

## Horticulture.

### Growing Roots, Kohl Rabi and Cabbage for the Farm. No. 3.

The operation of transplanting is thus conducted:—The plants in the frame are first well watered. As soon as the water has gone off enough to prevent stickiness, the ground is loosened with a circular trowel and the plants withdrawn in such a way that the roots and fibres are injured as little as possible. When taken out in bunches they separate with much less injury than when withdrawn singly.

The ground being holed with the dibbler one man precedes the other and drops a plant at each hole (or two if two are used), the other following after with a semicircular garden trowel, places the plants in position (always at the same part of the hole), buries the root carefully, so as not to allow the top root to curl up, sets his foot on the ground to make all firm and passes on to the next. One man or boy can drop for several planters. After this the entire cultivation is done with the horse hoe, the plants are never again touched with the hand until harvested.

Now, the idea of transplanting, to a person not used to it, has a terrible sound, but in practice it is nothing. The writer as an old turnip hoer and transplanter states fearlessly, that he would rather plant in this manner an acre of land, than hoe half an acre of broad cast turnips or single a quarter of an acre of beets or mangels, and anyone who has passed so many weeks at a time on his hands and knees in this interesting operation (of singling beets), as the writer has in his younger days, will fully realize the fact that singling beets and mangels is the "meanest" work done on the farm. In transplanting beets from the frame, all this singling is done in separating and putting down the plants to the holes, and, what is more to the purpose, is done when a man is right end uppermost. Besides this it gives the opportunity of selecting and trueing the plants set out, where that is an object, at all events it gives the best possible opportunity of selecting the finest plants.

It will thus be seen that the entire operation of raising a crop of turnips is conducted with one handling only and no hand hoeing—all the work is done by horse-power, and with the least possible amount of manual labor.

Transplanted swedish and other turnips, like cabbage, broccoli and cauliflower plants, are apt to be affected by the "white worm"; which is believed to be the maggot of the turnip fly, or at all events of some other fly, and as this is never seen in the operation of laying its eggs, it is supposed to be a night insect. If you want to prove this fact of the eggs, take a cauliflower or broccoli plant, wrap the stem loosely round for about one third of its length from the leaves and plant it. It will grow the same as any other, but if you take it up and examine it in the course of a few days, you will find part of the stem enclosed by the paper covered with fly spits, and in a day or two more, these fly spits turn into the white maggots and attack the stem. This plan of wrapping the stems in paper is often adopted to guard against the black grub, and it is quite effectual for that purpose, but it certainly rather encourages the white worm, or at all events renders it more apparent.

The only cure for the white worm hitherto known (and that is not always efficacious) is watering the plant as soon as planted with corrosive sublimate water, made as before described. The writer has never known this to fail, but others have. The difference may be in the manipulation.

It is believed that Paris green applied to the roots before planting would be effectual, but that has to be proved. If used at all it must be used in such small quantities and in such a careful manner as not to render the roots of the turnips poisonous. As for broccoli and cauliflower, as the stumps and roots are not eaten, it could not be injurious to them, and it has been proved by the most careful chemical analysis, that plants do not absorb Paris green. No kind of cabbage or similar plants are ever affected with the white worm while in the seed bed.

The next and principal thing in this system is the Dibbler. This is composed of a roller drawn by a horse, on the surface of which roller are two rows of excrescences or teeth of such a shape that when they roll over the ground they leave a series of holes as deep as themselves

and exactly the same distance apart. The two rows of teeth are two feet apart from one another on the roller and the teeth are exactly two feet apart from each other the other way; two of these teeth are brass, the rest cast metal (iron). The reason they are brass is because it is absolutely necessary that when the machine is started at the end of the rows, these teeth should be exactly upwards, and pointing to two excrescences on the frame of the roller, to show that they are exactly placed before commencement.

This roller is attached to the frame by two strong guides which keep it in position and drag it. The axles of the roller move up and down in a slit in the guides, and the guides have attached to them a wheel at each end by which the roller part of the machine may be moved and the roller kept off the ground when required. The roller is raised in these guides or grooves by two small pinions worked by a lever or rack and pinion, and is so arranged that, when the roller is in operation, the wheels and frame are raised, and thus the entire weight of the wheels, frame and part of the shafts rest on the roller and crush it on to the earth. The roller when dragged forward of course revolves, the teeth are pressed into the ground, and being conical at the sides and sloped away at the end where they rise out of the earth, they make the holes perfectly clear. The front of the teeth are angular, so that the plants being placed in this angle may be always in exactly a correct position, and in row with one another.

In starting the machine at the end of the field on which it is intended to operate, the machine is brought to the place on its wheels, with the roller suspended, and clear of the ground. A straight line is marked off or laid off



with a long line or by a straight furrow laid off with sticks in the usual way. This line must be laid out truly, as it is to form the base of all our future operations. The machine is brought to this line on its wheels, the roller is then turned round on its axles until the two brass teeth are exactly upwards and pointing to the index excrescences placed above them; the machine remains still, and the roller is then lowered on to the ground and the frame and wheels are raised clear off it, the teeth on the under side of the roller are thus crushed into the ground and form the first holes always exactly on the base line, the horse is then moved forward, the roller with its teeth revolves, the teeth press into the ground and form the holes into which the plants are to be inserted and the roots buried by the transplanters with their trowels. The machine is conducted by leading the horse with a stick, and taking care that he goes as straight as possible, and that the marker of the roller always follows in the mark left in the ground in forming the previous rows.

To insure this, there is a marker at each end of the frame, or on the shafts which drags on the ground and makes the required marks. On advancing, the machine is kept with its marker in the last of the mark tracks, which should be in the middle of the space between the rows, while the marker at the other end makes a new mark for the next row. As soon as the machine arrives at the end of the field opposite to which it started, the roller is lifted, the wheels run on the ground, and the machine is removed on its wheels to the starting end, there the roller is placed in position with the brass teeth upwards as before, and is started in the same manner to make two new rows of holes.

On the top of the machine is a strong tray in which stones or other weights may be placed until sufficient weight on the roller is added to secure its certain and perfect operation. Where the nature of the ground requires

it, pointed teeth may be added between the dibbling teeth to insure the correct turning of the roller and prevent the possibility of its dragging on the surface. It will thus be seen, that this roller with its teeth (always being placed in proper position at the commencement), forms a parallel ruler, which passes over the field in the same way as the parallel ruler of the architect passes over the surface of the paper in making a new plan, and the teeth always form the line of holes exactly true each way, thus insuring the possibility of operating with the horse-hoe, first one way and then across.

If the precaution of placing the teeth always in one position at starting was not adopted, the holes could not be made opposite each other in the cross way of the rows, because let the machine be as perfect as you may (without this precaution), the slightest errors would be magnified by the distance to which the machine travels, just in the same way as it is found almost impossible with a pair of compasses, when marking out paper, to make the holes or pricks in the paper come exactly alike.

Of course when required the roller may be made of greater length and with more than two rows of teeth for the holes placed upon it, and it may be drawn by two horses. The roller should be at least forty inches in diameter. This would afford nine teeth in each row. The wheels must be high enough to admit of the roller being raised entirely clear off the ground, the roller may be either built of solid wood or constructed like a strong cask or made of cast iron.

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### Kohl Rabi.

The name Kohl Rabi, to a person hearing it for the first time, is more suggestive of something to do with the people of Israel than of a plant which is deservedly becoming more popular on both continents. It is a brassaceous plant which forms a kind of bulb or swollen stem intermediate between a cabbage stump and a turnip, and marked all over with picturesque gashes or scars, as if it had been in the wars. To grow a good crop of kohl rabi requires a heavy soil that was well prepared in autumn; indeed, the soil cannot be too good for it. The seed is sown early in the Spring, and it is customary to plant out from the seed bed in showery weather. When sown where they are to stand, the rows should be 2 to 2½ feet wide, and the plants are ultimately thinned to 15 inches. It is very hardy, very nutritive, seldom fails, and, all points considered, is a better paying food crop than turnips. As a garden crop, kohl rabi is not without its value. Grown quickly, and taken up small and boiled without being pared, then pared and buttered, it is a delicious vegetable. The purple variety is a mere curiosity; if a profitable crop be wanted, the green variety only should be grown. It must be eaten as freshly-gathered as possible. Several market gardeners around Toronto now grow the plant as a vegetable. It is largely grown in England as a farm crop, and is found very profitable. The cut is from the catalogue of Wm. Rennie, of Toronto.

### Remedy for Girdled Fruit Trees.

I noticed in a recent number of the *Recorder*, that one of your subscribers gives his manner of keeping up flow of sap, in trees girdled by rabbits, by grafting over the wound, etc. I think I have made a discovery which may prove quite a valuable improvement on the above plan. Valuable, because simple, and the remedy always at hand, and will require no expert to perform the surgical-like operation recommended by above. In the spring of '74, before sap started, rabbits gnawed the bark off of one of my dwarf Bartlett pears, standing in my yard. The tree was so completely denuded of bark all around, that I thought it "hopelessly done for." I spaded a mound of fresh earth around it several inches above the wound, and left it in that condition to die - not knowing any remedy that would preserve it. But it came out fresh in spring with the other trees, and kept perfectly green all summer. I did not remove the dirt until the next fall, when to my astonishment, there was a complete connection of bark—the wound was healed, and it is now as healthy as any tree I have. In spring of '75, the rabbits girdled a young apple tree in the same way, only more so,—taking the bark off for six inches or more all around. I threw a mound of earth around it and left it as I did the pear, until last fall, when, on removing the dirt, it had also healed over and made new bark. Now, sir, I would like for some scientist to explain. The bark, while forming, I noticed, rose up in