

that person may delve, and harrow, and sow, year after year, but unless he does something more his labour will be largely in vain.

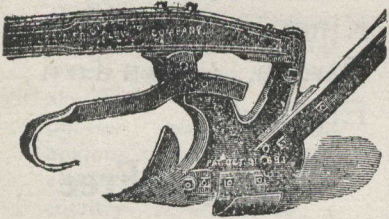
His surface soil may be composed of a substance more porous than stiff clay, but if the soil directly underneath that surface is clay or cakey soil the conditions are not right for profitable gardening.

Another person has a piece of soil that on the surface is naturally loamy. Eight or twelve inches below the loam is found a porous subsoil of sand or loose gravel. That person may go upon his soil in early spring, and if he treats the top inches of loam intelligently, and manures it frequently and freely, he is likely to have a rewarding garden.

Probably nine out of ten of the gardens of Canada are not like the last mentioned garden. In other words, Canadian gardens as a rule require draining.

City and town people must have drainage for the health of their homes. If they have gardens the drainage is for the good of the gardens. When the country was new, and tile was not obtainable, the new settlers had so many other things to claim their time and attention that, generally speaking, they did little or nothing with the underdrain. And yet in the Province of Ontario, to go no further for the reference, some of the newcomers who knew what the drain meant to the cultivators of the soil in England, Ireland and Scotland were early found setting an example to others in the new land, by setting to the foundation work of preparing the ground for its best growths by putting down drains.

There are more crops in our country suffering from wet feet than the passer by accounts for. With all the possibilities of fair Ontario her gardens and fields are not producing more than a fraction of what should be coming from them, largely on account of want



A Plough for Under-draining.

of drainage. They may grow oysters under water, but not the productions that Canadians should have on their tables, and should be sending to the market from the gardens of this favoured part of the western world.

In the adjoining Province of Quebec the government is making a notable bid for the underdraining of the land. It is offering to reimburse the agriculturists and horticulturists fifty per cent. of the cost of the ditches and drains employed for the subsoil drainage of the Quebec acres. Skilled officials are sent free to direct drainage works and to assist in carrying them out. The Department has purchased costly machines for digging ditches and placed them at the disposal of the people on the soil free of charge. And, in addition, the Department offers to pay the travelling expenses of the instructors, as well as the cost of transport of the draining machines and implements in the case of all who are sufficiently interested in paying attention to this foundation principle of to-day—the proper drainage of our Canadian soils.

There is no need for the majority of land holders to wait until electric machinery is built and conducted to the premises to do draining on a huge scale. The most up-to-date agriculturists of Canada have dug their drains with their own hands. After the big machine has done its part, the most important part of the work of underdraining has yet to be done.

Here is the picture of an implement for draining that is really meritorious. On my country place in Glengarry it has been at work for years. When some holiday people were lounging at the sea shore my boys and myself have used this tool, and have followed it with crumpler, spirit level, and tile, and have had real enjoyment in the work, and found what a transforma-

tion comes over a place that receives intelligent treatment through the underdrain.

This implement, the body of which only is shown, is drawn up and down the drain by a team of horses. But small holders do not require either this or the costly ditching machine to get their gardens drained.

When I examined my town garden on first coming to this manse I found that the soil was too soggy to grow things as I wanted them grown. So the first thing done in the spring of the second year was to dig two drains from end to end of the garden. If one cannot get more than a fall of one inch to every hundred feet that fall will drain his garden if the outlet is right and the drain properly set and filled. I had the garden drains dug two feet and a half deep, and run parallel with about thirty-three feet between them. On that drained soil we grow asparagus as toothsome as they grow it anywhere, and grapes as luscious as they grow them in California. Where weeds grew before, and some spots were too hard even for burdocks, we have strawberries and vegetables, Cannas and Caladiums, Gladioli and Asters, and we glory in the productivity of thoroughly underdrained soil.

If we were offering a catalogue of the benefits to the gardener from the proper draining of the soil it would be a lengthy one.

1. We must plan to get water off the land. Underdrainage shows that the most profitable way to get it off is to have it come down through the land to the bed prepared for it in the tile or other drain.

2. Drainage relieves the soil of water that otherwise would stagnate and poison both soil and subsoil.

3. Fertilizers are turned to better account in soil that is underdrained.

4. Nitrogen is an important element in garden culture and one of the most efficient agencies in the promotion of nitrification is the underdrain.

5. Drained land cheapens tillage and makes tillage more enjoyable.

6. The fertility in snow and rain lost largely in undrained soil is turned into nature's use when the soil is prepared through proper drainage.

7. The principle of aeration is quickened in drained ground. The sun's rays get down and plant food works up.

8. Through the processes of percolation fertility from nature's showers passes to the roots of plants and serves them in drained land, as they could not be served when the land is sour.

9. Rain being warmer than soil in early spring and cooler in summer, the conditions of the soil brought about through drainage are such that the warmth and the coolness stimulate plants at the respective periods of growth.

10. Loss from bearings through frost is reduced to a minimum when land is drained.

11. The underground pasturage for the roots of vegetable growth is enormously enlarged by the use of the underdrain.

12. As the mulch resists the burning sun so ground well tilled and well drained offers resistance when the heat of summer is at its height, by the power imparted to hold moisture.

13. The season for tillage is lengthened on land that is put in proper tilth over the drain, as compared with land that remains wet until late in spring.

14. The cultivation of soil which is put in proper shape by the known appliances of the day is promotive of vigour, thankfulness, and profitability in the products of the garden.

15. Ground prepared intelligently after it has been properly drained is an attraction to refined tastes; it draws the boy as the load stone the needle; it ministers to the dignity of the oldest of the science, and it affords opportunity to the greatest number to keep in touch with the most historic occupation of man.

A Warning.—Lightning struck a homesteader and killed him instantly. "He was unmarried," says the despatch. Are we to take that as an awful warning, or as a happy escape? —Winnipeg Saturday Post.



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