

**DRAINING.**

An anonymous correspondent wishing to know. 1. If any great interest is being shown, in this province, in the matter of thorough draining; 2. In what county the greatest extent of drainage has been carried out; 3. What are the prices of 3, 4, and 5 inch drain-pipes, and by whom are they manufactured; we referred his questions to our friend, Mr. Peter Macfarlane for a reply, and that gentleman, very kindly, sends us the following:

Chateauguay, 15th Feb. 1897.

MY DEAR SIR,

Your favor of the 12nd inst. to hand and noted. I would hasten to reply to your questions in the order named.

Question No. 1.—None.

Question No. 2.—Huntingdon, Chateauguay, and perhaps a few sections of the Eastern Townships.

No. 3, At St. John's, Que.

Also address Chas. Sheppard, 102 Lathanas St., City, who will give you the prices of those sizes, as I am not very sure.

I assisted my father 35 to 40 years ago, to put in under-drains; but he was thought, by many, to be a little off, something wrong in his upper storey, as only a fool would do such needless work. I suppose it is over 50 years since he put in the first ones, and although he has now been dead more than 26 years, some of those drains are in working order to this day. An occasional neighbor would put in a drain perhaps, where they could hardly help it; but now they are getting their eyes opened. Of course, tiles are too dear for practical purposes.

I remain yours very truly,

PETER MACFARLANE.

Mr. Sheppard, mentioned above, charges

for pipes of 2 in. bore. \$12. a thousand; " 3 in. do. \$18. " " ; " 4 in. do. \$27. " " ;

The 2 inch pipe weighs all but 3 lbs., making the weight of a thousand pipes 3,000 lbs., which shows that they are made much too stout. In the South of England, our light horses used to draw from the kiln, in a hilly country, a thousand pipes at a load, in one-horse carts, but then we only used 1 1/4 inch bore pipes for the sides and 2 inch for the mains.

Now, as we have often stated in this paper, an acre of land in Kent cost to drain, with the above sized pipes:

Pipes at 16s. (\$4.00) . . . . . \$ 5.20  
Labour \$0 rods at (15 cts) . . . . . 12.00

\$17.20

or there about; exclusive of cartage, laying down the pipes alongside the drains, a trifle extra for the mains, and a few other things.

At all events the cost of the whole, even where the pick was needed, or where quicksands bothered us, never exceeded four pounds sterling—\$20.00. Men earned an average of 90 cents a day in winter. As for the good done to land by drainage, that needs no repetition.

In the year 1880 we published in this periodical a full excursus on this subject, which, if any one cares to read it, can easily be reproduced.

**HINTS ON MAPLE-SUGAR MAKING.**

**Tapping - Gathering - Pan - Syrup.**

(From "The Country Gentleman.")

The following article will be read with benefit by any one interested in

the making of maple sugar. Now that the bush is easily accessible to teams is the time to build the sugar house, to fill up the wood shed, and prepare generally for the action of spring:

The maple sugar industry is a growing one, not so much in the quantity as in the quality of the product. It is not probable that the sugar will compete largely with cane sugars for table use on fruit, etc., or in tea and coffee, or for culinary purpose, where a simple, unflavored sweet is desired. But the "syrup," if it is properly made, and its flavor properly retained by sealing hot, like fruit, in jugs or cans, has no possible competitor, as an article of luxury, even as a substitute for honey, the flavor of No. 1 syrup is preferred by many, and it does not cloy the taste as honey does. But poorly-made, maple syrup is little better than cane molasses, and will not bring a remunerative price. There is as much difference in flavor as between "gilt-edged butter," and that which is only fair to middling; and when that difference is fully understood, the prices of the two grades of syrup will differ as much as that of the two (or half dozen) grades of butter.

Hence, our profits will come mostly from our syrup, and from our best quality too, and any suggestions as to the mode of securing the best results will, I am sure, be welcomed. I wish to call attention to some of the essentials to success, and if I omit any, or fall into error in any respect, I hope some of your ever-watchful readers will call attention to it.

Following the order of the work involved, and noticing the tools, implements, etc., as they are required for use in their order, we have:

1. "The tapping" should be prompt and rapid, as soon as suitable weather really comes; not till then. A drizzling rain, that freezes before the sap can be gathered, never makes the best syrup, and buckets, spouts, and trees, are injured for the rest of the season, if the bush is tapped several days before the season really opens. The Cook bit, half-

inch size, is best, and the galvanized iron Eureka spout. By repeated and continued trials of it side by side with various wooden and tin spouts, I am fully convinced that it sours the sap least of any, and gives the largest yield. The first merit is more important than the other, for sour sap will never make good syrup. The buckets should always be tin, soldered, inside and out, at every seam. They will rust inside in many years, and should never be painted there, as that makes them more rough and more liable to sour. Painting the outside, however, will help to preserve the bucket. For our Ohio climate (and I am inclined to think it true anywhere), the buckets should invariably be covered tight. A hole just below the wire rim splits over the notch of the spout, and a board a foot square is laid on top, and excludes rain, snow, dirt, or insects, and prevents the sap from freezing, except in extreme cold; or souring by

the sun's heat, except in very warm weather. I know of no one thing more essential to the production of the best grade of syrup than covers. They should be planed and painted, and it is a great help in gathering to have one side painted, say, red, and the other white. All are placed red side up, for instance, in tapping, and then, all are reversed at each gathering. If a tree is missed the color of the cover shows it at a long distance. So, none need be missed, and two trips need never be taken to the same tree in doubt whether its sap has been gathered. This was mentioned more fully last year, but I did it so great an advantage, that I feel like repeating it every time I have the attention of sugar-makers.

2. The gathering should begin as soon as the tapping is done, the former should be finished by noon if possible. Otherwise, one force of hands should continue this, and another force should begin soon enough to overtake, before dark, the force that is tapping. Sap should never stand over night in the buckets if it can be avoided, but should be gathered as late as possible before dark, and boiled as soon and as rapidly as possible. It begins to deteriorate almost as soon as it leaves the tree, especially if it is very warm, or on the other hand, if it freezes and thaws.

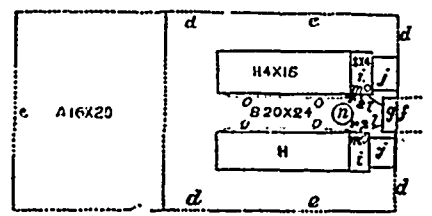


Fig. 2.

The gathering cask, figured and described last year, and shown again in fig. 1, seems best adapted of anything for the work to be done. It is simply a cask 5 feet long and about two feet in diameter, fastened firmly to a "box sled," large end behind, the front end a little the higher, so that when the sled stands level, the sap will all flow from a faucet in the rear, through a tin conductor

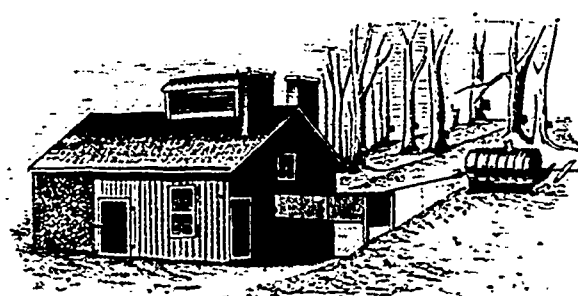


Fig. 1.

with a funnel-shaped "head" down the slope, into the store trough below, as shown in fig. 1. The sap need never be lifted but once, or dipped or rolled up skids in barrels at all. It is poured down into the gathering pail from the bucket which hangs at the tree, and is not removed from the spout in emptying. It must be lifted a little and poured into the funnel of the gathering cask, and that is all. After that, by taking advantage of a slope, it will run into the store trough, and thence into the boiler without further labor.

3. The sugar-house, its location and its arrangement. The former is indicated in fig. 1. The sugar-maple seldom grows spontaneously except on ground that is somewhat rolling; and in almost every sugar camp can be found side-hill advantages in a sufficiently central location. If the slope is not as steep as that represented in the cut, a longer conducting tube must of course be used,

so that the gathering cask can stand far enough off up in the slope to bring it to the required level. In hilly New-England there is usually no trouble on this point; but even there, I have seen sugar-houses on level ground near a fine slope of which they took no advantage. And in Ohio, until within a few years ago, such was the common custom. The store trough stood on a level with the "arch," the barrels were laboriously rolled up two skids and emptied into the trough, and then the sap was lifted, painful after painful, and poured into the kettles or pans. Men are strangely slow in learning to take advantage of gravitation and the other forces of nature, even when she seems daily to thrust them before our very eyes. Fig. 2 gives the ground plan of the sugar-house seen in perspective in fig. 1. It is planned for two arches, so that one man can boil the from 2,000 or 2,500 buckets. It will be understood from a brief description, if figs. 1 and 2 are both kept before the eyes. A, is the woodshed; B, the boiling-room; H H, the evaporators, set on brick arches; I I, heaters running a foot below the level of the evaporators, and perforated like the tubular boiler of a steam engine, so as to send the flame through these tubes (horizontal cylinders), which are surrounded with cool sap, and thus economise heat that would otherwise waste up the chimney; J J, are the chimneys; g f, store-trough (compare fig. 1); l l (curved dotted lines), flexible rubber tubes, conveying sap from store-trough to heaters; m m, self-regulating sap-feeders; n, tall receiving can for syrup; r r, stopcocks for drawing off syrup; s s, siphon stopcocks for draining hot sap from heaters when desired. The tops of the siphons pass through the sides of the heaters (watertight) on a level with the bottom of the store-trough, and run outside below the bottom of the heater, so that when the sap is above that level the siphons will start when the stopcock is open, and flow till the heaters are drained dry. o o are the tubes feeding hot sap from the heaters into the front end of the evaporators; e d d d are doors, and e e are windows. The self-regulating sap feeders are Guild's patent, and are usually furnished with the evaporators.

The working of them, in brief, is this: A float rises and falls with the sap in the pan or heater, and works a pair of jaws which bite the flexible tube when it gives sap too fast, and relax their old and admit more sap when it is needed. When the boiling is uniform, they admit a uniform stream just fast enough. If the man goes away over night, and leaves a big fire, these watchful sentinels supply sap while the fire lasts, and then stop the stream lest it should overflow the boilers.

4. The patent sorghum evaporator, is, in my opinion, the only pan that will make the very best grade of syrup uniformly, rapidly, and in large quantities. Kettles were long since abandoned, and flat sheet-iron pans introduced; and now the latter are fast being supplanted among the best sugar-makers, by the patent evaporator. The principle is that of the rapid evaporation of a very shallow body of sap moving slowly and transversely over alternating hot and cool spaces. This result is secured by a succession of ledges or "crimps," running crosswise of the pan, one every six inches of the pan's length, the first meeting the side on the right, the next on the left, and so on (see fig. 3). The cool spaces are secured by letting the pan project beyond the fire on each side. The pan stands perfectly level,