iron plate, and gradually piled up one on the other, under the press, until the limit of the screw is reached; the pressure of the screw is then brought to bear evenly through the medium of a thick cap-piece, made by crossing strong two-inch oak plank, well screwed together. The pile of filled cloths stands in a tray under the screw to receive the juice, which is then carried off to the boilers.

A second method of pressing is similar to the above, but the press, instead of a screw, or series of screws, is made of the ordinary hydraulic press, and is, of course, more efficient, although very expensive.

Many other presses of this description will naturally suggest themselves to the mechanical mind, and will be used where necessity, or limited pecuniary means, prevent the use of more expensive methods.

DEFECATING THE JUICE.

This has been partly described in a former article, but as other processes are mentioned more at length, it is believed that a repetition will be beneficial, and sure to fix the matter in the mind of the reader.

When the juice is obtained from the press, it runs, as quickly as possible, into the boilers, being strained from all traces of root and pulp. Hydrate of lime (hereafter described) is added to a greater or less amount, according to the process to be used, and the liquor in the boiler is brought to from 165° to 168° of heat (Fahrenheit's scale). A thick scum then rises, and when it has risen sufficiently, the liquor is brought so nearly to a boil as not to break the head of scum, which is then removed, and the liquor, now clear, and but slightly coloured, is boiled until sufficiently evaporated, when it is ready for the

SUBSEQUENT PROCESSES.

These are several in number, according to the product required. For the farmer or small manufacturer, who has not the necessary skill for the refining process, it should be merely evaporated until it is of sufficient density not to ferment—just such as ordinary treacle or molasses—and this is then fit to barrel up and take off to the refinery, where it will bear a price in accordance with the care with which the roots have been grown, and the subsequent processes conducted. The most important point to guard against is burning or browning the liquor, and for this purpose, where it can be had, and the work is to be constructed on a manufacturing scale, a boiler specially constructed is required.

THE BOILER.

This should be made thus: The bottom should be conical, made double, of boiler iron, well stayed and strengthened so as to bear a heavy pressure of steam between the two skins, to do the best possible work. Steam is the only heat which should be used. *There must be an inlet for the steam, and* an outlet back into the steam boiler for the condensed water to flow back into the boiler. The iron part must be made by a boiler-maker, and be calculated to bear the full pressure of ordinary high pressure steam. The top, or upper portion of the boiler, may be made of wood; an ordinary hooped wooden curb will be sufficient, and is perhaps better than if made of iron. There must be what is called open steam attached to the boiler for special occasions; this is merely an iron pipe of an inch in diameter, connected with the steam boiler, and going to or near the lower part of the conical bottom. The steam is shut off and let on *by a tap at the upper end of the wooden* curb, and within reach of the workman's hand. There should be a pipe and tap fitted to the point of the conical bottom of the double part, to enable the operator to draw off sediment and to empty the boiler as required. There must be proper receivers under the boiler suitable to hold the several kinds of substances which may be withdrawn from it.

In addition to the open steam, the refiner or large manufacturer will require a special coil of pipes connected with the *carbonic acid arrangement which will be* described further on.

THE FARMER'S BOILER

This need not be an elaborate affair. The same boiler and evaporators which he uses for maple sugar would be quite sufficient to bring the sap down to the syrup which is proposed to form the staple of his manufacture. The Americans have many plans for boilers adapted to the purpose of reducing the juice of the sorghum and maple sap. These all do well, and are so extensively advertised in American publications that any person wanting such can obtain them ready-made without difficulty. In a former number of the CANADA FARMER, under the head of "Maple Sugar Making," this subject has been fully treated, and to those articles (Vol. 1, p. 39, also Vol. 4, p. 49,) the reader is referred. The great object to be attained is evaporation without colour or burning. Any means which will give this end is what is required.

In future numbers, the consideration of this important subject will be resumed. New works have lately been published, giving the latest discoveries of the continental manufacturers, and the information which those works contain will in due time be transferred to the columns of the CANADA FARMER.

No. VII.

PROFITS OF BEET ROOT GROWING.

On this subject there will doubtless be endless disputes and cavillings. Some of *the best agriculturists in the Province main*tain that turnips cannot be grown to profit *as a crop*, on account of the labour necessary, and that were it not for the destruction of weeds, the rotation and manure which that crop gives, the farmer would be better without it.

Others, particularly our friends round Guelph, rely altogether on their turnip crop as the means of fattening cattle, and it thus becomes the *cash crop*, and takes the place of fall wheat, which is now a failure in that district. Now as the usual mode of reckoning of the farmers in the County of Wellington is, that besides the turnips required for stock sheep and growing stock through the winter, they can fatten one good beast (ox or cow) for each acre of turnips grown, and as no man need expect to make more than from 30 to 35 dollars on the animal over and above the original cost (or worth of it), when put in stall, we may safely reckon the produce of an acre of the best turnips, cost what it may to grow, to be from $30 to $35, and that it can never produce more than $40 per acre gross,—out of which the cost of labour in growing and attendance on the cattle has to be deducted.

An acre of beets will cost no more to produce than an acre of turnips, the culture is the same, and also the manure and labour of sowing, hoeing, and harvesting the crop; the singling the beets may be a little more troublesome, but the advantages in not suffering from fly and the quick growth of the plant to smother weeds, far more than make up for that difference. Beets may be sown later and harvested sooner than turnips.

If ten tons of properly selected sugar beets can be raised on an acre, they are worth, delivered at the factory (say within three miles), four dollars per ton, or $40 per acre.

An acre of turnips as above produces from $30 to $40 per acre in cattle feeding.

An acre of fall wheat at 30 bushels per acre (and who would not be glad to be sure of that amount of crop), at $1 25 per bushel will produce $37 50.

An acre of barley, at 40 bushels per acre, and at 80 cents, will produce $32 00.

So that an acre of sugar beets, taking every contingency into account, is worth as much, to say the least, as an ordinary crop of any other farm produce in Canada. And in addition, if the farmer works the crop up into syrup, he may be certain of realizing fully as much more, or $80 per acre, exclusive of the wear and tear of sugar utensils, fuel, and labour. The refuse is supposed to be fed on the farm, and this worked into manure, and the value of it is not taken into account in either case.

Now it appears from the returns of the Patent Office at Washington ("Report of the Commissioners of Agriculture, 1868"), that the average production of a crop of cotton in the United States, is only equivalent to $56 25-100; the proceeds from an acre of tobacco to $60; and on both these crops the labour is immense, and, as they say, never ending.