

Horticulture.

THE ORCHARD.

Pear-Tree Fire-Blight.

Mr. Thomas Meehan, editor of the *Gardeners' Monthly*, says that fire-blight is never seen in the neighborhood of his residence in Philadelphia, and when a few fresh specimens were sent him last spring, he gave them to Dr. J. G. Hunt, an accomplished microscopist and botanic physiologist. After careful examination Dr. Hunt is satisfied that the disease is fungoid, giving his views as follows:

I have examined these pear branches, and find that the black color is caused by a fungus. It attacks the bark and outside of leaves and young fruit first, causing changes in the cells, in these locations resembling much those pigmentary cell-changes which differentiate the negro from the, so-called, white man. The cell contents, normally transparent, are changed into extremely minute pigment granules which fill the cells and give that characteristic color and smell which mark the disease. Moreover, minute drops of viscid offensive liquid come out on the surface. These changes are not confined to the epidermal cells, but pigment granules crowd the cambium cells in the young and forming stage, giving the appearance in cross sections of the stem, of a black ring encircling the stem.

From the cambium layer the fungus travels towards the interior of the stem, through the *metallary rays* chiefly, and here I find those round bodies, which, in our hasty ignorance, we often call spores. The ducts which ascend the stem are often obstructed with similar bodies and aggregated pigment granules. This is all I know about the subject. I cannot venture to name the fungus. Repeated observations only can determine that question. Ordinary microscopic observation will fail to show the points of which I have written. I have made thin sections of stems, bark, fruit and leaves, and removed excess of black color until I could send day-light into every cell, and then under 500 $\times$, the parasite reveals its presence.

Is this fungus the primary cause of fire-blight? It is not often that the cold of winter injures vegetation in this latitude, but a few warm days in early spring may cause great vital activity in the young growing cells; the protoplasm of these parts is in a rapidly dividing condition; then if a cold term suddenly succeed, all these delicate vital changes are suspended, and for all we know the cell contents die, turn black and decay. It is just in locations in the pear where such early cell-activity takes place, namely, in the cambium layer, tender growing extremities of buds and fruits and epidermal coverings, that this black disease is found. Were it not for the detection of evident organized and apparently reproductive vegetable units totally unlike any result of degenerative action in ordinary cell-process, which we often call spores, I would not have said a fungus was associated with the disease. Had I found analogous appearances in animal tissues I would have called it "melanotic cancer."

TO KEEP WINTER APPLES.—A practical farmer invited me into his cellar to show me his simple but good way of keeping his winter apples, of which he had a large supply. The cellar was about 15 ft. square. A hanging platform of about 12 ft. square was made by nailing supports to the floor joice above, and to joice for the floor of the platform raised some 4 feet from cellar bottom; upon these joice a floor was laid of boards, with narrow boards for sides and ends. This gives a pass-way 3 ft. wide round the platform upon which the apples were laid. They were thus open to the air more than in casks, and decaying ones could be easily discovered and removed. At the same time they were more secure from the rats and mice. It occurred to me it was an excellent plan, and would prove successful. It may be very easily tried on a small scale if desirable, in almost any cellar. —*Cor. Boston Cultivator.*

PEAR BLIGHT REMEDY.—Mr. G. F. B. Leighton, President of the Norfolk, Va., Horticultural Society, is authority for the statement that the remedy for pear blight, recommended by the Commissioner of Agriculture, has proved successful in Eastern Virginia. This remedy is made and applied as follows. —One pound of sulphur added to six or eight pounds of carbolate of lime, reduced to the consistency of thick whitewash, and applied to the diseased parts, and where the bark is diseased remove the outer portion before making the application. Mr. L. says he has used this with magical effect on blighted or diseased trees, but writes to the *American Farmer* that in future he will "use the formula recommended by the Hon. Wm. Saunders of Washington, who has charge of the public grounds, as being more economical than the above, on account of the volatile nature of carbolic acid. To half a bushel of lime add four pounds of sulphur—slake to the consistency of whitewash, and when applied, add half an ounce of carbolic acid to each gallon of wash, and apply as above directed."

Protecting Trees.

Persons who go to the trouble and expense of tree-planting frequently lose the results of the labor by having the bark of their trees destroyed by horses or cattle. A simple protector is given in the figures below, which were published in the *Rural New Yorker* some time since. The idea has since been altered—possibly improved, but we doubt it—by having the poles on an elastic cord which is supposed to give way as the tree grows. Our opinion is that the elastic would not last very long, and would require renewing quite as often as the guard, if tied with wire, would need loosening for the growth of the tree.

To make the guard, procure poles of any straight-growing tree, six feet or more in length, and two inches in diameter at the thickest end; they should have holes drilled through them at the top and bottom about one foot from each end. Get a similar hole drilled two or three

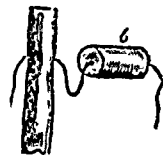


Fig. 1.

inches up the centre of a stake, and then saw off the length which has had the hole drilled through it, and which will give a piece that, when the string or wire is drawn through it, will resemble *b* in Fig. 1. Repeat the operation till as many pieces are drilled and sawed off as may be wanted. Pass a strong piece of wire, or thick tarred string, through one stake by the hole at the top, and then through one of the two-inch pieces, then through another stake, and so on, separating each stake at the top and bottom by one of the two-inch pieces of wood,

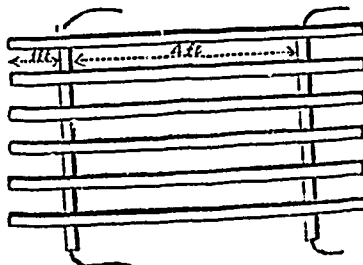


Fig. 2.

until you have enough to surround your tree loosely, leaving plenty of space for growth. When this is done, the appearance of the guard, before being put on, will be as in fig. 2. Place the guard thus formed round the tree and fasten the ends of the wire or string. The guard is much the same as the cradle put round the neck of a blistered horse, to prevent his gnawing the irritated part.



Fig. 3.

The ends of the stakes merely rest on the ground, and they should be cut quite flat at the bottom to prevent their sticking in it. At the upper end they should have a sharp slanting cut with a bill-hook, to throw off the rain. The motion of the tree will not be in any degree impeded, and the bark cannot be injured, let the wind blow as it may, for the guard moves freely with the tree in every direction. If a tree is growing, the guard will have to be opened every year at the top and bottom, lengthening the string or wire by tying a piece to it, and introducing an extra rod, and two extra separating pieces. As a principal feature in this guards is, that the tree is left quite at liberty to be blown about by the wind in every direction, of course it does not

obviate the necessity of staking a newly planted tree until it becomes fairly rooted. Fig. 3 shows a horizontal section, and Fig. 4, a portion of the elevation of a tree so fenced.

THE SITE FOR THE ORCHARD.—We so recommended as the best location for an apple or peach orchard, an "elevated site and dry, firm soil." We should not certainly select a low valley for an orchard, but we would vary the location of a peach orchard from that of the apple. We should select a rather high and northern exposure for two reasons—first, to have a colder and more uniform temperature, thus retarding too early blossoming; and, secondly, it would be less liable to early frosts than the valley, and therefore not so liable to be "nipped in the bud." For an apple orchard we need not be so particular, though we regard the northern exposure the best, but we have seen good apple orchards in all sorts of places, except in very low or wet locations. Low-branching, however, is of the highest importance in warding off as much as possible the injurious effects of hot suns. —*Germantown Telegraph.*

THE GRAVENSTEIN APPLE.—My old specimen of this variety is succeeding so admirably the present season that I feel like directing attention to its claims, notwithstanding it is so well known to pomologists. Downing says, "An early bearer," but my specimen never had a fruit on it until 20 years had passed, and I find this to be the experience of many others, but I consider myself amply compensated for waiting for the vigorous, healthy constitution of the tree, and its annual crops ever since. It is now, Aug. 14, just commencing to ripen, and as the beautiful large apples drop to the ground, their flavor gives ample evidence of the treat I have in store, when the more perfect fruits shall be in perfection. I know not of a variety combining at this season of the year so many essential qualities for selling in market as this. Large size, beautiful color, fine aromatic flavour, and bountiful crops. The tree, too, is a strong grower, and towers up above its companions in the orchard as if to assert its claims to superiority. —*New York Tribune.*

CANADA REINETTE APPLE.—This fine apple, says the *Ohio Farmer*, has long been quite popular in Europe, and deserves to be better known in this country. It has not the advantage of showy color, which is now deemed essential for popular market varieties, but its good size, fine texture and juiciness, with rich, sprightly, acid flavor, makes it very desirable as a family fruit, both for table and cooking. The tree is of thrifty growth and reasonably productive—more apt to bear every year than the majority of apple trees. The following description is transferred from Dr. Warder's work on *American Pomology*:—"Tree vigorous, robust, tall, spreading, productive. Fruit large, oblate, angular; surface not smooth, yellow, blushed and spotted with red; dots numerous, small, gray; basin abrupt, deep, angular; eye small, nearly closed; cavity medium, acute; stem medium, inclined; core wide, regular, closed, clasping; seed plump, angular, dark; flesh breaking, fine grained, very juicy; flavor acid or subacid, aromatic, rich; quality very good. Use for table and cooking. Season, December to February."

DEATH TO THE APPLE-TREE BORER.—I have waited for a long time for some one to invent an easy way of killing the apple-tree borers: but the chisel, mallet, knife, and wire are only recommended, and in using them I have had to cut a six-inch apple-tree until I could see daylight through it to kill a single borer. My way of getting at this miserable "worm of the dust" is an easier one and more effectual. I cut a sumac or alder one foot, more or less, long, punch out the pith, cut one end with a slope, hunt the borer's hole, clean it out at the entrance with a wire, place the beveled end of my tube against it, take some putty-like clay that I get in our spring-branch, plaster it water tight around the end next the tree, fill the tube with very strong soap-suds, and the thing is done. No matter how crooked the hole is, or whether it goes up or down, the suds in the tube will force itself to the end. I have tried it two years and have not failed once. Of course any kind of small, hollow tube will do, and anything that will make it water-tight will do to plaster it with. —*Cor. N. Y. Tribune*

NAILS IN TREES.—J. H. L., of Hamilton, says in the *Gardeners' Monthly* that he has some experience in the nailing of trees to keep off insects and to conduce to healthiness. Some years ago there was a genius about here named S—, who was always riding a hobby, at last he mounted one named Horticulture (poor beast)—and that here includes pomology—and among the wonders he was going to produce, including blue roses, yellow geraniums, &c., he hit on the very thing your correspondent asks about. He stated with much parade and the air of a public benefactor, that to drive nails into fruit trees all around just above the ground, would drive all insects, including the little Turk, from them; nay more, that it would be death to them. Well I of course liked to see my fruit fine and healthy as well as he did, so drove every tree on the place full of nails as directed, and, I might as well have kept them in the nail-box, for the trees did not get healthier and the insects grew and multiplied with, it seemed to me, tenfold vigor, so that I was fain to confess that iron was not poison to insects in this country. It was tried with a like success on cabbages to keep the maggot off; but they didn't "keep off" worth a cent.



Fig. 4.