Rose Culture in Oregon.

BY GEORGE COOTE.

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Plate I—Showing manner of preparing cutting.
Rose Culture in Oregon.

Owing to the number of inquiries as to the general method of the propagation and cultivation of the rose this bulletin has been issued. Not for the purpose of giving information as to the several varieties, but for the sole purpose of giving some practical information on the general methods of cultivation.

There are few plants held in such esteem as the rose. Well may it be termed the Queen of Flowers, as it has a beauty and fragrance which are not found in any other family of plants, and probably there is not another family of plants that so much deserves our attention.

Like most other flowering plants, planted for effect, roses are most effective when planted in groups of distinct colors. To grow a large collection or variety in this way demands a good deal of space unless the groups are very small, and this cannot in many cases be carried into practice. But a mixed border, or bed or two, is within the reach of most owners of gardens, and when the mixed system becomes a necessity for want of space, it must surely be termed a charming necessity, thus forming a pleasing variety. In accordance with the special object of this bulletin, we shall treat briefly on their cultivation as a flower-garden plant, with a few remarks on some varieties that have proved worthy on the college grounds.

Propagation by Cuttings.

Generally speaking, roses for beds are best on their own roots, especially where the soil is inclined to be of a light nature. But in heavy, cold soils, it is preferable to plant those budded on dwarf brier stocks. The perpetuals, Bourbons and China roses succeed in the majority of soils. The propagation of these varieties by cuttings is as easy as the propagation of the currant in the open ground, without any protection whatever. This makes them preferable for all those who wish to propagate their own roses.

From the beginning of October to the middle of November is the best time to propagate these varieties, for the reason that the ground has still some warmth in it; consequently the cuttings soon become calloused, and still continue that process through the winter. The
advantages which fall cuttings have over spring cuttings is this, as already stated: the fall cuttings soon become calloused, and by this means are in a condition to start into growth on the approach of spring, while cuttings placed in the ground in spring very soon begin to make growth, having not had time to callous over, being unable to supply the young growth, as the stored up sap in the cutting is soon thrown off by the young growth, and being devoid of any means to supply the necessary plant life, soon becomes withered and dies out; with but few exceptions, those that do survive make but small growth during the summer, while those inserted in the early fall make fine healthy plants by the following fall, ready to be planted out into permanent positions.

In taking the cuttings those that have well matured their growth, and are strong and straight should be chosen. In taking these from the plant, take with them a slight portion of the previous year's growth; in doing this it may be readily understood how many cuttings should be taken near to each other, being careful not to mutilate the plant too much, whereas a thinning out where they are crowded will prove beneficial. When preparing the cutting, cut the base cleanly through, just where the season's growth has started from, taking with it a thin slice of the former season's growth to form a heel to the cutting; they should be shortened to 15 inches. Those that cannot be had this length may be shortened to 12 or 9 inches. When taking the cuttings, varieties should be kept separate and properly labeled; in this condition they are ready to be placed in the ground. A well drained place should be selected for the purpose, being careful to have the soil made quite light. If not already so, it should be made up to suit. On this will depend success. After the soil has been made ready the cuttings may be inserted up to the second or third bud, placing them in rows, 6 to 8 inches apart in the row and two feet between the rows. This will make cultivation easy, being careful to place the cuttings in the soil firm by pressing the soil about the base. Do not use the foot for the purpose, only the hands, as treading with the foot will cause the soil to become too much packed.

Should the temperature fall below freezing for any length of time, a mulching of short manure placed along the rows and around the plants will be of great benefit to the cuttings; in most seasons this is not necessary. If manure is not on hand, a few evergreen boughs may be laid over them. I would recommend the latter to be done
Plate II. Fig. 1—Showing cutting with buds removed. Fig. 2—With buds intact.
any how; by so doing much sun scalding would be prevented during bright days after a frosty night, and much damage prevented, removing them after all danger of frost is over. Cuttings treated in this manner make beautifully rooted plants by the middle of summer without any other care. An occasional stirring of the surface soil will be of great benefit to the growth of the young plants. In very dry seasons a good soaking of water once a week will be very beneficial. In November the plants will be ready for planting out into beds or borders where they are to remain.

Midsummer Propagation.—As soon as the plants have shed their first crop of bloom, cuttings may be taken from the parent plant the same way as described for fall cuttings, only they need not be so long—about 3 or 4 inches will be sufficient. These should be placed in pots with two or three buds above the surface. Use eight-inch pots, well drained, by placing about two inches of broken brick in the bottom of the pot before putting in the soil. The pots should be firmly filled with a mixture of about equal parts of light loamy soil, leaf mould and sand. The cuttings should not be inserted too thickly in the pots, to cause shade to each other; this will prevent premature shedding of the leaves. If possible they should be placed under the protection of glass, and shaded from the sun, being careful to keep them moderately moist at the root, giving a little air during the night. They may remain for four weeks, or rather until the cuttings have calloused. At this stage if bottom heat from 70° to 80° can be had, the plants will soon start roots. If the latter cannot be had they may remain in the former position until rooted. After they are rooted they may either be potted singly in four-inch pots, or they can be potted three or four in six-inch pots, in a preparation of soil as recommended for the cuttings and again placed in a cold frame for a few days, until they become established in the pots, after which they may be planted out in open ground, shading and watering until they become rooted in the soil.

Propagation of Manetti Stocks.—The above cut shows the manner in which the cuttings should be prepared. First select strong, healthy, young, well matured wood. Cut into lengths of about 15 to 18 inches. All buds, except one or two on the upper end of the cutting, should be removed, as shown in cut, by taking the buds clean out with a sharp knife; by so doing much annoyance will be overcome by preventing the growth of suckers in aftergrowth. The two buds left will be sufficient to produce wood for budding.
The cuttings are planted in the early fall, frequently they will make growth strong enough for budding the following fall. Plants that have made sufficient growth may be budded as they stand in the propagating rows. Then in the fall all plants may be taken up carefully, and those that have been budded may be planted out either in beds or borders where they are intended to remain, and those that have not been worked may be reset in nursery rows where they may remain until the next budding season. During the month of March the young growth that has been made the previous year should be pruned back to one bud—next the stem; by so doing stronger growth will be made, which will be the better for working.

**Propagatio**n by Budding.—This may be performed in the same manner as for varieties of fruits, excepting that the bud should be inserted on the young shoot or branch as closely up to the main stem as possible. High standard roses are not a success in this climate, for the reason that they are not so easily protected from the frost of winter. Although they may escape and do well for a few years, they are liable to be damaged by hard freezing.

I have grown a few varieties on the native wild rose stock for eight years, but have twice lost them by the sudden drop of temperature, like the one we have just experienced (February, 1899). Those worked next the ground have escaped, by having a coating of snow to protect them from the direct rays of the sun. Although frozen down to the snow line, they will make strong growth again from below.

The varieties that do well on the native brier are as follows: La France, John Hopper, La Rhine, Glorie d' Dijon, Glorie d' Lyonasse and Queen of Morocco. In the matter of growth of varieties, when budded on the above stock, Glorie d' Dijon loses all of its climbing habit and makes but little wood growth, but produces good sized blooms, and is a free bloomer on this stock. Marechal Niel is short lived, only lasting three or four years.

The common sweet brier makes a good stock for the last-named variety, but should be worked close to the ground, as it makes a much larger growth than the stock; consequently, would be unsightly if above ground. Others, such as the Pillar rose, do not do so and may be worked at any height desired.

**Protection.**—Roses that are worked close to the ground, also those on their own roots, should be well protected during the winter months by placing evergreen boughs, such as fir, around the plants.
Plate III—Showing growth of the La Rhine on Native Brier.
Plate IV—Showing manner of pruning standards.
in such a way that the sun may be entirely shut out from them, permitting it to remain until the middle of March, when the pro-
tection may be removed and the plants pruned back, after which the beds should be given a good dressing of well decomposed cow manure. This is much better for the rose, as it is of a cooler nature than horse manure, and the colors of the flower will be brought out much better by it. In speaking of bringing the colors out better, I would say that on gravelly or sandy soil a good coating of clay will be of much benefit.

The rose in general likes a cool soil; that is, if we would have the best of coloring produced. Therefore, in dry, gravelly soils a good coating of strong loam should be given them every third or fourth year. On the other hand, if the soil should be a very heavy clay, such soils would be much benefited by an application of good sharp sand. This will have the tendency to keep the soil porous. Manu-
ure should be given the beds and borders every fall. It may be per-
mitted to remain on the surface till spring or forked in. Never use a spade for the purpose, especially among weak growing varieties, as there is danger of damaging the root growth to a great extent; by the use of the digging fork the danger is not so great by any means.

PLANTING.—Varieties that bloom only once a year may be planted in the fall. All roots that have broken in taking up should be cut away. These will form new roots during winter; consequently the plant will make good growth during the following summer. If the soil is wet the planting may be deferred until spring. In planting, the hole should be dug out larger than is required to receive the roots. This done the bottom should be well worked up and good rotted manure worked in with the soil in the bottom of the hole. All is ready for the planting; being careful not to plant too deep, only just so the collar of the plant is below the surface of the soil. If the soil is moderately dry it may be gently pressed down with the foot, being careful to lighten up the surface to the depth of two or three inches around the plant afterwards to prevent baking of the soil.

PRUNING.—The manner and amount of pruning the rose depend on the class to which they belong, and the vigor of the variety. While some recommend fall pruning, I have better results from spring, as there is danger of the plants being damaged by frost, especially the young shoots that would come into growth at a very
early period in the spring thus becoming badly damaged. We find the best results to be had by pruning about the end of February or the first week in March. This method has its advantages as well as disadvantages. Early pruned roses often are damaged by frost as alluded to, and if left too late in spring, so much of the vigor of the plant is taken away by pruning. The happy medium is preferable—that is, not later than the last week in February.

The extent to which the bushes should be pruned depends much on their growth. If a strong grower, plenty of shoots should be removed, but those remaining do not require to be shortened back but little; if pruned too close, wood will be produced instead of flowers. Weakly growing varieties should be pruned back closely leaving only two or three buds.

In cutting out the shoots of any rose, such as are diseased and unmatured, as well as those that are over-crowded, should be taken out. When pruning, care should be taken not to leave any snags. To overcome the necessity of removing a large number of shoots at the pruning season, and consequently destroying a great deal of the sap, disbudding should be resorted to during the growing season. That is, all over-crowded buds should be rubbed off with the thumb and finger when about an inch long, by this means over-crowding will be obviated, likewise increasing the growth of the other parts of the plant that are left, and will be the means of causing the production of larger and better bloom. In disbudding, the vigor of the plant must be considered just in the same manner as recommended for pruning. If too many buds are removed from the shoots of strong growing varieties, the tendency will be to throw the plant into too strong a growth, then wood will be produced instead of bloom, as in the case of over pruning. With a little practice in this matter, the operator will very soon be able to judge to what extent disbudding may be done.

DISEASE.—The rose is subject to fungous diseases, the worst is the black spot. This may be noticed by the leaves becoming affected with black spots here and there, and if left to take its course will soon cause a premature falling of the leaves. This disease may be greatly reduced by spraying with Bordeaux mixture at the time of pruning. Care should be taken to see that every part of wood is covered with the mixture. It should be done with a very fine nozzle, the same that is used for spraying fruit trees, choosing a dry day for the purpose, so that the mixture may be enabled to dry. When
Plate V—Plant before pruning.
Plate VI—Plant after pruning.
it has once become dry it will take a good deal of rain to remove it. This method has been found to be quite beneficial on the station grounds.

**Mildew.**—This disease may be recognized by the leaves of the plants becoming covered with a white powdery substance, at first perhaps on the tips of the young growth, then spreading to different parts of the bush. If taken in time the disease may be kept in check by the free use of powdered sulphur, dusting over the plants and on the ground. This should be done in the early part of the day, choosing a bright sunny day, so that the sun may cause the fumes of the sulphur to be carried up among the foliage. Should a shower of rain occur on the day in which this has been applied it will be needful to repeat it on the first suitable occasion.

**Green Fly.**—This insect may be kept in check by the use of weak tobacco tea. This should be prepared by steeping tobacco stems in boiling water for an hour or two, in the proportion of two ounces to five gallons of water; strain through a piece of gunny sack before using. The next day the plants may be sprayed with clean water from the garden hose.
ROSE CULTURE.

[In response to a request of the Director, the following is contributed by Mrs. Harriet B. Killin, of Portland, who is well known as a successful amateur grower of roses].

LOCATION, SOIL.—To this most beautiful flower should be accorded the best spot in one’s garden. Any good, well-drained garden soil, enriched with well-rotted manure is suitable, provided it has sufficient sunlight and is at a proper distance from trees. The soil and climate of Oregon are particularly well adapted to the growing of roses.

PLANTING.—Select strong plants, two years old, budded if possible. Place the bud about two inches below the surface of the soil, pressing the earth firmly about the roots. Annuals should not be planted about the roots of roses. The best time for planting the Hybrid Perpetuals, in Oregon, is October or November, after the rains; for Teas, the spring is preferable.

PRUNING.—Perhaps the most important item in growing roses is the pruning. For the Hybrid Perpetuals, this should be done in December or January. Select the strong, well-matured, young shoots at sufficient distance apart to allow a free circulation of air and cut back to one and a half to two feet, leaving from four to five canes. (See cut No. 1). If, however, the rose is an unusually strong grower, it can be left from three to three and a half feet (Cut No. 2). Even thus it will be found necessary to thin out the young shoots, for if growing too close, they are liable to mildew. The Teas do not require such severe pruning, but it is also important to cut back and remove all old and weak wood.

FERTILIZING.—In the fall, roses should have a liberal top dressing of well-rotted barnyard manure, which should be spaded in in March. After the buds have formed, it will add to the size and beauty of the roses to give them occasionally a weak liquid manure.

SPRAYING.—A good thorough spraying, with Bordeaux mixture, after the winter pruning and again just as growth commences, greatly lessens the trouble with insects and diseases, such as black spot, mildew, etc. For the green aphis which attacks the young
and tender shoots, spraying with Quassia is the most beneficial as well as the least harmful to the plant, using four ounces to one gallon of water, either soaking it over night or boiling for about ten minutes.

Disbudding.—For Hybrid Perpetuals, after the buds have formed in the cluster-bearing varieties, remove all but the strong central bud. This gives a beautiful, long-stemmed rose surrounded by handsome foliage.

Propagation.—While this seems a formidable undertaking to the amateur and is a difficult matter with some varieties, yet, with La France, and most of the Teas, it is surprising what can be accomplished with little labor. During October, having selected a protected spot, preferably near a south wall, and after preparing the soil, cut the slips about six inches in length and place them in a slanting position, covering ends not more than one inch. During very severe weather, give a slight protection.

(Cut No. 3—Section of La France hedge). Probably no rose is so universally loved and admired as La France; certainly none has stood the severity of the past winter so well. When its beauty, hardihood and easy propagation are considered, it is surprising that it is not more generally grown for hedges.

With the growing of fine roses, success depends largely on attention to the small details, yet this attention needs to be given so little at a time, to the amateur, it affords merely a healthful and pleasurable recreation.
<table>
<thead>
<tr>
<th>Circular No.</th>
<th>Title</th>
<th>Author(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Dairying in Oregon</td>
<td>Shaw, French and Kent</td>
</tr>
<tr>
<td>6</td>
<td>Chemistry, Zoology</td>
<td>Washburn</td>
</tr>
<tr>
<td>7</td>
<td>Small Fruits and Vegetables</td>
<td>Coote</td>
</tr>
<tr>
<td>8</td>
<td>Varieties of Wheat and Flax</td>
<td>French</td>
</tr>
<tr>
<td>10</td>
<td>Entomology</td>
<td>Washburn</td>
</tr>
<tr>
<td>27</td>
<td>Plant Diseases, etc.</td>
<td>Craig</td>
</tr>
<tr>
<td>29</td>
<td>Pig Feeding, continued</td>
<td>French</td>
</tr>
<tr>
<td>31</td>
<td>Varieties of Wheat and Flax</td>
<td>French</td>
</tr>
<tr>
<td>32</td>
<td>Five Farmers' Foes</td>
<td>Craig</td>
</tr>
<tr>
<td>42</td>
<td>Feeding Sheaf Wheat</td>
<td>French</td>
</tr>
<tr>
<td>43</td>
<td>Flax Culture</td>
<td>Shaw</td>
</tr>
<tr>
<td>44</td>
<td>Oregon Sugar Beets</td>
<td>Shaw and French</td>
</tr>
<tr>
<td>47</td>
<td>Chest and Clover</td>
<td>Shaw and French</td>
</tr>
<tr>
<td>48</td>
<td>Spraying</td>
<td>Cordley</td>
</tr>
<tr>
<td>50</td>
<td>The Fertility of Oregon Soils</td>
<td>Shaw</td>
</tr>
<tr>
<td>51</td>
<td>Marketing Fruit</td>
<td>Craig</td>
</tr>
<tr>
<td>52</td>
<td>Nut Culture</td>
<td>Coote</td>
</tr>
<tr>
<td>53</td>
<td>Sugar Beets</td>
<td>Shaw</td>
</tr>
<tr>
<td>54</td>
<td>Flax, Hemp, Dairy, etc</td>
<td>French and Kent</td>
</tr>
<tr>
<td>55</td>
<td>Chemstry of Cherries</td>
<td>Shaw</td>
</tr>
<tr>
<td>56</td>
<td>Chemical Studies of Oregon Fruits</td>
<td>Shaw</td>
</tr>
<tr>
<td>57</td>
<td>Brown Rot</td>
<td>Cordley</td>
</tr>
<tr>
<td>58</td>
<td>Rose Culture in Oregon</td>
<td>Coote</td>
</tr>
</tbody>
</table>

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Address THOS. M. GATCH, Director of Experiment Station, Corvallis, Oregon.