HINTS FOR THE CULTIVATION OF ROSES.

Roses delight in a sunny situation away from the shade and root influence of trees. A sheltered position, where the plants are protected from hot winds on the plains and boisterous cold winds in the hills, should, if possible, be selected. It is not advisable to cultivate other plants among roses, as abundance of air is necessary for their growth.

Soils.

Roses will flourish in practically any soil provided it is well prepared and generously treated in the matter of manure and other constituents found wanting. A rich, loamy soil is the best, especially if a certain amount of clay is also present. If the soil is of a sandy nature, add a fair proportion of clay. This can usually be obtained in the plains, from the bottom of tanks or jheels during the dry season.

Lime is good for roses, especially where the soil is of a retentive nature, and it also tends to neutralise the injurious acids in soils which have been heavily manured.

The reason for so many failures among roses may be traced to over-manuring.

The soil becomes "rose sick," and the only remedy is to prepare new beds where roses have not been grown for some considerable period.

A gravelly soil is the worst one can select for roses. Good drainage, however, is absolutely essential and the rose-beds should never be made where rain-water lodges for any length of time.
Planting.

When preparing the rose-beds, remove the soil to a depth of \(2\frac{1}{2}\) to 3 feet. Allow the soil to remain on the surface for two or three days to become well aerated by sun and air.

Before returning the soil, place six inches of well-rotted cow-manure or finely-sifted road-sweepings at the bottom of the beds. It is important that the roots of the plants should not come in contact with manure directly after planting, hence no more manure should be added when returning the soil to the beds. When the beds are filled to the required height, press the soil firmly with the feet and, if dry, give a good watering. This will settle the soil and prevent subsequent sinkings, which are to be studiously avoided. As soon as the soil is in a suitable condition, planting operations may be started.

In the hills, the months of October, March, and early April will be found to be a good time for planting. In the plains, I recommend a period from the 15th October to the 15th December. The earlier date applies more to the United Provinces and the Punjab, while the latter date refers to Bengal. Roses are sometimes transplanted with success during the months of August and September, but from experience I have found that at this season everything depends on weather conditions. Very heavy rains directly after planting will ruin the plants, and a hot dry spell will so exhaust them that only those with the strongest constitutions and which have received no damage at the time of planting will survive.

When planting, care should be observed that as little as possible damage results to the roots of the plants. Any bruised or broken roots should be cut clean with a sharp knife and plants carrying much growth may, with advantage, be shortened back. By doing this the plant has less foliage to support at a time when root action is arrested and vitality impaired.

If at the time of transplanting the ball of earth about the plant is dry, it should be immersed in water until the whole is in a damp condition.
When planting the rose, the most careful attention must be given to details. The chief points to be observed are, that the plant is neither too high nor too low in the soil, that the soil is pressed or trodden very firmly around it, and that it receives a copious watering directly after planting.

The depth the plant may be in the ground is regulated by the spot where it was budded or grafted. Leave an inch or two between the ground and the point of union of the graft and stock.

**Planting and Treatment of Imported Roses.**

Large numbers of roses are now annually imported from Europe. The best time for them to arrive in India is about the first or second week in November. On arrival, they should be carefully overhauled and all dead wood removed, also prune away dead roots.

If the plants are at all shrivelled, dip their roots in water and then powder them with dry soil. Until the roses have recovered sufficiently to be planted out in their permanent quarters, their roots may be loosely covered with soil, which should be kept moist, and the plants covered with a grass mat during the day to prevent sap evaporation.

If the plants are received unpruned or only partially pruned, cut back the growth to about six or nine inches. After planting, water very carefully, and keep the plants shaded for several days until new growth appears. It is not advisable to allow the young roses to bloom until root action is developed and the plants well established.

**Manuring.**

The manuring of roses is of great importance, and an operation which requires careful and thoughtful attention. Over-manuring is fatal to the plants. Remember that plants can only take up their food in liquid form, as it becomes available for the roots, by decomposition.
or chemical change, and the amount assimilated depends entirely upon the health of the trees and condition of the soil.

Never allow rank stable or farmyard manure to come in contact with the roots of the plant.

Young roses require but little manure until fibrous roots are freely developed.

It will be found that cow-manure is the most suitable for light soils and horse-manure for heavy, retentive soils.

Coarse bone-meal is very useful and has lasting qualities. When the trees are well established and in active growth, artificial manures will be found beneficial in promoting healthy wood and fine flowers.

A complete artificial manure recommended for roses is composed of the following:

- Superphosphate = 12 parts.
- Nitrate of soda = 10 "
- Sulphate of magnesia = 2 ",
  " of iron = 1 part.
  " of lime = 8 parts.

A simple dressing of the following may be used, if the general conditions of the soil are satisfactory: Sulphate of ammonia 2 lb., superphosphate 8 lb.

In these prescriptions the dose to be given is $\frac{1}{4}$ lb. to the square yard.

The manuring of roses should only be done when the weather is cool. During the hot season and rains, roses should not be encouraged to make vigorous growth. Any great activity on the part of the plant at these seasons only tends to enfeeble it and shorten its life.

Liquid manure is often applied to the roots of roses when they are in full growth, especially when large blooms are desired. I have found liquid cow-dung give excellent results.

This is prepared by collecting a quantity of fresh manure and placing it in a tub or tank. Fill up with
water and stir occasionally for several days. When the liquor is of a straw colour, it is of the right strength and ready for use.

Do not use manure water during the hottest part of the day, if possible select a dull afternoon or evening for the operation.

An artificial liquid manure recommended is the following:—

1 oz. nitrate of potash, 1 oz. phosphate of potash, in 1 gallon of water.

**Pruning.**—The object of pruning roses is to encourage new growth, improve the balance and shape of the tree, and to produce big blooms. All old and exhausted wood should be removed, also spindly and soft, sappy, undeveloped shoots. The habit of each tree should be studied and the class to which it belongs.

The latter information is readily obtainable from any catalogue of roses. The pruning of various classes of roses is a subject that needs careful consideration.

The Hybrid Perpetual class should be pruned hard back, as they are vigorous growers.

Hybrid Teas also require to be well cut back to strong buds and all weak growth removed.

The Teas have not the robust nature of the two first-named, and more gentle treatment must be applied. Removing surplus and weak growth and reducing the shoots to strong, healthy buds will suffice with most varieties. Climbing roses must be treated in a rather different fashion. It is usual to completely remove all long, worn-out stems and shorten back to within bounds the shoots made during the preceding season of growth.

It may, however, be here stated that roses vary in habit and constitution to such a degree that only long experience and careful observation of the effects of the pruning on particular varieties will enable one to definitely decide what treatment this or that kind requires.
The operation of pruning is performed at various times after the advent of the cold weather in the plains. In the hills, the months of February and early March will be a suitable time to deal with the majority of roses.

It is the custom of many rose-growers to open out the roots of the plants directly after pruning, the object being to aerate the roots and apply manure. In soils that are of a clayey nature, or in districts subject to frequent inundations during the rains, the operation has much to recommend it. In dry, well-drained soils there is no need to submit the trees to this treatment, an ordinary fork-up of the soil and the incorporation of necessary manure being sufficient. In light, dry soils the exposure of the roots to hot sun can only tend to injure the fine fibrous roots, which are always near the surface and upon which so much of the vigour of the plant depends as well as its ability to produce abundance of blooms.

The tools necessary for pruning roses are a sharp pruning-knife, a strong pair of secateurs, and a long, fine-toothed saw. All parts of the rose should be cut clean and no jagged parts or wounds left on the tree.

**Watering.**—Roses require plenty of water during the periods of growth and flowering. During dry weather, water twice a week, or oftener, according to the nature of the soil.

During dull, cool weather a weekly watering will suffice. After every watering, and as soon as the soil will permit, fork up the surface. This will help to conserve the moisture and aerate the ground.

**Insect pests.**—The pests which attack roses in India are not numerous, but their depredations must be guarded against and, if possible, exterminated as soon as they make their appearance. White-ants, thrips, green fly, and mildew are our worst enemies.

White-ants may be driven away or killed by the use of a weak solution of phenyle and water. Thrips are difficult to eradicate, but syringing with a solution of a
wineglassful of kerosine to a gallon of lukewarm water will destroy most of them.

Green fly usually appears when the flower-buds are forming. They may be removed with the hand or the affected parts dusted with fine tobacco powder.

Mildew often causes much damage. It makes its appearance during spells of dull, damp weather, but it may also be found at other times where the plants are grown in a too shady position. The curling up and mealy appearance of the leaves are sure indications of the presence of mildew.

To guard against mildew, care should be observed that plants obtain an unlimited supply of fresh air. To cure the disease, spraying or syringing is necessary. Liver of sulphur is recommended as a medium, one ounce of this being dissolved in every five gallons of water. The liver of sulphur can be readily dissolved in warm water.

Select a dull day for the spraying operation so as to avoid any chance of the sun scorching the leaves. Another cure in fairly general use as a spraying medium is Bordeaux mixture. This fungicide is prepared as follows:

- Copper sulphate, 2 lb.
- Lime (freshly burnt), 1 lb.
- Water, 10 gallons.

Dissolve the copper sulphate in half the water. Slake the lime to a fine powder and mix it with the remaining water and pour it into the copper solution. When using, keep the mixture well stirred to obtain a uniform strength.

Caterpillars and leaf weevils may be eradicated by syringing the plants with kerosine emulsion as suggested for thrips.

**Selection of Roses.**

When ordering roses, it is often very difficult for an amateur to decide what particular kinds will serve the
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purpose for which they are required, and disappointment often results by a wrong type of plant appearing in a bed or collection.

It is also necessary to avoid growing plants with a vigorous habit with plants of dwarf nature. The former will, unless carefully watched, kill out the weaker varieties by overcrowding and absorbing all the goodness in the soil.

The following selections of roses should go far towards helping rose-lovers to decide what varieties to plant in mixed beds, masses, for exhibition purposes, and as climbers for pergolas or arches:—

60 Free Blooming Garden Roses.

Dean Hole, H. T.
Pharisaer, H. T.
Mrs. E. Mawley, T.
Mme. Jules Groëz, H. T.
General Schabalkine, T.
Marie Van Houtte, T.
Mme. Antoine Marie, T.
Kaiserin Augusta Victoria, H. T.
Laurette Messimy, China.
Alexander Hill Gray, T.
Gruss an Teplitz, H. T.
Belle Marguerite, T.
Catherine Mermet, T.
Laurent Carle, H. T.
Viscountess Folkestone, H. T.
Lady Firrie, H. T.
Duchess of Wellington, H. T.
Cynthia Forde, H. T.
Mrs. A. R. Waddel, H. T.
Mrs. Aaron Ward, H. T.
Lady Hillingdon, T.
William Askew, H. T.
Grace Molynoux, H. T.
Cissie Enslea, Per.
Molly Sharman Crawford, T.
Louise Katherine Breslaw, Per.
Arthur A. Goodwin, Per.
Marquise de Salisbury, H. T.
Mrs. P. Morgan, T.
Mildred Grant, H. T.

Gustav Grunewald, H. T.
Caroline Testout, H. T.
Lieutenant Chaure, H. T.
Maman Cochet, T.
Mme. Abel Chatency, H. P.
Frau Karl Druschki, H. P.
La Prance, H. T.
Betty, H. T.
Mrs. David McKee, H. T.
George C. Waud, H. T.
Mme. Ravary, H. T.
Harry Kirk, T.
General McArthur, H. T.
Killarney, H. T.
Educ. Meyer, H. T.
Mrs. Herbert Stevens, T.
The Bride, T.
Mrs. Foley Hobbs, T.
Dorothy Page Roberts, H. T.
Betty Berkley, T.
Mme. Eugene Resal, China.
Mme. E. Herriott, Per.
Marquise de Querhoent, T.
William Shean, H. T.
Ophelia, H. T.
Richmond, H. T.
Lady Ashtown, H. T.
Prince de Bulgaria, H. T.
Mme. Melanie Soupert, H. T.
Marquise de Sincty, H. T.
30 Exhibition Roses.

Molly Sharman Crawford, T.
Horace Vernet, H. P.
Mildred Grant, H. T.
Mrs. Foley Hobbs, T.
Edward Mawley, H. T.
Lady Ashtown, H. T.
Kaiserin Augusta Victoria, H. T.
William Shean, H. T.
Maman Cochet, T.
Catherine Mermet, T.
Caroline Testout, H. T.
La France, H. T.
Ulrich Brunner, H. P.
Mme. Melanie Soupert, H. T.
Mme. Abel Chateney, H. T.
Bessie Brown, H. T.
W. R. Smith, T.
George Dickson, H. T.
Lyon Rose, H. T.
Dean Hole, H. T.
Franz Karl Druschki, H. P.
Mabel Drew, H. T.
The Bride, H. T.
Mrs. E. Mawley, T.
Mrs. John Laing, H. P.
Captain Hayward, H. P.
Hugh Dickson, H. P.
Mrs. W. G. Grant, H. P.
Earl of Warwick, H. T.
Gustav Piganeau, H. P.

24 Good Hybrid Perpetual Roses.

Mrs. John Laing.
Franz Karl Druschki.
Marie Baumann.
Ulster.
Captain Hayward.
General Jacqueminot.
Her Majesty.
Hugh Dickson.
Emperor de Maroc.
Ben Cant.
Paul Neyron.
Geoffrey Henslow.
Lemon Queen.
Black Prince.
Monte Christo.
Hellen Keller.
Horace Vernet.
Mrs. R. G. Sharman Crawford.
Ulrich Brunner.
Gustav Piganeau.
A. K. Williams.
Mrs. Cocker.
Duke of Teck.
Alfred Colomb.

30 Good Hybrid Teas.

Lady Ashtown.
Kaiserin Augusta Victoria.
Lyon Rose.
Mme. Jules Grolez.
Pharisae.
George C. Waud.
Laurent Carle.
Lady Pirrie.
Albatross.
Dorothy Page Roberts.
Cynthia Forde.
Mme. Melanie Soupert.
Bessie Brown.
Edward Mawley.
Viscountess Enfield.
Caroline Testout.
Dean Hole.
Mme. Abel Chateney.
Mrs. David McKee.
Viscountess Folkestone.
Killarney.
Mrs. A. Tate.
Liberty.
Countess Ivy Hardegg.
Mildred Grant.
Mrs. A. R. Waddell.
Leslie Holland.
Chateau de’ Clos Vouget.
William Shean.
Mrs. Aaron Ward.
23 Tea Roses.

Mrs. Foley Hobbs.
White Maman Cochet.
Miss Alice de Rothschild.
Alexander Hill Gray.
Catherine Mermet.
The Bride.
W. R. Smith.
Maman Cochet.
Mrs. Herbert Stevens.
Ernest Metz.
Sunrise.
Beryl.

Mrs. E. Mawley.
Souv. de Pierre Notting.
Bridesmaid.
Marechal Neill.
Mme. Jules Gravereaux.
Marquise de Querhoent.
Lady Roberts.
Molly Sharman Crawford.
Mrs. Myles Kennedy.
Lady Hillingdon.
Muriel Grahame.

24 Decorative Roses.

William Allen Richardson, N.
Mme. Jean Dupuy, T.
Irish Elegance, H. T.
Betty, H. T.
Grussian Teplitz, H. T.
Mme. Antoine Marie, T.
Mrs. Herbert Stevens, T.
Arthur R. Goodwin, Per.
Lady Gay, Wich.
Irish Glory, H. T.
Mr. F. W. Flight, Cl. P.
American Pillar, Cl. P.

Liberty, H. T.
Mme. Abel Chateney, H. T.
Lady Hillingdon, T.
Lady Battersea, H. T.
Marquise de Salisbury, H. T.
Duchess of Wellington, H. T.
Gustav Regis, H. T.
Turners' Crimson Rambler, P.
Mme. Pernet Ducher, H. T.
Mrs. A. Tate, H. T.
Hiawatha, Cl. P.
Payon d'Or, H. B.

24 Fragrant Roses.

Lady Alice Stanley, H. T.
La France, H. T.
Marie Baumann, H. P.
Black Prince, H. P.
Viscountess Folkestone, H. T.
General Jacqueminot, H. P.
Hugh Dickson, H. P.
Gruss an Toplitz, H. T.
General McArthur, H. T.
Chateau de Clos Vouget, H. T.
A. K. Williams, H. P.
Gladys Harkness, H. T.

Commander Felix Faure, H. T.
Avoca, H. T.
Abel Carriere, H. P.
Ulrich Brunner, H. P.
Charles Lefebvre, H. P.
Edward Mawley, H. T.
Richmond, H. T.
Gustav Grunerwald, H. T.
Marechal Neill, T.
Queen of Fragrance, H. T.
Mrs. George Norwood, H. T.
Mme. Maurice de Luze, H. T.

20 Button-Hole Roses.

Richmond, H. T.
Arthur A. Goodwin, Per.
Lady Pirrie, H. T.
Mme. Abel Chateney, H. T.

Mme. Edouard Herriott, Per.
Ophelia, H. T.
Molly Sharman Crawford, T.
Melody, H. T.
20 Button-Hole Roses.—Cotd.

Alex. Hill Gray, T.
Lady Roberts, T.
Marquise de Salisbury, H. T.
Mrs. Aaron Ward, H. T.
Rayon d'Or, H. B.
Mrs. A. Tate, H. T.

Mrs. Herbert Stevens, T.
Lady Hillingdon, T.
Liberty, H. T.
William A. Richardson, N.
Lady Greenall, H. T.
Mme. Jean Dupuy, T.

24 Roses for Massing in Beds.

Caroline Testout, H. T.
Miss A. de Rothschild, T.
Sunburst, H. T.
Richmond, H. T.
Mme. Melanie Soupert, H. T.
Marquise de Verchois, T.
Kaiserin Augusta Victoria, H. T.
Lauretta Messina, China.
Mme. Ravary, H. T.
Crimson Bedder, H. P.
Liberty, H. T.
Ecarlate, H. T.

Lyon Rose, H. T.
Pharisaer, H. T.
Mme. A. Chateney, H. T.
Lady Ashtown, H. T.
Mme. Eugene RosalChina.
Molly Sharman Crawford, T
Mme. Antoine Marie, T.
Duchess of Wellington, H. T.
Belle Marguerite, T.
Mme. Jules Groez, H. T.
Mrs. E. G. Hill, H. T.
Marquise de Salisbury.

18 Mildew-proof Roses.

General McArthur, H. T.
Ulrich Brunner, H. P.
Lieutenant Chaure, H. T.
Dorothy Page Roberts, H. T.
Chateau de Clos Vouget, H. T.
Cynthia Forde, H. T.
Arthur R. Goodwin, Per.
Florence H. Veitch, H. T.
La Tosca, H. T.

Paul Lede, H. T.
Mme. Ravary, H. T.
Gruss an Teplitz, H. T.
Mrs. David McKee, H. T.
Lady Alice Stanley, H. T.
Lady Waterlow, H. T.
Jessie, D. P.
Gustav Grunerwald, H. T.
Mme. Melanie Soupert, H. T.

24 Creme de Creme Roses.

Marquise de Sincty, H. T.
Mme. Edouard Herriott (Daily Mail), Per.
British Queen, H. T.
Duchess of Wellington, H. T.
Leslie Holland, H. T.
Cissie Pasqua, Per.
Mrs. Foley Hobbs, T.
Lady Hillingdon, T.
Alexander Hill Gray, T.
Mrs. Maynard Sinton, H. T.
Miss Alice de Rothschild, T.
Arthur R. Goodwin, Per.

Louise Catherine Brésau, Per.
Mabel Drew, H. T.
Mrs. A. Carnegie, H. T.
Rayon d'Or, H. B.
George C. Waud, H. T.
Lady Pirrie, H. T.
George Dickson, H. T.
Mrs. Herbert Stevens, T.
Mrs. A. R. Waddell, H. T.
W. R. Smith, T.
Mme. Melanie Soupert, H. T.
Ophelia, H. T.
18 Climbing Roses.

Marechal Neil, T.
Climbing Liberty, H. T.
Climbing Lady Ashtown, H. T.
Climbing Caroline Testout, H. T.
La Marque, N.
Reine Marie Herzietta, T.
Dorothy Perkins, Wich.
Excelsa, Wich.
Lady Gay, Wich.
L'Ideal, N.
Gloire de Dijon, T.
Climbing Richmond, H. T.
Climbing Mrs. W. G. Grant, H. T.
Cloth of Gold, N.
Crimson Rambler, P.
W. A. Richardson, N.
Hiawatha, P.
Mrs. F. W. Flight, P.

30 Selected New and Gold Medal Roses.

Mrs. George Norwood, H. T.
Augustus Hartmann, H. T.
Colleen, H. T.
King George, V., H. T.
Mrs. James Lynas, H. T.
Red Letter Day, H. T.
Mrs. Archie Gray, H. T.
H. V. Machin, H. T.
Edgar M. Burnett, H. T.
Lady Plymouth, T.
Countess Clanwilliam, H. T.
R. D. M. Clure, H. T.
Old Gold, H. T.
Edith Part, H. T.
Mrs. David Baillie, H. T.
Florence Forrestier, H. T.
Mrs. Ambrose Riccardo, H. T.
Queen Mary, H. T.
Brilliant, H. T.
H. E. Richardson, H. T.
Mrs. Campbell Hall, T.
Iona Herdman, H. T.
Mrs. A. Carnegie, H. T.
William Cooper, H. T.
Lady Mary Ward, H. T.
Mrs. Forde, T.
Mme. Edouard Herriot, Per.
Leslie Holland, H. T.
Mrs. Wemyss Quin, H. T.
Irish Fireflame, H. T.

The Best Crimson Roses.

Black Prince, H. P.
Gruss an Teplitz, H. T.
Chateau de Clos Vouget, H. T.
Leslie Holland, H. T.
Edward Mawley, H. T.
Leuchtfueuer, China.
George Dickson, H. T.
Lieutenant Chaure, H. T.

The Best Reds.

A. K. Williams, H. P.
H. E. Richardson, H. T.
General McArthur, H. T.
H. V. Machin, H. T.
Geoffrey Henslow, H. T.
Liberty, H. T.
Gloire de Chedane Guincoisseau, H. P.
Richmond, H. T.

The Best Cerises.

Augustus Hartmann, H. T.
George C. Waud, H. T.
Claudius, H. T.
Mrs. Frank Workman, H. T.
C. W. Cowan, H. T.
Ulrich Brunner, H. P.
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The Best Rose Pinks.
Caroline Testout, H. T. Mrs. W. J. Grant, H. T.
Lady Alice Stanley, H. T. Wm. Shean, H. T.
Lady Ashtown, H. T. Willowmere, H. T.
Mrs. John Laing, H. P.

The Best Salmon and Carmine Pinks.
Countess of Shaftesbury, H. T. Mme. A. Chateney, H. T.
Deane Hole, H. T. Mme. Leon Pain, H. T.
Joseph Hill, H. T. Mme. Segond Webber, H. T.
Joseph Lowe, H. T. Mrs. George Shawyer, H. T.

The Best Shell and Pale Rose Pinks.
Mme. E. Rostand, H. T. Pharisaer, H. T.
Ophelia, H. T. Prince de Bulgaria, H. T.

The Best Lemon and Yellow Roses.
Alex. Hill Gray, T. Mrs. David McKee, H. T.
Duchess of Wellington, H. T. Mme. Ravary, H. T.
Iona Herdman, H. T. Melody, T.
Harry Kirk, T. Miss A. de Rothschild, T.
Kaiserin Augusta Victoria, H. T. Mrs. Aaron Ward, H. T.
Lady Hillingdon, T. Sunburst, H. T.

The Best Copper, Frange, and Apricot-tinted Roses.
A. R. Goodwin, Per. Lyon, H. T.
Botty, H. T. Mme. Chas. Lutaud, H. T.
Joseph Hill, H. T. Mme. Herriott, Per.
Lady Mary Ward, H. T. Marquise de Sinety, H. T.
Lady Pirrie, H. T. Mrs. A. R. Waddell, H. T.
Louise C. Breslau, Per. Old Gold, H. T.

The Best White Roses.
British Queen, H. T. Mrs. Andrew Carnegie, H. T.
Frau K. Druschki, H. P. Mrs. Herbert Hawksworth, H. T.
Molly Sharman Crawford, T. Mrs. Herbert Stevens, H. T.

NOTE.

Abbreviations to indicate classes of Roses.

H. P. = Hybrid Perpetual. P. = Polyantha.
Per. = Pernetiana. N. = Noisette.