

Root Pruning.

The experiments were made on the apple and pear. A vigorous apple tree, eight or ten years old, which had scarcely made any fruit buds, has done best when about half the roots were cut in one season, and half three years later, by going half way around on opposite sides in one year and finishing at the next pruning—working two feet underneath to sever downward roots. It has always answered well also to cut from such trees all the larger and longer roots about two and a-half feet from the stem, leaving the smaller and weaker ones longer, and going half way around, as already stated. The operation was repeated three or four years later by extending the cut circle a foot or two further away from the tree. By this operation unproductive fruit trees became thickly studded with fruit spurs, and afterwards bore profusely. This shortening of the roots has been continued in these experiments for twenty years with much success, the circle of roots remaining greatly circumscribed. The best time for the work has been found to be in the latter part of August and beginning of September, when growth has nearly ceased, and while the leaves are yet on the trees, causing greater increase of bloom buds the following year than when performed after the leaves have fallen.—[London Garden.

Horse-Radish.

Market gardeners near New York raise horse-radish as a second crop by planting it between rows of early cabbages, beets, cauliflower, etc., so that after these crops are removed the horse-radish occupies the entire ground. In this case the sets are planted two feet one way and eighteen inches the other, requiring about fifteen thousand per acre. In field culture more room may be given, making the rows three feet apart and planting the sets eighteen inches apart, requiring about ten thousand sets per acre. After the rows are marked out, holes are made at the proper distances with pointed sticks, the roots dropped in these and covered so as to be about two inches below the surface. During the first months the ground is well cultivated and kept free from weeds; during the latter part of the season the tops and leaves grow so rapidly and spread so much, that cultivation becomes unnecessary. Horse-radish, to do its best, requires a deep, mellow soil and an almost unlimited amount of manure.

Pruning Grape Vines—The Kniffin System.

The "Kniffin" system, now so generally practiced in the Hudson river grape region, is the easiest, simplest and cheapest of any I have yet seen, and has become so popular there that hundreds and thousands of acres have been changed from the "Fuller" methods to this.

Two wires only are used, three and a half and six feet from the ground respectively. Each vine has four arms, eighteen to twenty inches long, or about five buds on each, two arms on each wire, which arms are renewed every year by removing each arm up to the shoot nearest the trunk of the vine, cutting these off to five buds, and tying them down in place of the arms removed.

A vine thus pruned, resembles somewhat two T's, one above the other. The buds from these arms are allowed to grow and care for themselves generally, and, with a little labor and attention—by stopping the laterals at one leaf and removing the fruit from the bud intended for next year's arm, if it should prove too weak to carry it and make sufficient growth at the same time—they can almost invariably be depended on. Aside from the simplicity, saving of labor and economy of wire in the trellis, it has the advantage that the lowest fruit is far enough from the ground to keep it clean, and with moderate stooping one can pass from one trellis to another without being compelled to go to the end of one, as is the case when four or more wires are used. The summer pruning consists of nothing more than clipping off the ends of some shoots that may chance to grow too rampant.

This, like any other system, is subject to modifications, one of which is to have but two arms to the vine, each three feet long, and have each alternate vine take the upper wire, the others the lower one.

It is frequently recommended and sometimes practiced by those who know no better, to cut away the vines or remove the leaves to let in the sunshine to ripen the fruit. I hope no reader will

listen to or practice any such nonsense as that. The effect of the sunshine on the fruit is through the leaves and roots, by warming the ground. The fruit could better dispense with the sunshine than with the leaves, as they bear the same relation to the fruit that our lungs do to the body.—[Fruit Recorder.

Farmers' Gardens.

Although farmers in general have not much time to spare for gardening, I cannot but think that many of them might find it both pleasant and profitable to cultivate a few acres as a sort of experimental ground in connection with their farms. To beginners in this line a few hints may be serviceable.—I aim at simplicity.

The rectangular form is best, and, for convenience in cropping, the length should be very much greater than the breadth. Prepare the ground in the most thorough manner, and arrange it so that all crops that occupy the land a year or more shall be together—say at one end of the lot. This may include flowers, small fruits, rhubarb, asparagus, herbs, &c. The remainder of the garden should get one good general plowing and manuring each spring.

Division second should include crops that occupy the land during the summer months, such as beets, parsnips, salsify, tomatoes, and many other things that need not here be mentioned.

Division third should be reserved for succession crops, peas, beans, lettuce &c., followed by cabbage, cauliflower, celery, and the like. It must necessarily be plowed twice a year, and an opportunity is then given for a second manuring, also for experiments in special manuring, seed raising, &c. The crops on the second and third divisions should change places annually; those on the first may remain several years. It is presumed that the land is of nearly uniform quality throughout.

No crops that are usually raised on the farm should cumber the garden; everything should be sown or planted in rows; the rows for fine seed should be laid off with a marker, and those for peas and beans with a skeleton plow. The rows should never, in any case, be less than two feet apart, as the farmer has no time to hand-hoe. He must use the cultivator. A small corner should be reserved for seed beds of cabbage, celery, &c.; but perhaps it would be more advisable to purchase plants from those who make it their business to raise them.

The above is a mere outline, but it can be filled up and enriched to any extent. The farmer who sighs after "a little farm well tilled" would be all the better confirmed in his views and aims by first proving the possibilities of a single acre.

The celery stored in my cellar is doing well; will refer to it again next month. Meantime I will say that the simplicity of growing and blanching the article by this new arrangement is likely to introduce it to farmers' and cottagers' gardens where hitherto unknown.

Out-door gardening is at a stand still, but the hot-bed season is at hand, which serves to keep us in mind that spring is approaching.

A veteran gardener, not far off, has no confidence in destroying the cabbage worm by means of hot water on an extensive scale on account of the difficulty of applying it at a uniform and proper temperature. Timely hand-picking would be his remedy. What say our brother farmers and gardeners on this momentous subject? For my part I anticipate better crops, and therefore less danger from the worm, and in the absence of a better remedy will trust to liming and hand-picking.

Experience in Fruit Tree Planting.

T. H. F., of Cornwallis, N. S., writes in the W. Chronicle of his experience in planting trees: "Twenty-eight years ago he commenced with 25 foreign apple trees, which cost him 50 cts each. They were very fine trees, and he planted them with great care and tended them carefully for 14 years, when he found only ten were living; yet he had bought within that time about one hundred of foreign trees, while few of them proved true to their labels. Nearly all of them had to be re-grafted. He then commenced planting trees from home nurseries, and none can show a more vigorous or better looking lot of trees within fifty miles of him. I am convinced that they who buy foreign trees will pay for many more than will ever give them fruit." Canadian raised trees for Canadian orchards is now his motto.

The Care of Greenhouses.

The chief points to be carefully watched in running glass structures, are the temperature of the air and of the soil, and the moisture of the same. The temperature of the soil will usually take care of itself when that of the air is right, excepting with very tender seeds and cuttings of tropical plants, which require a little bottom heat to bring them along well. The moisture of the soil needs attention to keep it moist enough, and not to make it sodden by too frequent sprinkling of the surface. When watering, water freely, so as to wet well down to the roots; this takes a great deal of water, as a little observation will show by stirring the soil a short time after watering; the surface may appear quite wet, and yet an inch or so below it may be dry as dust. If the surface becomes sodden by frequent watering, it should be stirred up with some suitable tool, or by the fingers, to make it loose, and give the air a chance to penetrate the soil.

The moisture of the air, or atmospheric humidity, is a point that needs more attention than it generally receives. In a greenhouse or hot-bed it is extremely variable, and hence comes much of the difficulty in growing good lettuce or other vegetation with very tender foliage. When the glass is kept close and the sky is cloudy, the air of the greenhouse is saturated with moisture; foliage in such damp air grows very tender and soft; after a few days of such weather the sky clears off with a sharp frosty gale from the northwest, we find it necessary to air freely, in order to keep the temperature down to the proper point during the middle of the day, and the tender leaves are suddenly exposed to a current of air capable of absorbing rapidly large quantities of water; the tender leaves wilt, and are often dried up at the edges, causing what lettuce growers call "burnt lettuce." As with other diseases, "an ounce of preventative is better than a pound of cure." Lettuce once burnt is almost worthless; but careful attention to airing a little every day, even in dark, cloudy weather, and moistening the air by wetting, in very bright days, the greenhouse, will do a good deal towards preventing this most destructive disease.

Protection of House Plants.

A lady correspondent writing on the subject of the winter treatment of house plants, states that "an approved plan for protecting plants at night is to place them, before the room has become cool, in a compact form on the floor or the table, and then encircle them with stiff paper, or with newspapers pasted together, of sufficient width to enclose the plants, making a top of the same material, or covering with carpets and blankets, also laying cloths around the lower edge of the paper. Shielded in this way, the plants will remain unharmed even when water freezes in the room. Plants should not have as much heat at night as during the day, from ten to twenty degrees being the proper difference in temperature. Although ventilation is very desirable, plants should never be aired in winter by permitting a draft of air to blow on them or over them, even during mild days."

GLADIOLI.—Most of the gladioli originated at the Cape of Good Hope, though two of the oldest varieties are natives of the south of Europe, and a few species came from Natal. The English grower of the gladiolus cultivates eight acres in gladioli, raising annually over 200,000 seedlings.

In cold weather and in cool rooms people are apt to lose their house-plants from excessive use of water. Never water plants unless they need water. When the soil on the top of the pot seems dry you may safely water the plant.

The hardy Nymphaeas—white water lilies—which often grow at a distance from the shore, have a special provision for floating the seed, which is heavier than water, to where it can safely germinate. Each seed has a transparent sac—its aril distended—which contains air enough and is strong enough to float it for many hours. A group of such seeds is said to resemble frog-spawn. This is something for young observers to look for in the autumn, show to their teachers and friends at home, and store in mind as a silent worship of the all-wise and good Designer.