

eyes above the ground, and the second season one or two strong canes are grown from them and carefully tied up to temporary stakes. At the end of the second season, or as soon as the vine has attained a sufficiently strong growth of cane, it is laid down in a trench, about 8in. or 10in. deep, to the tree; the trench is covered in, and the canes shortened back, so that only two eyes of the vine project at the immediate base of the tree. It is now ready for training up on the tree, the roots of which do not interfere with its growth, as the main feeding-roots of the vine are at a sufficient distance therefrom. The layered cane will also throw out new roots on its entire length, and thus induce an extra strong growth. The trees are generally allowed to branch out at a height of 5ft. to 6ft., and it is at this height, also, that the new head of the vine will be formed on one or more permanent main stems trained up from the bottom. The after-system of pruning and cultivation differs but little from ordinary vineyard-culture. The trees also receive an annual cutting back, so as to keep the head open and within bounds; and, if necessary, some shoots and leaves are removed in the summer to admit air and light. Once that the vine has reached its hold among the forks of the tree but little tying is necessary afterwards, the branches and twigs affording plenty of support and holding to the tendrils.

Those who know the cost of grape-stakes and trellis, and the constant expense and trouble of repairs and renewals which their entertainment requires, will appreciate the advantages which such a plan would offer, if it can be successfully applied in this country. The main difficulty seems to be in finding the proper kind of tree to use in place of *Acer campestris*, which we do not find here. The important points to be observed in the selection of the tree seems to us to be a quick growth in the first years, yet not a naturally large grower—a tree that will shed its foliage tolerably early in the fall, and especially one that is not a gross feeder.

If you have covered your young vines last fall, remove the earth from over them at the approach of spring, as soon as danger from frost is past; then cultivate the whole ground, ploughing between the rows from 4in. to 6in. deep, and carefully hoeing around the vines with the two-pronged German hoe or *karst*, or Hexamer's pronged hoe. The ground should thus be broken up, inverted, and kept in a mellow condition continually; but do not work the ground when wet.

During the second summer a cane or shoot is produced from each of the two or three buds which were left on the young vine last fall. Of these young shoots, if there are three, leave only the two strongest, tying them neatly to the trellis, and let them grow unchecked to the uppermost wire.

With the strong-growing varieties, especially where we intend to grow the fruit on laterals or spurs, the two main canes are pinched off when they reach the second horizontal wire, whereby the laterals are forced into stronger growth, each forming a medium-sized cane, which is shortened in the fall from four to six buds. One of the two main canes may be layered in June, covering it with mellow soil, about 1in. deep, leaving the ends of the laterals out of the ground. These will generally make good plants in the fall for further plantations. With varieties which do not grow easily from cuttings this method is particularly desirable.

Another good mode of training, recommended by Fuller, is to bend down in fall, at the end of the second season, the two main canes of the vines—the laterals of which have been pinched back to concentrate the growth into these main canes—in opposite directions, laying and tying them against the lower wire or bar of the trellis, and shortening them to 4ft. each. Then let five or six of the buds on the upper side of the arms be grown into upright canes. (See Fig. C.) All buds and shoots not wanted for upright canes should be rubbed or broken off. This latter method is not well adapted for varieties which require covering in winter. Where the canes are started lower, near the ground, and cut loose from the wire, they can be easily covered with earth.

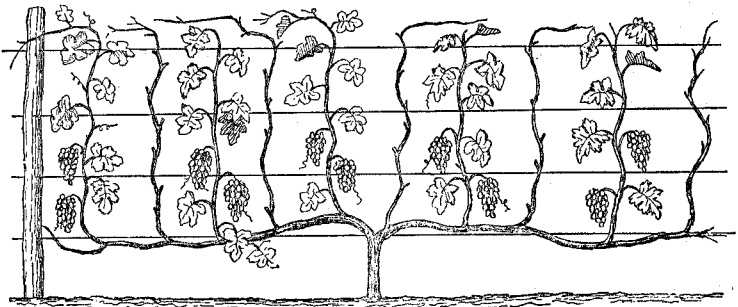


Fig. C.

At the commencement of the third season uncover and tie the canes to the trellis. For tying, any soft string or stout woollen yarn, the shreds of old gunnies, may be used; some obtain their tying material from basswood-bark, soaked for two weeks or longer in running water. Others plant the golden willow and use its small twigs for tying purposes. Tie closely, and as young canes grow keep them tied; but in all cases take care against tying too tightly, as the free flow of sap may be obstructed.

The ground is now ploughed and hoed again as before; one (6in.) deep ploughing in spring, taking care, however, not to cut or tear the roots of the vines, and two more shallow (3in. or 4in.) ploughings in summer. From each of the buds left at the last pruning, as shown in the preceding figures, canes can be grown during the third year, and each of these canes will probably bear two or three bunches of fruit. There is danger of their being injured by over-bearing, on which account the bunches should be thinned out by taking away all imperfect bunches and feeble shoots. In order to secure future fruitfulness of the vine, and at the same time to keep it in our convenient control, we should allow no more wood to grow than we need for next season's bearing, and for this purpose we resort to spring-pruning generally, though improperly, called

#### SUMMER-PRUNING.

The time to perform the first summer-pruning is when the young shoots are about 6in. long, and when you can plainly see all the small bunches—the embryo fruit. We commence at the two