

Garden, Orchard and Forest.

Planting Nut-bearing Trees.

When about planting trees, even on so small a scale as is required for shade, it is well to consider the claims of some species that, while being valuable for timber, have the additional value of being fruit-bearing. Of this class, those known as nut-bearing trees are deserving of more attention than they generally receive. On the peculiar value of some varieties of nut-bearing trees, the *Western Rural* writes:—

The progress of tree-planting which has been going on in some portions of the prairie States during the past few years, is certainly an encouraging omen for the future of timber growing, or forestry, in those States. Generally the quick-growing varieties have been planted first, which is well enough, but other kinds, including nut-bearing trees, should receive a fair share of attention. Among them the hickories, walnuts and chestnuts are desirable on account of the valuable uses to which the different woods are put, and also for their fruit.

Everywhere the wood of the hickories is more highly esteemed for fuel than that of any other kind, and it is therefore made the standard of value in comparing woods for this purpose. In numerous manufactures, where hardness, strength and elasticity are required, this wood is indispensable; for making hoops, it is better suited than any other wood. It is becoming scarce and dearer year by year.

It is hardly necessary to refer to the high prices which black walnut lumber commands. Its rapid consumption in the manufacture of furniture, and for the inside finish of houses, as well as various other purposes, has already made it scarce and high in price, and it will not be long before the supply will be exhausted unless steps are taken to plant and cultivate it largely for commercial purposes. There is no tree that will better repay the cost of planting and cultivation where the soil is suitable to its growth. In favorable locations it is a rapid grower, and is easily cultivated. The fruit forms an article of commerce of no mean importance, and is produced before the trees have attained a large size. If tall trees are desired the black walnut should be planted thickly, as it is inclined to throw out heavy side branches and form a spreading top, hence it is necessary to give the tree attention while it is small by pruning so as to give it a good shape. The seed should be planted where the trees are to remain. Our intention is not to describe, at this time, the best way to plant and grow nut-bearing trees, but merely to direct attention to the propriety and desirableness of cultivating them. It is proper to remark in passing, however, that black walnut plantations should be made by themselves, or if grown with other trees, the latter should be of cheap quick-growing kinds, which may be thinned out at proper intervals. Fruit trees, especially apples, do not thrive in the neighborhood of the black walnut. It requires a deep, rich soil.

The chestnut tree is another nut-bearer which will well repay cultivation wherever the soil is suitable and the winters are not too severe. It thrives on the dry prairies of Illinois and other Western States, but a wet soil is fatal to it. Rich soils are not necessary to its growth, as it succeeds well on dry, sandy or gravelly soils. The wood of the chestnut is valuable for various purposes. It is employed in the manufacture of furniture, for the inside finish of passenger cars, steamboats, &c. It is very durable, strong and elastic, and though the grain is not fine, it makes a handsome finish when oiled or varnished. The nuts of this tree, it scarcely need be said, are a source of much profit. At fifteen years old a chestnut tree commonly bears a peck of fruit, and about a hundred of such trees will grow on an acre of ground without detriment to each other. The nuts sell at from \$5 to \$10 per bushel, so then, an acre of chestnut trees, yielding but twenty bushels of fruit, yields a revenue of from \$100 to \$200. Lands too poor to produce other products may thus be made profitable.

In selecting seed for planting, it is well to let them get quite ripe before they are gathered, and only the best should be saved for planting. This is the time of year to gather them, and put away those intended for seed. They should be partly dried, then mixed with dry sand, and placed in mouse-proof boxes and buried in sand in a dry location, where they are to remain until the time arrives for planting.

Black Knot.

Abridged from an article on the Black Knot by Professor Furlow.

The disease, common to all sections east of the Rocky Mountains, is doubtless the most striking one, of vegetable origin, in the country. It is more prevalent than formerly, particularly in New England, though very destructive from early times. Its special breeding place is the wild choke-cherry, from which it propagates rapidly to the plum, so that one now seldom sees the latter tree free from these black, disfiguring, and destroying wart-like excrescences. The knot makes its first appearance in a swelling of the branch. Under the microscope, mycelium of the fungus is plainly visible, and is located particularly in the cambium, or growing part just beneath the bark. The fungus first reaches the cambium either by germination of spores on the surface of the branch, or by the mycelium proceeding from a neighboring knot. In the spring, the mycelium, in the swollen part of the branch soon reaches and bursts through the bark, so that by the time the choke-cherry is in flower, the knot is nearly its full size, though still greenish in color and rather soft in consistency. The minute fruit spores ripen through the summer and fall; those found ripe in February germinated in three to five days. They are discharged from the spore-bearing cavities, and when they fall upon the surface of a branch in the right condition, germinate and continue the species. Other forms of fruit ooze out from the cavity in which they were produced, in the form of tendrils, held together by a sort of jelly. Thus the fungus does not lack for methods of propagation.

The knot on the choke-cherry, when compared with those on the plum and cultivated varieties of cherry, is seen to be slightly different in general appearance; but when viewed with the microscope, they all prove to be identical; the difference noticeable to the naked eye being due to more favorable circumstances for its growth afforded by some species of *Prunus* than by another. On the plum it does not thrive as well as on the choke-cherry. The curculio deposits its eggs in the young pulpy knot, and from the punctures a gum soon exudes, and on this coating another fungus, or mold, quickly develops, giving a pinkish color to the knot. It is probably owing to the fact that the curculio stings the knot, that many people have been led to believe that the knots themselves are of insect origin.

The proof given of the fungoid rather than insect origin of the black knot is conclusive. First, the knots do not resemble the gall made by any known insect. Secondly, although insects, or remains of insects are generally found in old knots, in most cases no insects at all are found in them when young. Thirdly, the insects that have been found by entomologists, in the knots, are not all of one species, but of several different species, which are also found on trees never affected by the knot. On the other hand, we never have the black knot without the fungus *Sphaeria morbosae* and the mycelium of that fungus is found in the slightly swollen stem, long before anything which could be called a knot has made its appearance. Furthermore, the *Sphaeria morbosae* is not known to occur anywhere except in connection with the knots.

Having seen some cherries free from the knot, although growing near diseased plum trees, and others, perhaps not near any plum trees, covered with knots, some people have jumped at the hasty conclusion, that there must be two different fungi proceeding from the wild cherry, another on the plum derived from the wild plum. This false inference comes from the fact that some species of wild cherry, and also some cultivated varieties, are not attacked by the knot. With a knowledge of the nature of this contagious disease, the remedy suggests itself; namely, to cut off the knots, together with the swollen portions of the branches, wherever and whenever they are found. In autumn, as soon as the leaves fall, the knots can be most easily seen, and all branches bearing them should be taken off and burned at once. Though the ascospores are not formed until late the following winter, it was observed that when left undestroyed, they would ripen after the branch was removed from the tree. The choke-cherry, bird-cherry, and wild-plum, furnish means for rapid propagation of the knot, and they should be gladly sacrificed for the good of their more worthy allies. However opinions may differ as to the beauty of the choke-cherry, there can be only one as to its injurious influence on cherry and plum orchards; and it cannot be too strongly impressed on fruit growers, that it is a most dangerous enemy, and should be destroyed.

Protecting against Frost.

M. G. Vinard proposes a method for protecting vines against frost in spring, which embodies the idea of smoke as a blanket to secure the earth against the influence of extreme cold. The plan, which is said to have proved successful, and to be of easy application, is described as follows:—It consists in carefully mixing gaster with sawdust and old straw, and piling up this mixture into large heaps in the vineyards. The mixture remains easily inflammable in spite of rain or weather, for more than a fortnight. When required for use, smaller heaps are made of the large ones, or about two feet in diameter, and are distributed in and around the vineyard. If there is a little wind, these heaps burn freely for about three and a half hours, and produce a very dense smoke. The artificial cloud which thus envelopes the vines considerably decreases the radiation from the ground, and with it counteracts frost, which is greatest toward the morning of calm spring nights, and which does so much harm to the plants.

This method of protecting vines and trees from frost by smoke, has been tried successfully at O. C., by using scraps of tom leather procured at our trap factory, and put in heaps near vines and ignited when danger threatened from frost. These can be used to advantage by growers of fruit, especially peaches and plums. During a cold winter there are generally a few days of extreme cold weather which frequently destroys the entire crop of fruit by the killing of buds. If growers would be watchful and vigilant by procuring a quantity of leathers, which cost but little and burn a long time and produce a dense smoke, they would, with little trouble, by burning them when the proper time came, save their crop of fruit, and during harvest time would realize much more than those who took no precaution in the time of need.

A Vase of Simple Flowers.

A few days since I arranged a vase of flowers for the breakfast table which was much admired by several friends, indeed, so much so, that I am induced to give a description of it, as the effect was produced by the arranging of the flowers, not the quality, for they were only common garden varieties. The shape of the vase was a flat tazza, out of the centre of which rose a tall glass trumpet, and from the base of the trumpet sprang three curved branches; round the edge of the trumpet were fronds of the Lady Fern, and in the tazza were grouped white Water Lilies, Scarlet Geranium, leaves of Della Beet, Ribbon Grass, hardy Ferns, and Wild Grass. In the three curved branches were yellow Roses and Delphiniums, the latter a very pale shade of blue. In the trumpet was a yellow Rose, some scarlet Geraniums, white Honey-suckle and blue Lobelia intermixed; with these were wild grasses and a few blades of Ribbon Grass; round the mouth of the trumpet drooped a few fronds of the Lady Fern, while twined amongst the glass branches were a few young shoots of the variegated Periwinkle. As will be observed on reading the above, the flowers themselves are only common kinds, such as are to be found in almost any garden, but if a little trouble be taken in the arranging of them, few I think will feel disappointed with the effect produced. Other effective arrangements could be made in different colors with the same class of flowers, say for instance the light blue Delphiniums used in place of the Scarlet Geraniums; pink Christine Geraniums in place of the Delphiniums in the curved branches, and the same in the trumpet; again, mauve-colored Clematises might be used in the tazza, and Violas in the curved branches and trumpet; by the change of these few flowers quite different stands could be produced, though the principal flowers and foliage would remain the same all through. It is in this way that variety can be produced where there are few flowers to cut from. A great mistake often made is, that because the flowers at hand may not be perhaps of very choice kinds they are not worth arranging, but most effective decorations can be made with very simple materials; indeed, nothing is more charming than wild flowers if well arranged. Just at present, too, these are in their full beauty, so those living in the country who have not hitherto employed them will do well to give them a trial.—*A., in Gardener's Record.*

Chrysanthemums after Flowering.

Many amateurs who have grown chrysanthemums for conservatory decoration are in doubt as to what should be done with them now that they are out of flower; and a word or two on the subject will be of service. They are, it must be said, very accommodating, and may be kept in a properly-constructed

pit or under a covering is not often very abundant, chrysanthemums, alt to suffer from severe layer of coal-ashes sheltered place, and of frost cover them or newly-collected on the top, especially prevent them blowing main until all danger then they can be up the spring turn the all the soil, and sel few roots attache singly in small pot striking the cutting gained. When es can be shifted on i from cuttings.—*G.*

Prof. W. J. B. lowing report: A row ten feet sandy, leachy s were harvested a

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