## Draining.

BRUSH, STONE, BOARD AND TILE DRAINS.

There is no subject pertaining to agriculture which ought to interest the farmer more than that of draining. A profitable return for his labor and for his investment in land, the yield of field crops, the fruits of the orchard, the long life and rugged health of the trees, the health of his stock and of his family are hazarded when a farmer neglects to remove surplus moisture from lands and household premises; and all of these interests are greatly improved by thorough draining. How shall we drain? is the practical question The open ditch, though cheaply made, is a very expensive drain. Make out the account and see. Charge with land occupied, with labor of cleaning every two years, with labor of keeping the banks free from noxious weeds, brush, &c., with a large percentage of the best manure you put on your field as a top dressing, with necessary crossings, with time lost in plowing, cultivating, &c., by being obliged to turn so many times, and see if you can afford it. It appears to be a necessity in some places, along the highways, through marshes, &c., when large quantities of water flow after a rain, but it should seldom, if ever, be seen in a cultivated field.

The stone drain.—When stones are found in abundance on the land to be drained, whatever objections there may be to it as a drain, they will be used, for the stones are to be removed and the drain must be made, and how economical to do both jobs at once! How natural to bury the nuisance and thus make it a blessing! "A stone drain is a blessing. It is durable and water will flow through it. What more do you want?" We want a smooth channel, with unbroken sides, except just enough opening to admit the water, so that the roots of plants and trees will not be so liable to enter, and by their growth obstruct the drain. We want a drain that will offer some obstruction to burrowing animals, and one that crawfish cannot make the base of their operations. "I've had a stone drain on my farm for forty years, and its working well to-day." So their are thousands of rivers that have swept onward to the sea from time immemorial, but we do find one occasionally that has been dammed by flood wood. A snag catches in a shallow place and piece after piece of driftwood gathers around it, until the mighty river is bridged, sometimes dammed and turned from its course. If a river will become obstructed on account of an irregular water course, how much more liable is a drain, "Well, I've had a splendid drain on my farm. It's been running constantly for eight years, and it's made of nothing but brush. What do you say to that?" I would say that brush is better than nothing, better than an open ditch. You say that it has been running constantly. That has saved it from decay. The object of an under-drain is two-fold—to remove the water and to admit the air. The air hastens the decomposition of all vegetable matter and manure in the soil and thus prepares if for plant food. The excess of moisture in your land, which the constant running of your drain could not remove, not only preserved the drain, but in a great degree preserved the manure from decay. Much of the soluble part of your manure percolated through the soil and passed off in your drain. I apprehend that soil that is excessively moist will not absorb food for plants, and that if your drain had been intermittent in its flow, your crops would have thrived better, but your drain would not have lasted half so long. Brush in water will last a long time, but in the open air or lightly buried they very soon decay. A much better drain is made of inch boards in this form ∧. We know of nothing better except a stone or a tile drain.

Drain tiles well made are far better than any thing else. But we know that there are many places in Canada where they are wanted and cannot be obtained. The primitive mode of making a drain tile is to tramp the clay with cattle, or as one "Treadeth out the the Wine Press," roll it into a sheet and wrap it over a stick or form of this shape. ∩.

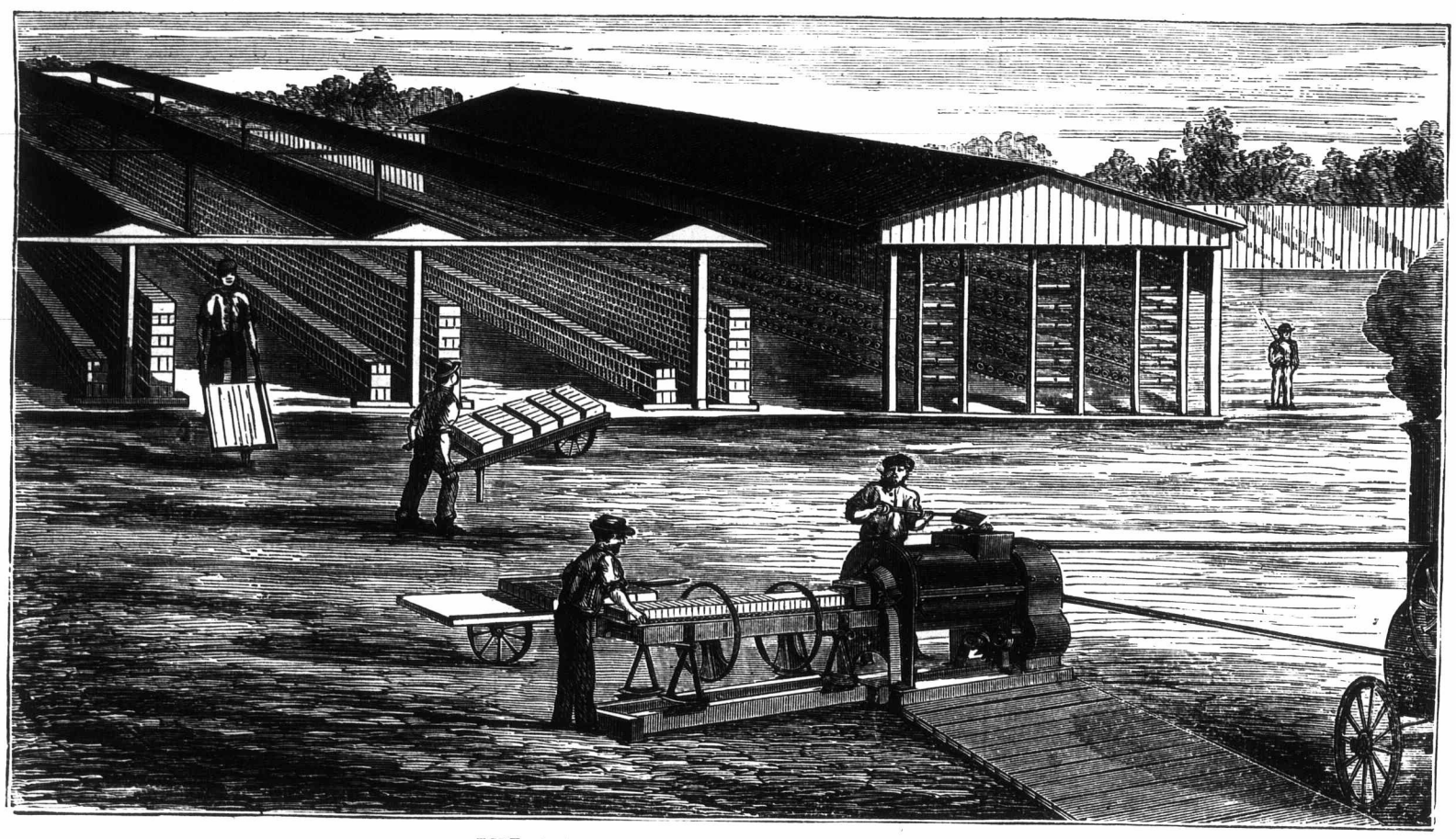
Hand brick makers might supply an article which would answer well the purpose of a drain. A brick 3 in. x 4 in. x 10 in., with a cavity on the 4 in. face, 2 inches in depth, the length of the brick. By laying one over the other, breaking joints, a continuous oval drain 3x4 inches would be formed. A profitable business may be done in many places in making both bricks and tiles, when the demand for either one would not sustain a manufacturer. The brick maker who is established in business can, with a very little outlay, commence the manufacture of tiles. A hand machine and a drying shed will be sufficient with his present plant. He may burn his tiles in a brick kiln.

We purpose publishing a series of articles, by different writers, on draining, the soils requiring draining and the modes of draining, and the manufacture of drain tiles, giving details of construction of sheds, kilns, process of manufacture, &c. We intend to make them interesting and profitable to the farmer, and worth many times the price of the subscription to the ADVOCATE, to the tile maker and the brick maker in rural districts. Will our agricultural friends call their attention to these articles?

As an introduction to the subject, which will give the reader a general idea of the business, we have had a wood cut engraved representing a tile shed, a few hack sheds for bricks, and Tiffany's combined brick and tile machine driven by a portable engine, with necessary attendants at the machine. As the work of each laborer is clearly shown we need not describe it fully.

For particulars in regard to the machine we refer you to the proprietor, Mr. Geo. S. Tiffany, London, Ont. We know that it has taken first prize as best tile machine for the last five years at Toronto and London, and in 1879 at Ohio State Fair, over five competitors. It won the first prize for best brick machine at Toronto and London last fall, and bricks made by it took first prize as prepared bricks at London.

Three wheel barrows are used so that one of them may be at the machine. A wheeler leaves an empty barrow on one side of the cutting table, steps to the other side and takes the one just filled. The two men may wheel, and each one set his own barrow full, or one may wheel and the other set. The machine thus operated should make 12,000 bricks per day.



THE MANUFACTURE OF DRAIN-TILES.

The advantages of rising steam power are many. The clay may be molded much stiffer than by hand or horse power, so that the tiles are not injured so much by the necessary handling. They require less time to dry, and the tiles are smoother and stronger than when made of soft clay. The expense of an engine has been a serious objection to its use, but is hardly so now, for, in the last few years, a great many have been bought for threshing purposes. They are now in almost every good farming township in Ontario, and laying idle enough for the few months required for threshing. Many of them might be profitably employed through a greater part of the brickmaking season.

In future issues we propose to treat upon the following subjects in their natural order:—The selection of a site for manufacturing, the construction of tile and hack sheds and kilns, the process of burning, cost of fuel, &c., the construction of drains, laying of tiles, &c.

We intend to illustrate sheds and kilns with cuts drawn by scale, or with dimensions given, so that mechanics will be enabled to work from them.