those who wish to grow roses for exhibition, the method has generally been to bud in August and cut the flowers in the following spring from the budded growth, as the first or maiden bloom on such plants is usually finer than that on two- and three-year-old bushes.

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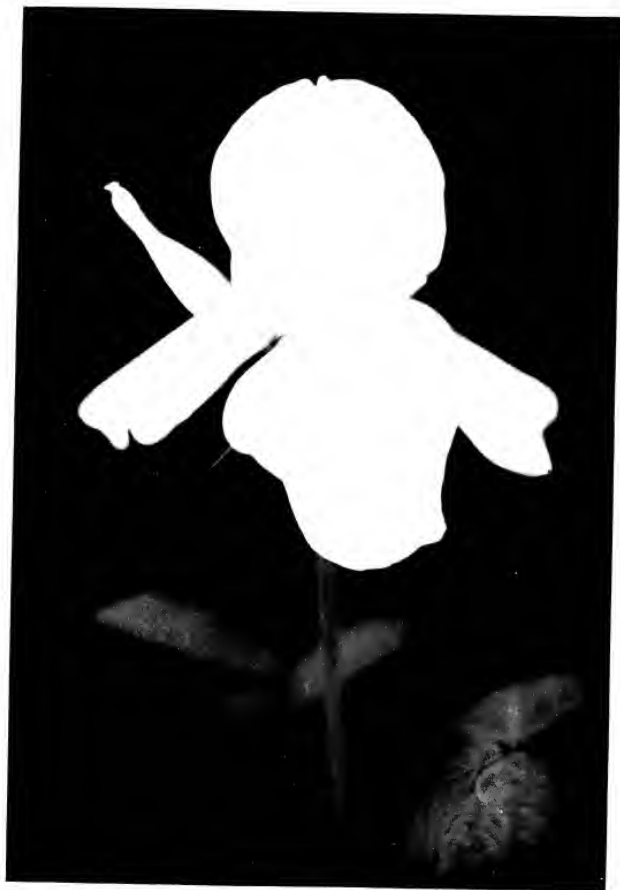
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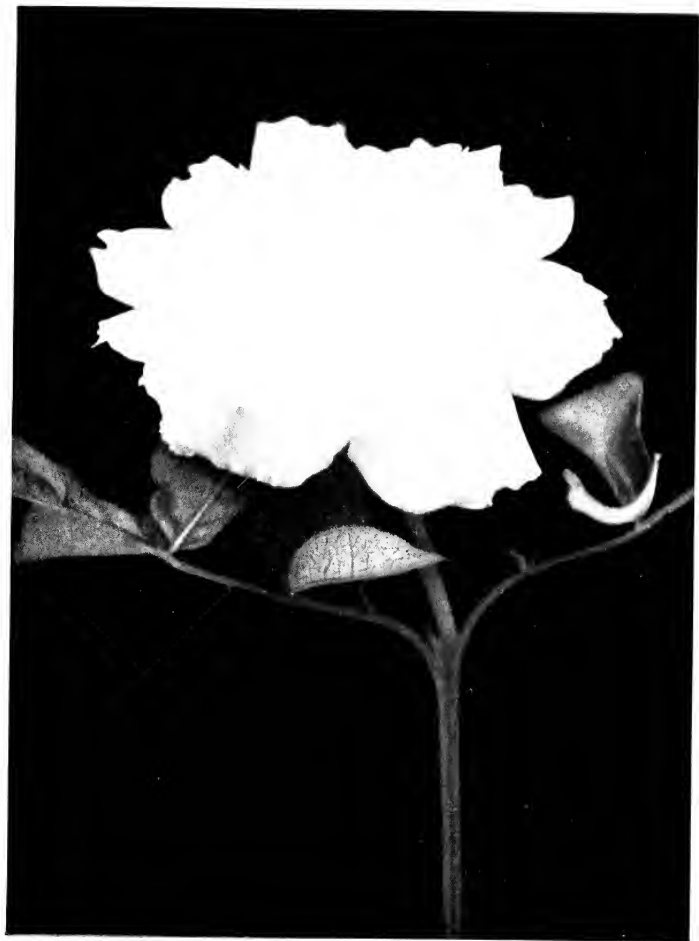
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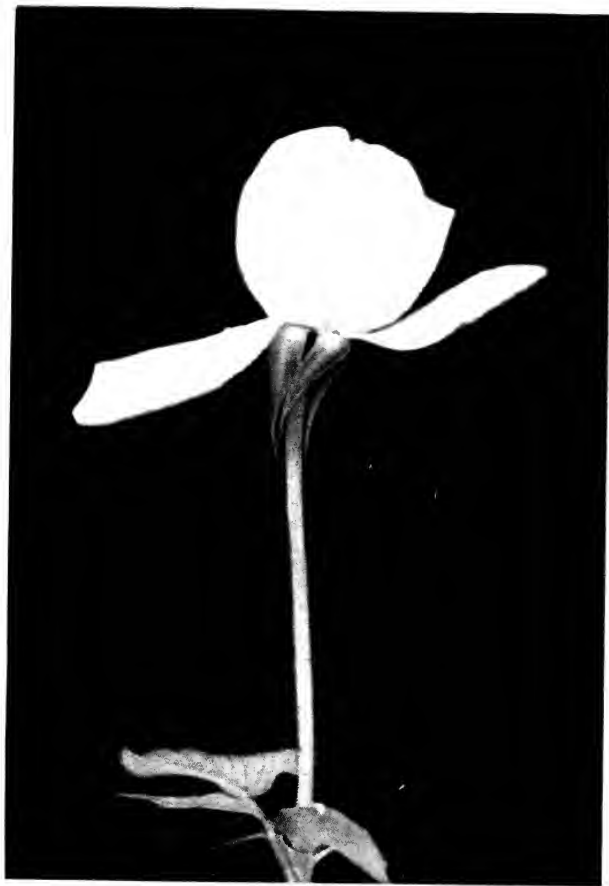
ALEX. BILL GRAY
(Description page 78)



ALICE LEMON
(Description page 78)



ANNIE BESANT
(Description page 78)



BEAUTE INCONSTANTE
(Description page 78)



BETTY
(Description page 79)



CARINE *Hybrid Tea*

Alex. Dickson & Sons, 1911

A weak grower, not hardy in Middle Atlantic States

A Collector's rose; below standard.



CONSTANCE
(Description page 79)



DEAN HOLE
(Description page 79)



DOROTHY PAGE ROBERTS
(Description page 80)



DOROTHY KATZELLE

(Description page 80)



DUCHESS OF SUTHERLAND
(Description page 80)



DUCHESS OF WESTMINSTER
(Description page 80)



EARL OF WARWICK
(Description page 80)



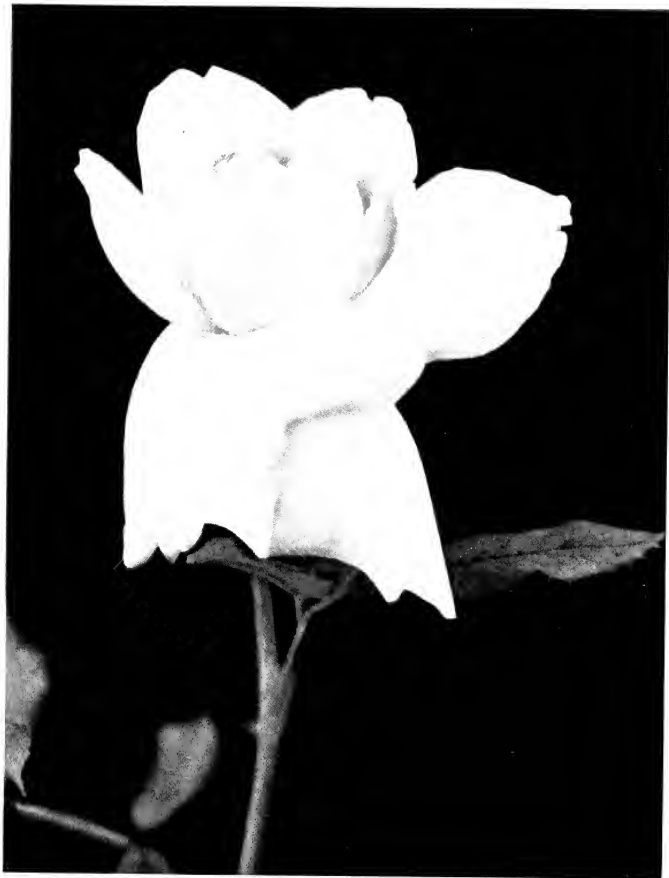
ELLEN WILLMOTT
(Description page 81)



EUGENE BOLLLET

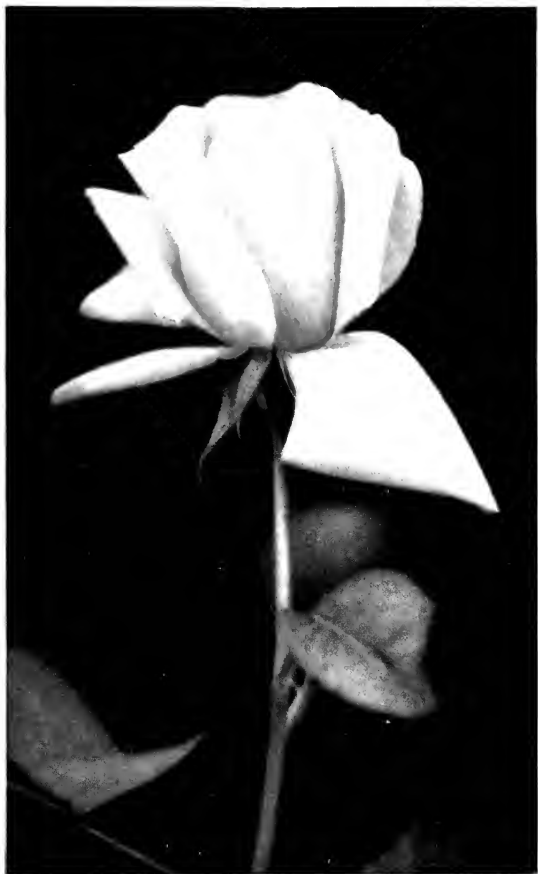
(Descriptions page 81)

EDWARD MAMLEY



EVELYN DAUNTESSY *Hybrid Tea*
McGredy & Sons, 1911

Very weak grower in Middle Atlantic States; below standard



FARBEN KÖNIGIN
(Description page 81)



GARDENIRECTOR HARTMATH

(Description page 82)

CORTEXES OF DERBY

Hybrid Tea

AGEN: De Koster & Sons, 1905

Fair growth and foliage; some
autumn bloom; below standard



GEORGE DICKSON *Hybrid Tea*
ALEX. DICKSON & SONS, 1911
Spring bloom only; weak stems; below standard



H. V. MACHIN
(Description page 83)



LADY ASHTOWN
(Description page 84)



LADY BARRHAM
(Description page 84)



LADY de BATHE
(Description page 85)



LADY HELEN VINCENT

Hybrid Tea

ALEX. DICKSON & SONS, 1907

Small grower with some autumn bloom;
below standard

LADY KATHERINE ROSE

(Description page 85)



LADY HILLINGDON
(Description page 85)



LADY MARGARET BOSCAWEN

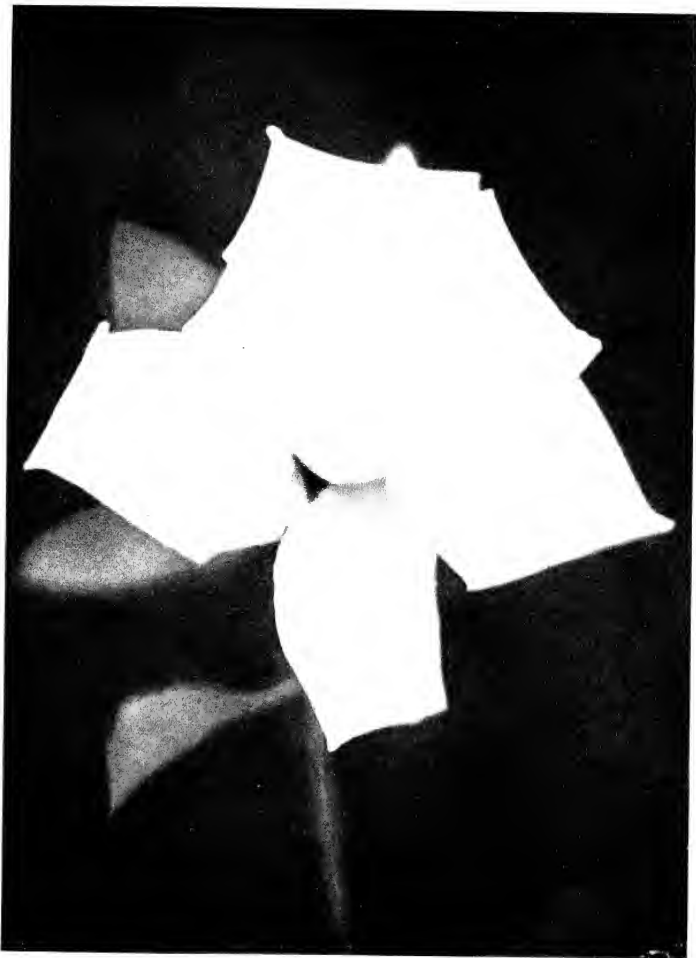
(Description page 83)



LADY MOYRA BEAUCLERC *Hybrid Tea*

ALEX. DICKSON & SONS, 1901

Weak grower in Middle Atlantic States; below standard



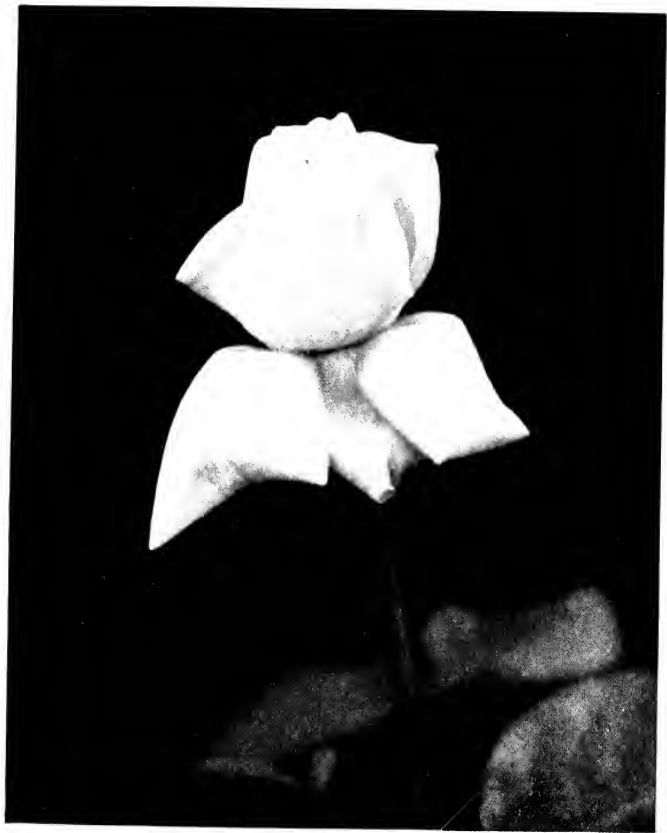
MABEL DREW
(Description page 87)

MADAME CHARLES LEFENE *Hybrid Tea*
GUTHRIE, 1912

Both roses below standard

MRS. WALLACE H. ROWE *Hybrid Tea*
McGHEE, 1912





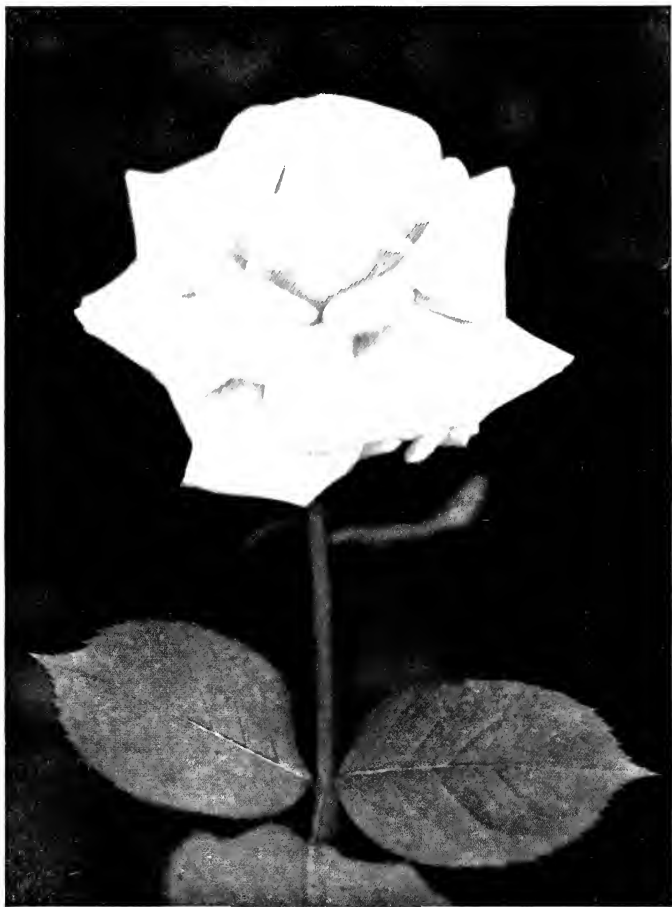
MADAME VERMOREL
(Description page 88)



MADAME WAGRAM, COMTESSE de-TURENNE
(Description page 88)



Mlle. MARIE MASCURAUD
(Description page 88)



MARY, COUNTESS OF ILCHESTER
(Description page 89)



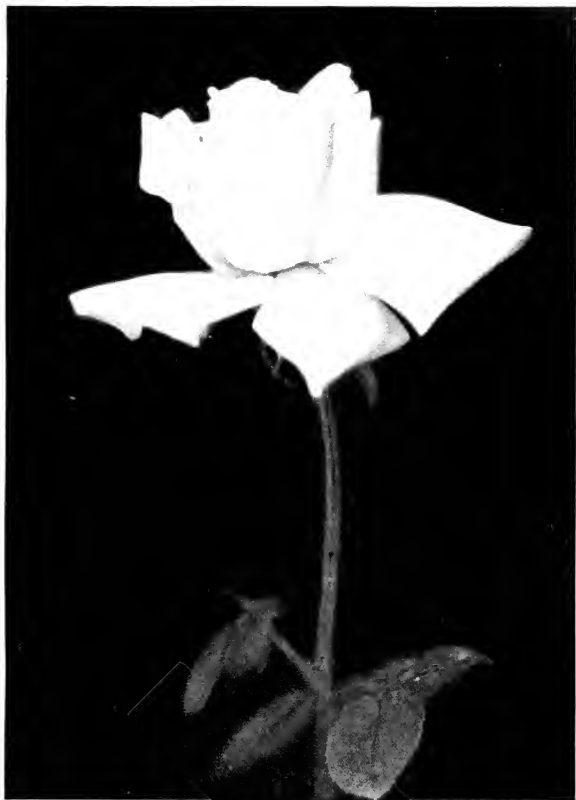
MISS ALICE de ROTHSCHILD
(Description page 89)



MRS. A. E. E. COXHEAD
(Description page 90)



MRS. CHARLES C. HARRISON
(Description page 90)



MRS. CHARLES E. ALLAN
(Description page 90)



MRS. HERBERT TAYLOR
(Description page 92)

COMTESSE MAGGI STARZYŃSKA *Ta*
Naukaspin, 1911
Small grower with some autumn bloom; below standard



MRS. JAMES CRAIG *Hybrid Tea*
HUGH DICKSON, 1908

Small grower, some autumn bloom; below standard



MRS. JOSEPH H. WELCH
(Description page 92)

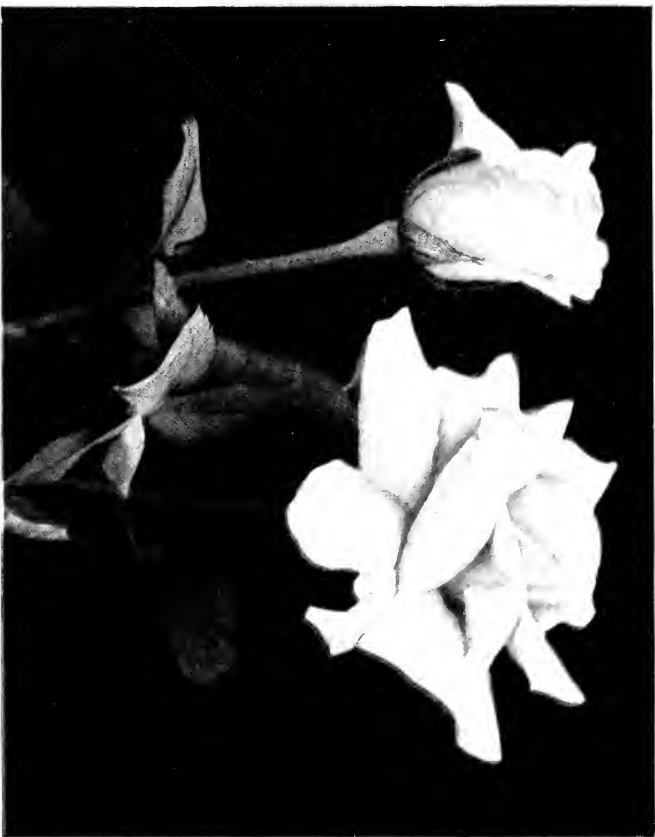




MRS. LEONARD PETRIE
(Description page 93)



MRS. RICHARD DRAPER
(Description page 93)



MRS. WALTER EASTEA

(Description page 98)



PRESIDENT W. H. TAFT
(Description page 94)



PRINCE de BULGARIE
(Description page 94)

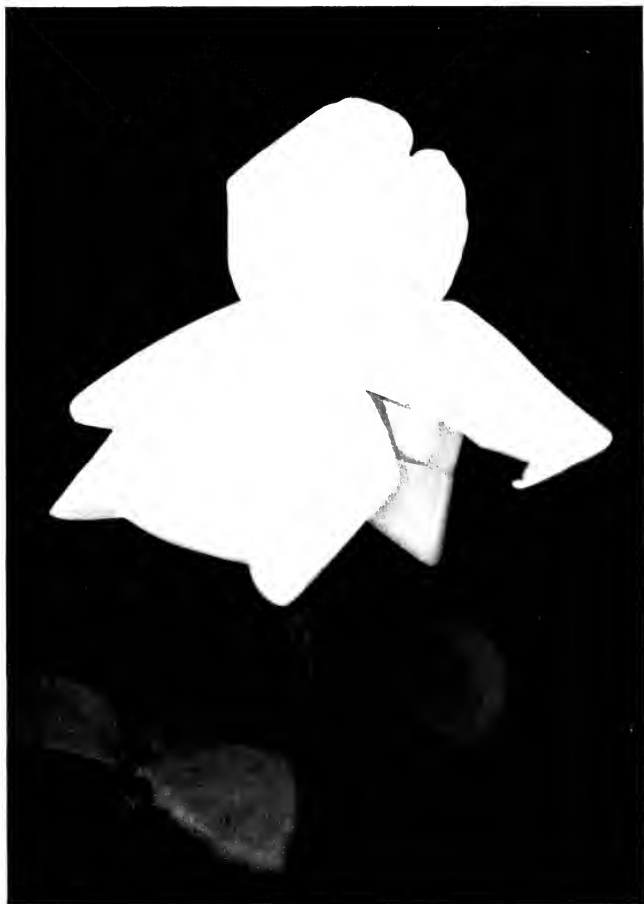


SOUVENIR DE GUSTAVE PRAT
(Description page 96)



ST. HELENA *Hybrid Tea*
B. R. CANT & SONS, 1912

Not hardy in Middle Atlantic States; below standard



WHITE KILLARNEY
(Description page 97)



W. R. SMITH

From the garden of Mrs. Jay Cooke, Brookfield, Philadelphia
(Description page 97)

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