[Remarks on the Manufacturing of Maple Sugar; with Directions for Its Further Improvement]

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Description

Instructions for sugar maple sap collection and processing, detailing the necessary building, procedure, and equipment for converting maple syrup to a granular sugar. nn. 249_54. Microfilm Reel 8063. Reprinted from a publication of the same title (Philadelphia: James & Johnson, 1790).

Transcription

REMARKS on the MANUFACTURING of MAPLE SUGAR; with Directions
for its future Improvement.
[From a late Philadelphia Publication.]
HE who enables another to obtain any

necessary of life, either cheaper or

more independently than heretofore, adds

a new source of happiness to man; and becomes more or less useful, in proportion to the number of those who participate in the benefits of his discovery. The transitions, however made from one stage of improvement to another, are not sudden, but gradual; which probably arises from that strong and almost universal disinclination, in the mind, at departing from the beaten path, or from long established customs. Hence men, frequently, at first, treat with neglect or contempt, that, which afterwards, on better information, and a thorough knowledge of facts, they believe, and without reserve, adopt in their subsequent practice. Were we to introduce, and embrace as a maxim-- 'That every new proposition, merely on account ___ of its novelty, must be rejected'-- our knowledge would no longer be progressive, and every kind of improvement must cease. That the juice of the Sugar Maple would produce a saccharine substance, answering the purposes of sugar has been known many years, and particularly by the inhabitants of the Eastern States;-- but that there was a sufficient number of

this kind of tree, in the States of New-York and Pennsylvania, only, to supply the whole of the United States with this article, is a fact which was not so well ascertained, or so satisfactorily authenticated, until within a year or two past;--and that the sugar of this tree was capable of being grained, and produced, in quality, equal to the best imported--was in some measure problematical until within even two or three months past, when the arrival of several chests in the city of Philadelphia, made last spring on the Delaware; removed every doubt in the minds of those who have seen it, as to the truth of this last fact.

The object which this publication has particularly in view, is, ‘A communication of such observations and directions on manufacturing the Maple Sugar, as will be most useful to those, who, from situation, interest or patriotism, may be induced to engage in and carry on this business.’--A person who had, many years, been acquainted with the usual way of making this article being desirous of improving the method--obtained the instructions of a refiner of sugar in this city, and, with these before him, began his experiments, in February last, at Stock-port, about three miles below the junction of the Mohock and Popatchtunck branches of the Delaware. He soon discovered that the business was yet in its infancy, that great and even essential improvements might be made therein, which would require a departure from the methods here-

tofore in general use, in boiling down the green sap, graining the syrup, &c. and which if attended to and adopted, would enable him to produce sugar, in colour, grain and taste, equal, if not superior in reputation, to any imported. His sentiments and hopes, on this head, have been fully confirmed, by the result of his experiments; for the sugar he has made, and sent down to this city, is equal to the best sugars imported from the West-India islands.

The person above mentioned, whose judgment on this subject is much to be relied on, as well from his experience in the business, as his established character for candour and integrity--is clearly of opinion--that four, active, industrious men, well provided with materials, and conveniencies proper for carrying on the business, may turn out, in a common season, which lasts from four to six weeks, forty hundred weight of good sugar, that is, ten hundred to each man. If four men can effect this, how great must be the product of the separate or associated labours of the many thousands of people who now inhabit, or may inhabit the immense tracts of lands, which abound with the Sugar Maple tree! What a new and extensive field opens from these considerations! What an interesting and important object to the cause of humanity, presents itself to our View! An object that deserves the countenance of every good citizen, and that highly merits even national encouragement.

The buildings, implements, and utensils needful for this manufacture, and suited

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for the use of four good hands, it is thought may, together with the best process yet known for boiling the sap, granulating the syrup &c. be usefully pointed out, that those persons, who incline to enter upon it in the next year, may proceed on the best information to be had, and timely provide themselves with every thing necessary for the purpose; particu-

larly, with such articles made of wood, as require seasoning--Where a larger number than four men are intended to be employed at one Sugar Camp,' the kettles and other articles to be provided, as well as the number of trees to be tapped, may be increased accordingly.

Detail and description of the necessary Utensils and Materials.

KETTLES; Sixteen, of about fifteen gallons each.

IRON LADLES; Two, the bowls to contain three or four quarts, each, for shifting the syrup: The handles to have sockets, which may be extended with wood to any convenient length.

TRAMMELS or POT-RACKS; Sixteen, one for each kettle, eighteen inches long, the flat part, and the round, or lower piece of the same, so as to lengthen to about three feet occasionally.

SCREW AUGERS; Four, of an half, three quarters, and one inch, for boring the trees.--Although it has been found that the Sugar Maple tree will bear much hardship and abuse; yet the chopping notches into it from year to year, should be forborne; an auger hole answers the purpose of drawing off the sap, equally well, and is no injury to the tree.

BUCKETS; Eight or ten, of three gallons each, at least, for collecting the sap.

BOARDS; Eight or ten round pieces, to lay on the surface of the sap, at the top of the Buckets, to prevent its splashing over.

COOLERS; Three or four tubs, of about fifteen gallons each (kettles will answer the purpose) to receive the syrup from the boilers, when, upon trial from the proof stick, it draws into a thread between the thumb and finger, as hereafter described.

YOKES; Four, to go across the shoulders of the persons employed in collecting the sap, having a bucket suspended at each end.

TROUGHS; Eight hundred should be made of white pine, white ash, water ash,

aspen, linden or bass wood, poplar, common-maple, or Sugar Maple: Avoid, for this use, the butter-nut, chesnut and oak; -- these would either discolour the sap, or give it an improper taste.--A person, acquainted with the business, can cut down the timber proper for the purpose, and hollow out about twenty of these troughs in a day; they generally hold from two to three gallons: The largest should be placed to receive the sap of those trees that are most thriving, and which yield the greatest quantity.--It may also be noted, that white-ash and white-pine will make the troughs when green; the other kinds of timber abovementioned, should be seasoned, or they will be liable to leak.

STORE TROUGHS: Where large cisterns, fit for the purpose, cannot be had, which will generally be the case in a new country, troughs may be had of the white-pine, by falling a large tree of that kind, and fixing it in a level position; the upper side to be dug out in the shape of a manger for feeding cattle:--The larger it can be made for receiving the green sap, the better. White-ash and linden or bass-wood will also answer the purpose, should any of them split and leak they may be caulked tight.--These troughs should be at a convenient distance from the boilers, in a cool place, and under cover, to prevent snow, rain, &c. mixing with the sap. --A linen strainer should be so fixed that the sap, when collected in buckets, may pass through such strainer into these troughs, at one end, and at the other end, room should be left to dip out for feeding the boilers.

SHEDS, WALLS, &c. The exposed manner in which sugar has been usually made, in the back country, is attended with many inconveniences, especially in windy weather, when the ashes, leaves, &c. may be blown into the boilers, and there-

by discolour the syrup, or injure its flavour: neither can the keeping up a proper degree of heat be always effected in an exposed situation. To remedy these inconveniences it is recommended that a back wall, for the fire-place, be erected eighteen or twenty inches high, and to extend a sufficient length for all the boilers employed. This wall may be made of stones laid in clay or loam, where lime-mortar is not readily to be had. For saving the ashes, and the greater conveniencies in making and continuing a reguler fire under the boilers, a hearth of flat stone, about three feet wide, should be made to extend and equal length with the back wall. And further to obviate the ill effects, which too open an exposure is subject to, (it being observed where a number of boilers are placed in a range, those at and near the outer ends, do not succeed so well as the more central ones) it is strongly recommended that sheds be erected, to extend over and cover the

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whole length of the hearth, and so formed that the smoke may pass off, and be at the same time a shelter from high winds, rain, snow, &c. For graining the syrup, after it is brought to a proper state in the boilers, it will be right to have a separate shed or building in which two of the sixteen kittles should be fixed; for this service, charcoal is much better than wood, as the heat or flame should be confined to the bottoms of the kettles, and be uniform and regular, to guard against burning or scorching. A wall, as above described, should be made at the fire-place, as well as at each end; and the hearth or bottom laid with flat stones, on which charcoal is to be placed.

AND IRONS: Pieces of cast-iron, something like and irons, and to serve the same purpose, will be very useful: They should, in the long part, be two feet and an half, and two inches square ; the turn at the inner end, four inches downwards,

and a small turn upwards, at the outer end of about two inches, to prevent the wood from rolling. Of these, there should be a number to suit the extent of the fire-place, to be placed at the distance of five or six feet from each other.

SUGAR MOULDS : These should be made of seasoned boards, or of such wood as will not impart a taste to the sugar. To answer the end of earthen moulds, used in the West-Indies, and in our refining houses, the use of sugar moulds has been, in the present year, well supplied, by making then of wood, somewhat resembling a millhopper, about twenty seven inches long, and ten or twelve inches wide, at the top, and tapered to the width of one inch, at the lower end.

FRAMES, to place the moulds in, above described, should be formed so as to admit the moulds to rest in them, about half their depth.

GUTTERS, spouts, or narrow troughs, --should be fixed within the frames, under the moulds, in a descending position ; the lower ends to enter covered casks or vessels, so that when the plugs or stoppers are drawn from the bottom of the moulds, which may be done in about twenty-four hours after they are set, the molasses that will run therefrom, may fall into these gutters and pass readily into the covered vessels, which, if open, would be exposed to dust and dirt.

PRICKERS : So termed by the sugar-bakers, about twelve inches long and half an inch diameter, at one end, and the other brought to a point ; for want of iron, they may be made of hard wood :- A few hours after the moulds are unstopped, the prickers should be run up the bottom of them, three or four inches, to make way for the whole quantity of molasses to pass off.

SEASON for TAPPING:--By trials, made in the month of February, it will

readily be discovered, when this valuable tree ought to be bored, for the purpose of extracting the sap, as in that month, either earlier or later, according to the season, it generally begins to yield a sufficient, quantity for commencing the business.

TAPPING or BORING:-- Four hundred trees, each tree bored with two holes, as nearly as may be on the south side; and also with two holes on the north side of the tree, in the early part of the season, with screw augers from two to four quarters of an inch, according to the size of the tree; and towards the middle of the season, a like number of trees to be bored in the same manner, is recommended, as a better mode for the management of four hands, than if the whole number of eight hundred trees were tapped at the first running of the sap. The sap of the second parcel tapped, will be found richer and more productive, than if a part has been extracted earlier.--The auger should enter the tree at first, not more than three quarters of an inch: The holes may at several times, be deepened to the extent of two inches and a half, as the manner of the sap's running may render necessary. The hole should be made slanting or descending, so that the sap may run freely in frosty weather, and not, by a slow motion, be liable to freeze in the mouth of the orifice. In these holes, spouts should be fixed, to project from the tree, from eight to twelve inches, and not to enter the tree more than about half an inch: as the farther they enter, the more the running of the sap is obstructed: They should be prepared, in readiness for the season, of elder or sumach.

PRESERVING the SAP:-- It is observed, that in the early part of the season, the sap will keep two or three days without injury; but as the spring advances, and the frost becomes less intense, it will be necessary to boil the sap the day after It is collected, or it may ferment and sour.

LIME:--To every half barrel, or fifteen

gallon kettle, a table spoonful of slack'd lime, should be put in, while the sap is warming, and before it boils; this promotes the rising of the scum and forming of the grain.

BOILING:--A smart fire should be kept up, while the sap is boiling, and the watery part evaporating. -- As the scum rises to the top, be careful to skim it off. When the liquor is reduced one half

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in quantity, lade the second kettle from the end, into the end one; and when the contents of three or four kettles can be contained in one, then let the whole be laded into that, at the end; filling up the empty kettles, without delay, with fresh sap. As the liquor in the end kettles, removed from those which have been mentioned, becomes a syrup, it should be strained through a good blanket, or woollen cloth; and care must be taken, not to suffer it to boil too long, so to be too thick to be strained in this manner. It should, when thus cleansed from its impurities, stand in buckets or other suitable vessels, twelve hours or more, that the particles of lime, and other remaining sediment, may settle to the bottom; after which, it should be so gently poured off into a kettle or boiler, as not to carry with it any of these settlings. However, they need not be wholly lost; they will mostly contain a considerable quantity of sugar or syrup; by pouring fresh sap on them, stirring them well together, and suffering them to stand a while to settle, a great part of the valuable sweets contained in such sediment may be saved. It may be further noted, that when the sap is weak, which is generally the case towards the latter part of the season, it requires more boiling and a higher proof than that collected earlier and of greater strength.

N. B. The method before described was pursued in the last year, and appeared to answer well; it is nevertheless believed, by a judicious sugar-boiler, that it would be best to avoid letting the syrup stand

twelve hours after being strained through a blanket: When the process is begun, the sooner it is compleated, in his opinion, the better: -- the design of its so standing, for twelve hours, being chiefly intended to give sufficient time, for the particles of lime and other sediment to collect at the bottom of the kettle.-- It is proposed that lime should be mixed with a quantity of fresh sap, in the evening, and be well stirred; the large particles of lime, in this case, will be likely to subside before morning, and the clear sap so impregnated may be mixed, the next morning, in proper proportions, in the several kettles; observing, however, that in this mode, more lime will be necessary, as less of its strength will be extracted by cold than by hot water.

GRAINING.--The syrup, having stood twelve hours, or upwards--is then to be gently poured into a kettle or boiler as above-mentioned; which would be best placed over a fire made of charcoal, as before hinted; unless the kettle is so fixed in a furnace, or in such a situation, that

the flame can be confined to the bottom; for if it be suffered to pass on the sides, it endangers the syrup's being burned.-- This operation should also be performed with a smart fire, to be uniformly and equally kept up--in which, as well as in boiling the green sap, the use of butter, hog's lard, or other fat, it not only very useful and advantageous, but absolutely necessary.-- When, in the course of boiling, the fat rises towards the top, a piece of fat equal in size to a nutmeg, thrown in, will keep it down. Particular care should be taken to prevent, by these means, the the rising of the syrup when graining, which may require a larger proportion of butter, &c. It is found that the evaporation is much more expeditious, and is believed the quantity of sugar made, is larger, when careful guard is kept to prevent the

sap, and particularly the syrup, when graining, from rising, by the timely introduction of a piece of fat, as above described.--To form a judgement when the syrup is sufficiently boiled, take out with quickness the stirring-stick, which is constantly kept in the boiler, for the purpose of taking the proof, rub some of the syrup off the lower end of it, with the thumb, and if on applying the finger thereto, it draws into a thread, it may be deemed in a proper state to be laded into a tub or cooler. Then it should be forthwith stirred, and that incessantly, with a stirring stick, about three inches broad, until the grain can be felt between the finger and thumb, when it is in a fit state to be poured into moulds. The managing a sugar-works in the West-Indies, and in the refining houses in North America, has been found to require much judgment and experience, to conduct the business to the best advantage; indeed, it seems hardly possible, to communicate to persons who have little knowledge of the matter, and in terms clearly to be understood, full information, as to the different appearances of the syrup, in the time of boiling, and to point out the moment when some material movements or changes ought to be made; nevertheless, from the foregoing hints and directions, which are grounded on observation and experience, it is hoped, much use may be derived, and that from year to year, greater advances and Improvements may be made in this valuable business.

CLAYING or WHITENING the SUGAR:-- To promote the molasses passing more freely from the sugar, when draining in the moulds, and to improve its colour, in two or three days after the moulds are unstopped at the lower end, mix white clay with water, so as to reduce it to a

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thin mortar; with this cover the top of the moulds one inch and a half thick, when this covering appears dry, remove it, and supply the place with a fresh covering

of about two inches thick.

Although it is apprehended the use of clay, as above set forth, particularly in the latter part of the season, will be found beneficial, it may, however, be prudent to continue or decline the practice, according to the effect or use it appears to be of on a careful trial: The quantity of clay must be proportioned to the manner in which the sugar has been boiled; if high boiled, it will require much more clay than if boiled low. It is also thought that the use of clay lessens the quantity of sugar, perhaps one fifth part, and may be more or less according to the knowledge of the person who undertakes the business. And it may be further remarked, that if the quantity of sugar be lessened in weight, by claying, one fifth part, it is not to be concluded that the whole of the fifth part will be eventually lost; there will be more syrup than there otherwise would have been, independent of the water from the clay that passes through the sugar.

MOLASSES and VINEGAR.--When the trees of the second tapping become poor, in quantity and quality, which may be about the tenth of April, or perhaps sooner, then a number of fresh tapped trees will yield a sap, of which may be made good molasses, and also excellent vinegar.

In all sugar plantations, it will be advantageous to cut out the different sorts of timber, which grow intermixed with the sugar Maple, and even those of that species which are not thriving, promising trees. The timber so cut out will serve for fuel for the boilers, and leave greater openings for the rays of the sun to enter, which will have a tendency to improve and enrich the remaining trees. The ground so cleared of all except the maple tree, it has been observed, is particularly favourable for pasture and the growth of grass. ‘Whether this tree is injured or impoverished by repeated tappings,’ is an enquiry to be expected, and has been frequently made, of late, by persons, who have anxiously wished for the success of this business.

It has been before observed, that it will bear much hardship and abuse, and it may be added, that there are instances, particularly among the old settlements on the North River, of trees which have been tapped for fifty years or upwards, and continue to yield their sap in the season, equal to any brought in use of later time; indeed it is asserted, with confidence, by persons who have had some years experience, that these trees, by use, become more

valuable, yielding a sap of a richer quality. How far a careful cultivation of them, the stirring and manuring the soil in which they stand, may improve their value, remains to be ascertained in future, though it may be expected that this, like almost all over trees and plants, may from a natural state be greatly and essentially improved by the hand of art. Experiments, therefore, will not be unworthy the attention of those citizens, situated in the more

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interior parts of the States, if it shall, thereby, be found that these trees can be readily propagated, either from the seed or young plants, and be brought to thrive, so as to be equal in their product, if not superior, to those who have been strewed over the country, without the aid of man. To what an extent of cultivation may not this lead! There will be no risk or disadvantage attending the experiment; and it certainly deserves encouragement.

Remarks on the Manufacturing of Maple Sugar; with Directions for Its Further Improvement recipe from Early Modern Maritime Recipes: https://emmr.lib.unb.ca/recipes/63