

move much of it, and then turned a little so as to run out about a fourth of an inch below the bud.

With the ivory end of the budding knife, the "lips" of bark in the angles of the T cut are next loosened from the wood, as is being done by the central student in the picture, when the bit of bark bearing the bud is slipped down behind these lips, using the stub of the leaf-stem left on it for a handle, until the top end of the bit of bark is just below the horizontal cut of the T. The bud, of which the apex should of course point upward, is then visible between the lips of the stock. The next operation which is being performed by the left hand student in the picture is that of tying the bud. For this purpose, an oriental grass called "raffia," which may be ordered through the larger seedsmen is now chiefly used. This should be moistened a little before use. A bit of raffia is held as is shown by the student across the lower end of the T cut, and just below the inserted bud. The ends are then crossed on the opposite side of the stock, brought forward and crossed again just above the bud, entirely covering the horizontal cut of the T, and pressing the lips down snugly over the bud. Then bring the ends behind again, and tie a half knot, drawing them up moderately tight.

If the bud "takes" it will grow fast to the stock in a very few days. In about ten days the raffia should be taken off, by cutting it on the opposite side of the stock from which the bud was inserted.

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## WHAT CAUSED THE DEATH OF THE SHADE TREES?

The great mortality among shade and forest trees this season has elicited much comment and various hypotheses as to its cause. "Root killing" has been a favorable explanation, which appears to satisfy many inquirers, and there is evidence in many cases that the roots perished before the rest of the tree. The root-killing has been ascribed to the freezing of the roots in an unusually dry soil, a proposition that would have been more tenable had the past winter been a severe one, instead of the mildest one with which we have been fa-

vored for many years. I have recently examined sections of the trunk of several trees that were found dead this spring on the campus of the University of Wisconsin, and in every case the growth ring formed during the remarkably dry season of 1895 was decidedly thinner than in previous years. In many cases it was reduced to a mere line, and sometimes it run out entirely in part of the circumference. This indicates that the trees were in a starved condition at the commencement of winter, and doubtless goes far toward explaining the trouble. We know that by girdling a tree in summer, thus cutting off the supply of food to its roots, we insure its death before the following spring. If the assimilation of food by the leaves of a tree is so much restricted by a scarcity of water that there is no surplus food in the cells at the end of the growing season, the end must be the same—the tree must inevitably perish. The cases in which the trees leaved out and even blossomed the past spring and then perished may have been due to their having possessed a small surplus of food in the branches which was not sufficient in quantity to reach the roots.

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#### HINTS FOR JULY.

After your cherries are picked thin the heavy crown. The wounds heal quickly at this season of the year.

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Read the excellent and instructive article by Prof. Goff on budding and then bud your roses. Budding is nice work for women.

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The bulbs of hyacinths and other spring bloomers should be lifted now, well cleaned and stored in a dry, cool cellar until fall planting time.

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Go over your grape vines; keep off the suckers. Tie up the canes. Give plenty of ventilation through the foliage to prevent mildew, insure better fruit and hasten ripening.