

the branches of the tree, and a little out beyond the extreme edge of the outer branches. Let the earth slope like a little mound or rise of an inch or two, toward the trunk. Do not let the mulch come within six inches of the trunk. It is well to stir this mulch and the soil beneath at least twice during the season.

Although mulching is a very simple operation, yet beginners may err in applying too much to trees, and thus promote the growth of fungi or other diseases. Two inches is usually sufficient if the mulch is of a compact nature. But three inches at all events is an abundance. More than this can not be recommended.

Many of our best fruit-growers who have used mulching for trees consider it so important that they would omit any other point of cultivation than this.

Mulching, in nearly all cases, answers the purpose of watering. It is an excellent preventive against droughts, which so often injure newly-planted trees, and it is a good substitute for mellow culture.

For cherry-trees, it should never be omitted. One fruit-grower, who had planted one hundred and fifty trees, mulched fifty of them. Those that were mulched all lived. Of the hundred not mulched fifteen died. In other cases, the losses have proved frequently more serious.

If trees are transplanted late in the spring, they will either start late, or, even if a good start is made, will often fail at midsummer, from the parched condition of the earth around the roots. Watering even will often fail to save them. Indeed, watering is usually an injurious practice; for the roots are stimulated at one time of the day by the moisture and consequent coolness, and are only rendered more liable to the action of the hot sun at another; the surface of the ground is rendered more hard and less porous, and the free access of the air is cut off.

But if mulching is used at the time of planting, they will never need the necessity of watering.

Uniform temperature and a constant supply of moisture are the prime elements of success in fruit culture. Mulching enables us to accomplish this.

Mulching acts beneficially in other ways. It prevents, to a great degree, the cracking of fruit, and causes those varieties which are generally spotted and defaced to become clean and covered with a rich bloom.

I remember an instance which appeared several years ago, where a large pear-grower in New Jersey used a thick mulch of old chips and iron waste; it acted as a preventive against cracks in fruit, also imparted a superior flavor, and increased the smoothness of the bark.

Native grapes, too, were tried in the

same manner, which had previously been much injured by rot and mildew, and were saved from such diseases by using mulch alone.

It was applied very thick, five to six inches—a thickness which I think too heavy for health to be used constantly.

It may be safely said that a tree with only one half or one third its original roots, (if the top is shortened in proportion,) such a tree as would, nine times in ten, die with the usual treatment of planting and watering, may be invariably saved by mulching.

But, after all, remember one thing—that, if once commenced, it must be continued.

If omitted for a season, the innumerable tender fibres which have been encouraged to come to the surface will be exposed to the disastrous effects of parching sun and severe cold of the frosty fall and winter. Your tree will no longer live or bear fruit. Mulching should be either constant or neglected altogether.

Of all our fruit-trees, none require mulching so positively as the dwarf pear. The quince roots are fibrous and lie near the surface; if we wish for a handsome and vigorous top, we must have abundance of sap and moisture.

Tolerable care in planting, with suitable mulch, will insure the safety of at least eight out of ten, while ten to fifteen per cent. will die every year, or fail to do well, without it.

If those persons who have experienced so much dissatisfaction in the cultivation of dwarf pears will stir up the ground well, and apply a good mulch, they will find, after one season's trial, they have hit upon the *Golden Rule*.

We love all fruit;

"It ministers delight to man,
And beautifies the earth."

But to have it in constant, steady abundance, you must care for the trees as you would for the health and life of your own children. Mulch your *young* trees, if you want them thrifty and luxuriant. Mulch your *old* trees, if you desire fine foliage and fair, large fruit. Imitate nature in the woods and fields as she gathers the beds of leaves and moss around her trees.—*Horticulturist*.

RAISING VEGETABLES BY ARTIFICIAL HEAT.

Yesterday afternoon we paid a visit to Mr. Power, of the Tanneries, for the purpose of inspecting a large vegetable house which he has just erected for the purpose of raising garden stuff from seed, by artificial heat, instead of the ordinary forcing frame with manure. The house is in reality a large forcing frame, about 85 feet long, with an avenue of two feet wide down the centre, and beds about 4 feet 6 inches wide, raised four or five feet from the ground. Running along the

right side on entering is a bed made on the ground, in which is a large quantity of fine rhubarb beneath the raised bed or shelf devoted to raising plants from seed. The roof and front are of course glass, the latter being three feet high from the ground. In the raised beds are about 1,386 healthy lettuce plants, and an equal number of radishes, besides cucumbers, cauliflowers, and other plants. This house is heated by a brick furnace four feet square by six feet high, containing the coils of iron pipe in which the water is heated. It is sunk some five feet in the ground, and upon the top of it is a bed for growing mushrooms. From the coils of pipe contained in the furnace, two large main pipes proceed, carrying the heated water from the furnace along the vegetable house, the water again returning to the furnace by a number of small pipes to be reheated, and thus being continually kept in circulation. It is ultimately intended to extend branch pipes from the same mains to three other frames 85 feet long and 11 feet wide. The heating apparatus was put up by Mr. Greene, of John street, Montreal, who has fitted up several large public institutions, private houses, &c., on the same economical principle. Since the 24th December last, 30 cwt. of Cow Bay coal, at \$1.50 a ton, has been sufficient to heat the place. Under ordinary circumstances with manure, which would have to be bought and carted from town, operations could scarcely have commenced till the 8th of January, and it is calculated that the cost of purchasing and carting manure for two years would pay for the apparatus. The hot water, moreover, diffuses a more equal heat, and one more readily under control, as in mild weather the manure is apt to become too hot, and so burn the roots of plants, while in more severe weather it is apt to become too cold. The furnace house also supplies a warm place where the glass sashes may be repaired during the winter, and the butt of warm water in connection with the pipes used to allow of any undue expansion, is always useful for making warm washes for cattle, &c. Hitherto, Mr. Power has been generally first in the market with fresh vegetables, but by adopting the new system he hopes to be nearly a month earlier than usual.

We believe to-day a number of members of the Horticultural Society intended visiting Mr. Power's new forcing frames, as well as some other gardeners in the neighbourhood, with regard to the hot water apparatus erected by Mr. Greene. We may state that all danger from the use of a steam boiler is entirely avoided, and all that it requires is to see that the fire is kept going. This renders it peculiarly adapted for private houses. The more especially as the same hot water is used over and over again with great economy.—*Montreal paper*.

To the Editor of the Journal of Agriculture.

GRAND NATIONAL HORTICULTURAL SHOW.

MANCHESTER, MAY, 1868.

It thinks that I hear some acute merchants, who have crossed and recrossed the stormy Atlantic, season after season, declaring that a flower-show in Manchester is impossible—that the only plant he has seen is cotton, and the only flowers