Fig. 10. Above—Two Fruit Buds and Two Leaf Buds as They Appear in Early Spring; Below—Same Branch as it Would Appear in July (All natural size)

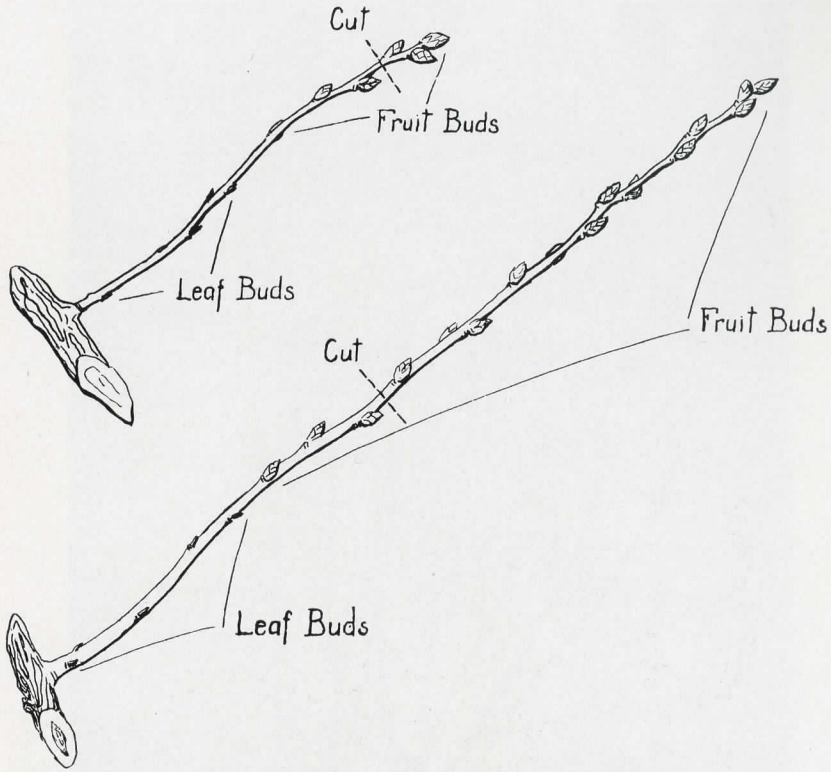

Fig. 11. Lateral Sprout of Cabot and Sam Showing Amount of Tipping Back Needed

looking stems should be selected and cut back to 2-inch stumps. In doing this, much good fruiting wood of the current year is probably lost, but the future renewal of the top is assured. Every year following, the oldest third of the bush should be cut back to short stumps, leaving the vacant space for renewals. This general rule should not be applied where heavy sprout growth from old wood occurs. The old wood in this case should be cut back to the sprouts.

Since the same wood remains only a few years in the bush, it is not necessary to try for structural formation or particular shape, as in the peach or apple tree. Each variety has a growth tendency of its own and the bushes naturally form in more or less regular shapes.

In field practice on the older plants the heavy pruning, back to the stump, is done first. For this purpose, it has been found advisable to use long-handled pruners, as the wood has often been found to be 1½ inches in diameter. Then follows the bushy

Fig. 12. Rubel Before Pruning

wood pruning as previously described. This is done with double-cutting hand shears. The possible fruiting area is then well exposed to view. Next, the branches close to the ground are cut off, as the fruit borne on them will be covered with sand and therefore undesirable as fancy fruit. The crowding branches in the middle of the bush are next eliminated.

From this stage it is necessary to distinguish between the two kinds of buds. The fruit bud is very much plumper than the leaf bud, which is smaller and narrow. The upper half of figure 10 shows a small fruiting twig with two fruit and two leaf buds.

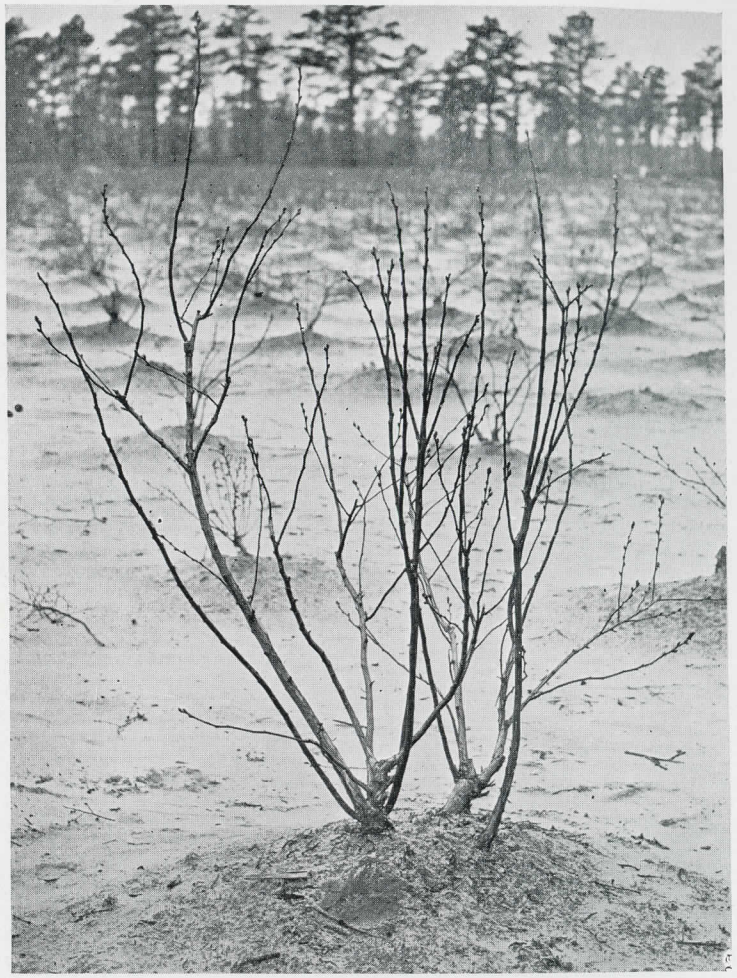

Fig. 13. Rubel After Pruning

The lower illustration shows what may be expected of the same small twig the next fruiting season. Under good growing conditions and proper pollination each bud will produce from 8 to 14 berries. If these berries reach full proportions, they should bulk about 1 cubic inch on the best varieties. The quart measure as packed contains about 75 cubic inches. It is readily seen that a few well-placed fruit buds form the basis of a quart of berries. In most varieties it is desirable to thin the fruit buds, as the plant is not capable of carrying all the buds through to the fruiting stage and of producing large berries

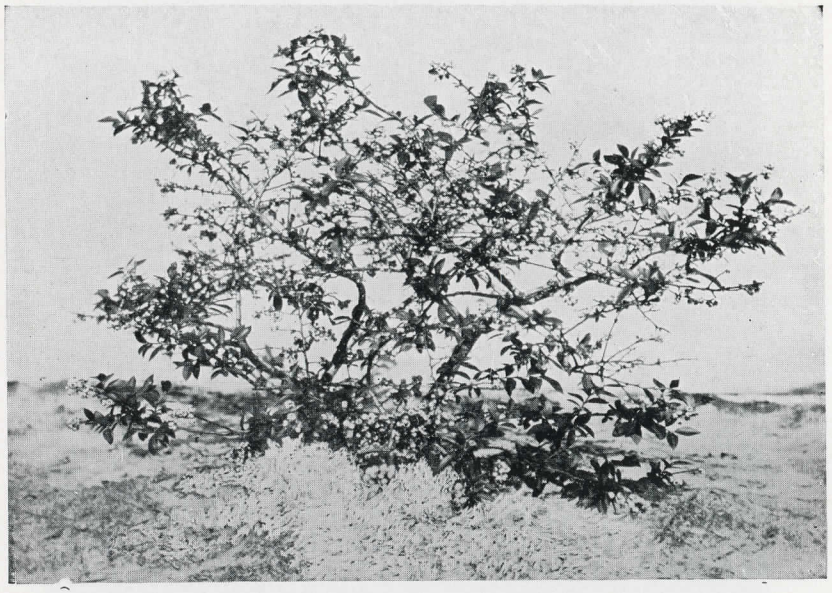

Fig. 14. Cabot in Bearing That Has Not Been Pruned

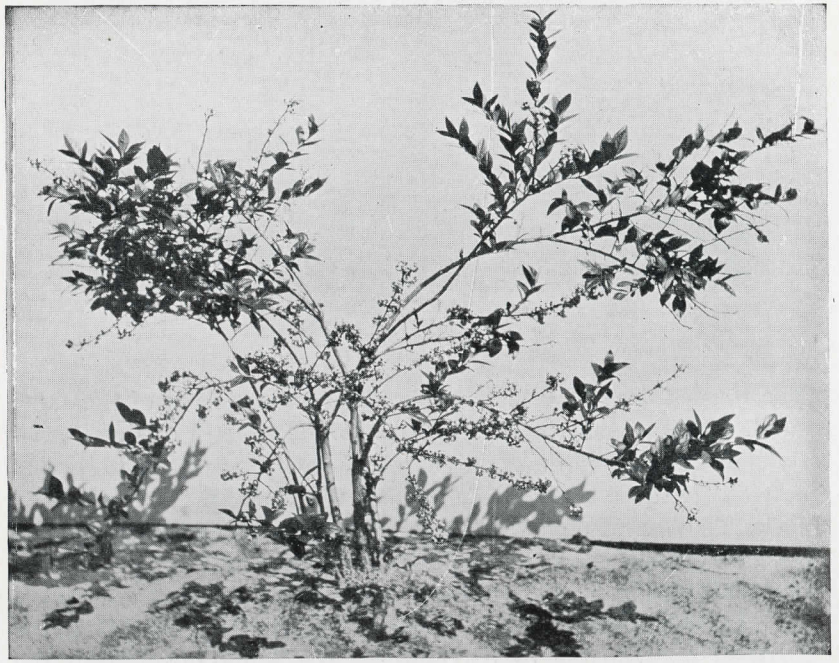

Fig. 15. Sam in Bearing That Has Been Insufficiently Pruned

Fig. 16. Cabot in Bearing That Has Been Well Pruned

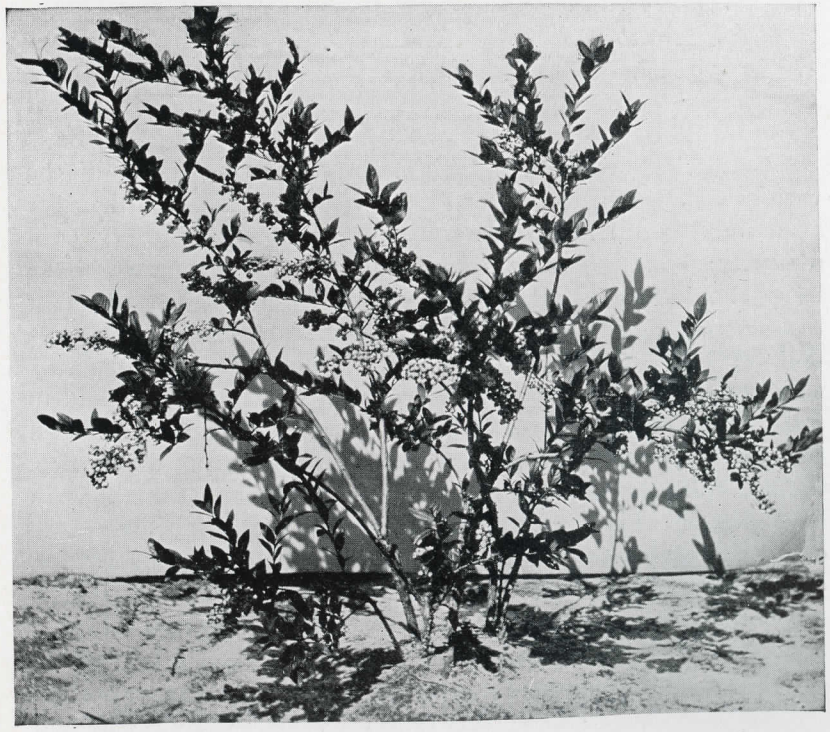

Fig. 17. Sam in Bearing That Has Been Well Pruned

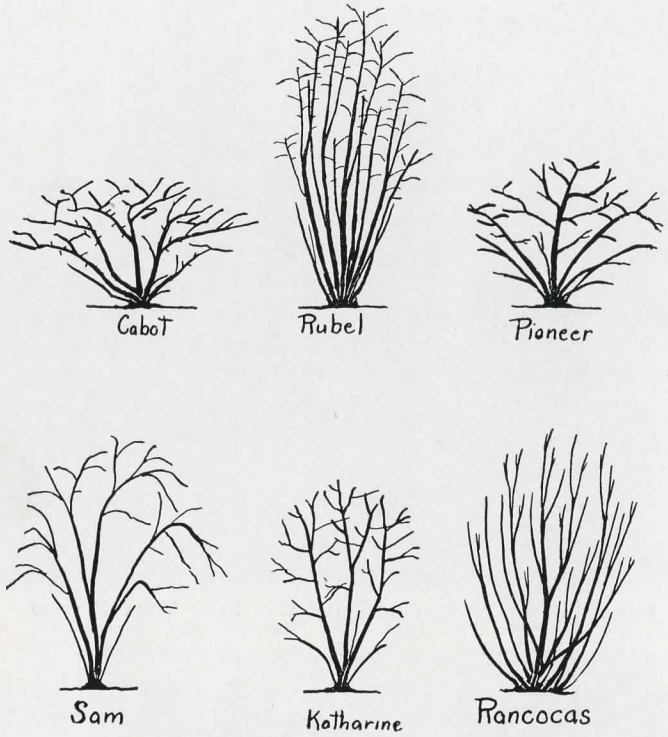

FIG. 18. SHAPES OF SOME COMMON VARIETIES

Figure 11 shows lateral fruiting branches, the upper of the variety Cabot, and the lower of the variety Sam. Each has the same number of leaf buds and will be able to carry to successful maturity about the same amount of fruit. In either case, the twigs should be cut back to three or four fruit buds. With Cabot it means cutting off only 3 fruit buds but with Sam it means cutting off 13. In the case of a shoot having more leaf buds, a correspondingly greater number of fruit buds may be left to fruit. It is never advisable to have a quantity of fruit so crowded that there is not enough room for full development of the berries.

As a rule, the new shoots need very little bud thinning. In field practice, the operator can estimate at a glance where to cut the laterals and is able to work fast with a clipping motion about the surface of the plant. In older bushes where terminals are abundant, the "tipping" of fruit buds is very important if berries of good quality are to be obtained.

Pruning should be done during the dormant season before the sap starts flowing. During this time the branches are brittle and

much time can be saved by rubbing off the small branches instead of cutting. If the plants are not pruned until blossoming time, they appear to be greatly retarded in the season's growth, especially in case of severe cutting.

Where pruning has been neglected and plants have reached a stage where no vigorous growth takes place, cut the top back to short stumps. The plant will then make a new bush that summer and fruit well the following year.

The grower will be inclined not to prune heavily enough, especially when his bushes are first coming into bearing. Naturally the young bushes are forming new growth and will make moderately good crops for a few years without the aid of heavy pruning. Results have shown, however, that severe annual cutting from the first year in the field will produce larger crops and better berries.

The following list gives the winter twig coloring, bush habits, and special pruning methods for the more common varieties.

Cabot

Olive color, wide spreading and interlaced. Only the vigorous terminal sprouts are left for fruiting. All the shorter laterals are stripped from the branches. Tip back sprouts to three or four buds.

Pioneer

Dark red color, mediumly spreading. Stout laterals branch near the end, which should be thinned one-half or one-third. Fruits buds should be reduced to about half on laterals and base sprouts.

Katharine

Red color, mediumly upright. The same method as used with Pioneer.

Sam

Red color, mediumly tall and drooping. Allow to fruit on long laterals and base sprouts. Cut away at least two-thirds of the fruit buds. This variety is naturally badly overbalanced and needs severe tipping back to produce a crop.

Rubel

Red color, tall and bushy. Take out all short laterals, allowing the vigorous ones at the tops of last year's branches to remain. No bud thinning required. The fruit clusters are loose and the

plant well foliated and will bring a comparatively large number of fruit buds through the season successfully.

Rancocas

Red color, mediumly high, bushy, and sprouting profusely from base. Most of the fruit will be borne on new base shoots. A few of the most vigorous upright lateral shoots may be left for fruiting. A large quantity of old wood will have to be cut away, but it is easily and quickly done. No thinning of sprouts or buds necessary.

Final advice to pruner.—Cut heavily to force new growth each year, thin the fruiting buds well when necessary, study your plants and their growth from season to season. If you are pruning for the first time, get some expert advice in the form of a practical demonstration in your field if possible.

Fig. 19. Blueberry Plant That Has Made One Year's Growth After Being Cut Back to a Stump

Fig. 20. A Rubel Bush in Its Fourth Summer in the Field (Photo by Jos. J. White, Inc.)

Harvesting and Marketing

The clusters of blueberries ripen unevenly, the large berries at the tip ripening first. With most varieties, the period of ripening extends over three to four weeks. The ripe berries should be picked every week during that time to prevent any from becoming overripe. The first two or three pickings of each variety include most of the largest berries and therefore are considered the best.

The berries have a full blue color at the stem end when they are ripe enough to be harvested. A little practice will show the pickers how to distinguish between the ripe and the nearly ripe berries by the feeling of the clusters. The fruit is picked directly into quart "cups" in which they are marketed, each lot being examined thoroughly enough to provide an intelligent supervision of the picking and packing. Each "cup" is filled full enough to reach the market even full after ordinary shrinkage. A cover is fastened over the top to insure against misuse in handling and as a sanitary precaution.

More than 95 per cent of the crop is sold through the Blueberry Cooperative Association which has established grades for the fruit. The highest grade is *Harvest Moon;* the second grade, *Greenleaf;* and the third grade, *Star.* Any fruit that is not Star grade, is sold as *ungraded.* The requirements of these grades are as follows:

Harvest Moon shall consist of cultivated blueberries of similar varietal characteristics which are firm, well formed, well colored, with normal bloom, and not over-ripe, under-ripe, or shriveled; which are reasonably free from stems, and free from mold, decay, dirt, sand or other foreign matter, moisture, disease, insect, mechanical, or other injury. There shall not be more than 140 blueberries, reasonably uniform in size, to the 2-gill measure. The cups shall be new, clean, well filled, securely covered with transparent paper or other similar material, and sealed.

In order to allow for variations other than size incident to proper grading and handling, not more than 5 per cent, by volume, of the blueberries in any lot may be below the requirements of this grade, but no part of this tolerance shall be allowed for mold or decay. One-fifth of a 2-gill measure shall constitute 5 per cent of one quart, by volume.

Greenleaf shall consist of cultivated blueberries of similar varietal characteristics which are firm, well formed, well colored, with normal bloom, and not over-ripe, under-ripe or shriveled; which are reasonably free from stems, free from mold or decay and from damage caused by dirt, sand or other foreign matter, moisture, disease, insects, mechanical or other means. There shall not be more than 200 blueberries, reasonably uniform in size, to the 2-gill measure. The cups shall be new, clean, well filled, securely covered with transparent paper or other similar material, and sealed.

In order to allow for variations other than size incident to proper grading and handling, not more than 5 per cent, by volume, of the blueberries in any lot may be below the requirements of this grade, but no part of this tolerance shall be allowed for decay. One-fifth of a 2-gill measure shall constitute 5 per cent of one quart, by volume.

Star shall consist of cultivated blueberries of similar varietal characteristics which are well formed, well colored, and not under-ripe or shriveled; which are reasonably free from stems, mold, or decay and from damage caused by dirt, sand or other foreign matter, disease, or insects. There shall be not more than 200 blueberries, reasonably uniform in size, to the 2-gill measure. The cups shall be new, clean, well filled, securely covered with transparent paper, and sealed.

In order to allow for variations other than size incident to proper grading and handling, not more than 5 per cent, by volume, of the blueberries in any lot may be below the requirements of this grade, but no part of this tolerance shall be allowed for decay. One-fifth of a 2-gill measure shall constitute 5 per cent of one quart, by volume.

Yield

No yield is expected from blueberry plants the year they are planted or the following year. The third year a crop of 30 bushels to the acre can be expected, increasing normally up to the sixth year. The yield is so dependent on the growing conditions and management that no yield can be given as typical. An annual crop of more than 100 bushels per acre over a period of years has been obtained, but the average for the state is about 50 bushels. The better yields are the result of good soil, favorable moisture, and intensive culture.

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