

Agriculture.

Construction of Tile Drains—No. 2.

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In excavating the first twelve or eighteen inches of the trench in which the tiles are to be laid, a deep furrow may be made with a common plow, and a subsoil plow may follow to loosen the earth and save the use of the pick. Care must however be taken to make the trench straight, so that it can be finished as narrow as possible, leaving the bed for the tile in a direct line. This is necessary to secure close joints in laying the tile.

A common spade is the best tool for digging, all but the last sixteen to eighteen inches of the trench in ordinary soils. If the soil is too hard to work readily with the spade, the pick may be used after getting below the reach of the subsoil plow. To economize labor the trench at the top should be only wide enough for a man to work in, say from twelve to fourteen inches wide, and the last cutting with the common spade should be still narrower.

Before the last foot of the excavation is made, the line should be adjusted as directed on p. 129, by means of the "shears" and "gauge stakes," and directly over the middle of the ditch, about seven feet above the grade on which the tiles are to be laid. The line must be high enough to be out of the way of a man working in the ditch.

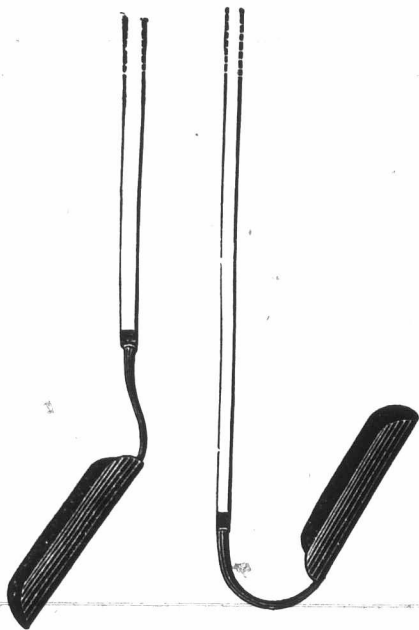


Fig. 4.

Fig. 5.

My practice has been to place the line seven feet above the desired grade when laying tiles three feet deep, using a seven foot rod to gauge the depth of the grade below the line; but when the tiles have been laid four feet deep, an eight foot gauge rod has been found convenient, the line being adjusted accordingly.

After putting the line in place, a narrow, round-pointed, ditching spade is used, the width being determined by the size of tile to be laid; for 2 in. tiles the point of the spade may be 3½ in. wide; for 4 in. tile it may be 5½ in. wide, &c., thus making the bottom of the ditch but a trifle wider than the outside diameter of the tiles. Persons not accustomed to these narrow spades will find them awkward tools at first, but with a little practice this last foot of the ditch can be made more rapidly, and consequently cheaper, than it can be made with a common spade, which necessitates a wider ditch, and the lifting of a larger amount of earth.

As these ditching spades are tapering, a large proportion of the earth cut out by them will fall off into the trench. This can be thrown out with a scoop made for that purpose. The best scoop

for throwing out the "chips" cut by the spade, that I have used, has been made from a common long-handled, pointed shovel, by cutting off a strip from each side and rolling up the sides to form a half round scoop three or four inches wide.

The depth of the cutting must be frequently gauged by measuring with the rod from the line. Never cut deeper than the tiles are to be laid, or they will settle or sag where new earth has been filled in to level up too deep a cut. This is of the greatest importance in all yielding soils, and particularly in "muck" or peat.

The last inch of the excavation should be made with a scoop that will cut a rounded bed in which the tiles will exactly fit. All of the tile scoops that I have seen for sale have proved worthless, and I am not surprised that they are thrown aside by the workmen as useless.

The common forms are shown in figs. 4 and 5, the former being called the "push scoop," and the latter the "pull scoop," from the manner in which they are used. The long blade at the end of a slender shank makes them tremble when used with considerable force; they are heavy on the point when loaded, and they are easily broken from the leverage upon the shank.

An improved form of the scoop, invented by myself, is shown in fig. 6. This scoop combines the advantages of both the "pull" and the "push" scoops, without their objectionable features.

Every one who has used this improved scoop is pleased with it, as it is found to be the best and most convenient tool for finishing the ditch and making an even bed for the tile.

The old forms, figs. 4 and 5, may be readily changed to the improved form, fig. 6, by removing the shank and riveting it to the middle of the blade.

An old shovel blade or a piece of saw plate may be used for the blade of this scoop, and any blacksmith can give it the proper form and fasten it to the shank. A good scoop can thus be made at one-half the cost of the old forms, which are useless. As there is no patent on this improvement, everybody is at liberty to make and use it.

Canada as Seen by a North British Agriculturist.

We have before now referred to the letters of Mr. Macdonald, Commissioner of the *Scotsman* newspaper, to inquire to what extent Britain was likely to be supplied with fresh meat from America. He was favorably impressed with the state of agriculture in Canada on his visit here.

"The external features," he says, "of Canada farming, as far as seen, resemble more closely those of British farming than what are seen in the United States. The farms are laid out more in accordance with home customs, and are better provided with houses and fences, and probably also rather better cultivated than the farms of the States. Nature seems to have done rather less for man in Canada, and, as a consequence, he has done more for himself."

Mr. Macdonald says that the farming in Ontario is more advanced than any he saw on any part of the continent, and he is of opinion if farmers would get quit of their American fences, their farms would exhibit few eyesores to even the most fastidious visitor from Great Britain. Harvesting is conducted with more care than in the States, and the system is very much what prevails at home. The amount of Swedish turnips grown throughout our Province is mentioned as another

encouraging feature, while he holds that if turnip cultivation were still more gone into, it would be so much the better both for the land and the stock.

In noticing Canadian cattle, Mr. Macdonald says that many are "scranky" skin and bone creatures, while a large number are very fair beef cattle, with any number not much removed above mediocrity. Our "common cattle" are, he says, superior upon the whole to the same class in the States, with finer bone and better quality. The great drawback in Canada, as in the States, is, according to Mr. Macdonald, the indifference and carelessness of the farmers in the selection of bulls for breeding from. This evil, he says, is not nearly so great as it was, but still it is very prevalent. If Canadians are to profit by the British meat market, Mr. Macdonald, like every sensible man, believes that a great change must take place. To send inferior beef to Britain would be simply to kill the enterprise at its very inception. The expenses are all the same, and only a small percentage of the British people will take hard, inferior beef so long as they can get better. In Canada, as in Britain, if good farming will not succeed, bad farming need not be tried.

Manuring—Chess—Moon Signs.

Abridged from observations of the well-known agriculturist, John Johnson, from the *Utica Herald*—

I am upwards of eighty-seven years old; I have just given up my farm, on which I have lived since 1821. I purchased it soon after reaching this country from Scotland. The country was new, and the farm I bought was not thought to be valuable. The crops which it grew were light, and people said I never could pay for it. But I did. It was fortunate for me that I had learned in the old country the value of manure and how to apply it. It was fortunate, also, that I understood the advantage of draining, for I soon found that was the first great want of my farm. I sent to Scotland for samples of tiles, and had them made here. My improvements through draining attracted much attention.

I drained my farm as rapidly as I could meet the expense, and applied all the manure I could make. I grew some splendid crops. There is too little manure made in this country. Our farmers must learn to use more manure. Draining, manure and clean culture are what will make good farms and produce profitable crops.

Wheat has been my main dependence, but I have grown good crops of corn. It is a very profitable crop. The stalks make excellent feed for any kind of stock. My wife always thought she could make better butter from cows fed on stalks than from those kept on hay. My farm was a grain farm, and I have wintered a good deal of stock, feeding up my stalks, hay and grain, and working my large product of straw into manure.

Excepting two seasons, when my crops were destroyed by hail, my wheat has averaged about 30 bushels to the acre. The best crop I ever raised was 42½ bushels to the acre from 64 acres. I have several times raised an average of 40 bushels. I wanted my land clean and rich, and pure seed. I found there was much chess on my farm when I took it, and in those days many good farmers really believed that wheat turned to chess. I frequently had spirited arguments with those who strongly maintained the ridiculous theory that wheat will become chess. I remember meeting one farmer who firmly believed that oats even would turn to chess. So much was this question discussed that our State Agricultural Society appointed a committee to make a thorough investigation and experiment. This impartial committee gave its verdict, and in our section of the State the question was pretty thoroughly settled.

I remember when I was ready to plant my first piece of potatoes, I went to purchase seed of a good farmer near by. He said:

"When are you going to plant?"

"Right away," I replied; "my ground is ready and it is plenty late enough."

"You plant now and you will get no potatoes."

"Why so?" for I did not know but he wanted to refuse to sell me potatoes for some reason.

"Why, you must not plant now. The moon is not right. You should wait until the full moon in June," he argued.

I remarked that I had nothing to do with the moon. The weather was dry. He lost the best weeks of growth, and the result was that I had an excellent crop, while his amounted to but little. I have in my life met much of this nonsense about