HONEY, MAPLE SUGAR AND OTHER FARM PRODUCED SWEETNERS IN THE COLONIAL CHESAPEAKE

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ELIZABETH B. PRYOR

THE NATIONAL COLONIAL FARM

RESEARCH REPORT NO. 19

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Introduction

Sugar was still a luxury when America was discovered. It was brought to Europe by Arab traders, who trucked it over the long caravan routes from tropical Asia and Africa; it was of relatively minor importance on the tables of the rich and seldom tasted by the families of common laborers. Cravings for sweets were satisfied by the use of honey, and, to a lesser extent, fruit sugars. By these means those travelling to the New World had already developed a taste for sweet foods, and a gallon of honey per person was included among the list of necessities which new immigrants were advised to bring with them.[1]

In the American colonies, settlers would have a choice of sweetners. Maple sugar, produced from the sap of the tree, *Acer sacharinum*, was a native source of sugar, widely used by the Indians. The honey locust, another native tree, also produced a sugary substance in its bean pods, which a few early colonists learned to use. Corn stalks, when crushed, yielded a sweet juice similar to that from sugar cane, and by the end of the colonial period, a number of farmers had begun to experiment with this "corn syrup." Cane sugar itself, and its byproduct, molasses, were consumed in

increasing amounts as the development of West Indian sugar plantations made these commodities more readily available. (Indeed as the colonists' taste for sugar increased, it became an important factor in colonial commerce.) Honey, the most familiar sweetening, also remained popular, and in the early period of settlement continued to be the major source of the sugar in colonial diets.

A type of stingless bee, the Meliponinae, was prevalent in the West Indies, and early explorers, such as Columbus and De Soto, found the local Indians collecting honey and wax from them. By the sixteenth century these bees had spread as far north as Florida and Georgia. No native American bees were found in the Chesapeake area at the time of the first colonists' arrival, however.[2] Bees were therefore imported from Europe at an early date. The Virginia Company sent bees to Jamestown in 1621 and they were known to be in New England at about the same time.[3] A Swedish settler recorded in 1654 and 1655 that bees were being imported into Delaware.[4] As late as 1738, agricultural innovators were still bringing in European bees. In that year Peter Collinson sent John Bartram a "Humming bee" from England. Collinson was uncertain whether the

bee made honey, but wanted to see if it would thrive in the American climate.[5] Until the mid-nineteenth century all of the honey-producing bees around the Chesapeake Bay were virtually indistinguishable from the European black bee.[6] That the Indians had no word in their languages for bee, honey, or beeswax was often cited as proof that no native American bee rivalled the European import. Wrote Thomas Anburey: "what I think stands forth a most indubitable proof that it is not (native), the Indians, as they have a word in their language for all animals, natives of the country, have no word for a bee, and therefore they call them by the name of Englishman's fly." Peter Kalm, a botanist who travelled through the colonies in 1748, also relayed this information, as did Thomas Jefferson, who had evidently studied the matter with some interest. "The Indians...," Jefferson wrote in Notes on the State of Virginia, "call them the white man's fly, and consider their approach as indicating the approach of the settlements of the whites."[8]

European bees reacted favorably to the conditions around the Chesapeake Bay. The temperate climate suited them well, and the many flowering plants provided abundant food. Though imported bees were

initially meant for cultivation in hives, they generally escaped into the woods, adapting themselves to the new conditions, and becoming a part of the wild landscape. They spread in this manner throughout the area east of the Appalachian Mountains. In addition, bees were probably sold to new immigrants by Virginians, who did a brisk business in supplying livestock.[9] By 1648 beeswax and honey were abundant in all of the American colonies; by 1660 one author found that nearly every house in New England had one or two hives.[10] Writing from Virgina in the early eighteenth century, Robert Beverley remarked: "Bees thrive there abundantly, and will very easily yield to the careful Huswife a full Hive of Honey, and besides lay up a Winter-store sufficient to preserve their Stocks."[11] Bees seem to have been particularly well adapted to areas which combined the natural advantages of the woods with the orchards and gardens planted by new colonists. "They therefore delight in the neighborhood of the white settlers'," wrote an eighteenth century apiarist, "and are able to increase in numbers, as well as to augment their quantity of stores, by availing themselves of the labour of man."[12] After only a few years in America, the bees had shown that they could "thrive and multiply exceedingly."[13]

So prevalent had the forest bees become that by the late seventeenth century most people could rely on "wild" honey for their sweetening, rather than actively cultivating bees. In 1698, Gabriel Thomas noted that in Delaware "the Sweeds often get great store of (bees) in the woods where they are free for any Body."[14] Bee hunting, or "lining", became a popular pastime. Since it was known that bees fly in a straight line from the source of nectar to the hive, parties of men would station themselves along the flight path and follow the bees to the bee tree. They would then smoke out the bees, and cut down the tree. It was considered a challenging and dangerous sport, as well as a productive activity--a bee tree often produced as much as fifty to seventy-five pounds of honey.[15] Among those who prided themselves on their ability as bee hunters was Pennsylvanian St. Jean de Crevecoeur.[16]

The availabilty of wild honey held back the growth of formal apiculture in the Chesapeake region. Beekeeping also declined after 1670 because of an epidemic of a bacterial disease known as American foulbrood.[17] The small number of hives maintained by Chesapeake farmers after this date is illustrated by inventory records for Prince Georges County, Maryland.

Only three of the estates recorded during the years 1696-1720 included hives.[18] The low percentage of farmers keeping bees is also borne out by the records of the Prerogative Court of Maryland for 1674-1675; about two percent of the inventories contain a reference to apiculture.[19] Toward the latter half of the eighteenth century, however, there seems to have been a minor renaissance in apiculture. Thomas Anburey, travelling through lower Pennsylvania, noted that "almost every farm house has seven or eight (hives)."[20] Inventories for Prince George's County Maryland show that about seven percent of estates over £200 had bee hives--none were recorded for middle or lower class farms--during the years 1747-1758, but that 18 percent over-all could boast hives by 1770.[21] (All of these figures on hives are probably misleading since many farmers kept bees in hollowed logs or decrepit boxes, which would be lumped under the heading "old lumber" or discounted altogether. The predominance of bees among wealthier estates is probably an indication of more elaborate hives, which caught the eye of the executor, rather than a suggestion that only the upper classes kept bees.) The increase in exports of beeswax around the mid-eighteenth century, also points to a revival of apiculture at this time.[22]

The increase in beekeeping at the end of the eighteenth century was at least partly due to the efforts of agriculturalists to diversify the farming activities of the Chesapeake area. For a century and a half the region's farmers had been wedded to the culture of tobacco, a practice that depleted soil fertility, fostered dependence on British merchants, and increasingly relied on slave labor. The cultivation of wheat, root crops, and grasses was advocated during this period, as was diversification into thrifty, but minor areas of husbandry, such as beekeeping.[23] Bees had an additional advantage for the evangelical agricultural reformer, because the insects themselves were industrious, adaptable, and thrifty. Apiculture thus took on a certain moral worth, since, presumably, the introduction of bees to a plantation would inspire and uplift the entire farm family. "The well-known industry of bees, that excellent government which pervades their habitations, that never ceasing industry by which they are actuated, though sung by so many poets, and long since become the subject of so many illusions, metaphors, and the theme of so many orators--yet 'tis a subject ever new," rhapsodized Crevecoeur. An English enthusiast declared that they

were the embodiment of loyalty, hard work, and courage, and concluded, "They have small bodies, but great spirits...."[24] Others emphasized the low cost and small effort that went into beekeeping. "Honey-Bees are worth every person's attention;" advised Richard Parkinson, the owner of a farm near Baltimore, "as their produce arises from a part of the produce of the land which cannot be made profitable by any other means (viz. the blossom of every plant in the meadow, the blossom of every sort of grain, and the flowers in the garden), and might be brought to a very comfortable value...."[25] English authors also urged the colonists to raise bees. Richard Bradley wrote that "they cost nothing to maintain, and prosper exceedingly where they have such Benefits (as flowers); therefore in such places they should not be wanting, for their Wax and Honey amount to a good Value...."[26] For some the advantage of apiculture was simply pleasure; the delight of seeing the bees busily gathering nectar, and the joys of sweetening their food with honey. "My bees," Crevecoeur wrote fondly, "above any other tenants of my farm, attract my attention and respect...."[27]

Apiculture

The earliest settlers obtained their bee colonies from England, but after a few years wild bees were available for any one who wished to start a hive. Some chose to take the bees as they swarmed by luring them into hives with sugar water or sweet-smelling herbs. The majority, however, took the bees directly from bee trees in the woods. Autumn was the traditional time for bee acquistion. St. Jean de Crevecoeur, that avid bee hunter, devised an elaborate and apparently successful method of capturing bees. He used the smell of burnt wax (from a lighted candle) to attract them to a pool of honey, colored with vermillion. The bees marked themselves by steeping in the vermillion, and Crevecoeur could then follow them more easily. Using a compass and watch to pinpoint the exact direction and distance of the hive, he then simply followed the bees and marked the tree for later removal. Crevecoeur admitted, however, that his first bees were "found in the woods, by mere accident; for at that time I had no kind of skill in this method of tracing them."[28] Though parties of men sometimes hunted bees for sport, most colonies were probably acquired by luck or accident.

Providing a hive was the next problem for the neophyte beekeeper. Crevecoeur noted that his first bees were located in the limb of a dead tree, which he sawed off "and with a good deal of labour and industry brought it home...(and) fixed it up again in the same position in which I found it growing."[29] This informal arrangement was the one generally used by farmers, especially on the frontier, where the sawn lumber needed to built hives was scarce. As late as 1798 an Englishman observed that honey-bees were very succesful in America, "the trunk of a hollow tree being usually the hive."[30] Traditional European hives were fashioned of straw, coiled to make a domed structure, but these do not appear to have been common in America. At least one observer "never saw a hive made of straw" in the New World.[31] Late in the colonial period agricultural authors began advocating box hives. These had the advantage of being stackable, with interconnecting tunnels so that the bees could move to a new box when the one was filled with honey. When the farmer wanted to collect honey he could simply remove the full top box and add a new one for the bees. Box hives had an advantage over stump or straw hives because the honey could be removed without destroying the bees; the old

hives had had only one opening, consequently the bees had to be smoked out, which frequently killed or maimed them.[32] John Beale Bordley of Maryland was among those who advocated the box system, as did Richard Parkinson. Parkinson also recommended fitting the top hive with a set of runners along which the farmer could slide a piece of glass. Once in place the farmer could check his hive for vermin, watch the bees at work, and easily determine when the hive was full.[33] One English expert, John Thorley, thought that octagon shaped hives, ten inches on each side, were the most beneficial. Like Parkinson, he recommended that two boxes be placed together, and that the top one be fitted with a glass cover. A passageway four to five inches in length was to be fitted into the bottom hive, and handles attached for easy moving. (It was not until the early nineteenth century, however, that specialists discovered what was to be called bee space and movable frames were added to the inside of the hive.)[34] Thorley, like a number of others, thought the hives should be placed close to the bees' food source, so that they would not tire easily, and could put their energies into honey production.[35] Thomas Tusser, gave these instructions for setting up a hive.

> Set hive on a plank, (not too low by the ground)
> Where herbe with the flowers may compas it round:
> And boordes to defend it from north and north east,
> From showers and rubbish, from vermin and beast.(36)

Once the bees were suitably housed the farmer had little to do to maintain his colony. In the summer the bees were left undisturbed to collect nectar and make and store honey. The honey could be gathered every five or six weeks, as long as the bees were not disturbed, and enough honey was left for them to live on.[37] At the end of the summer the farmer had to secure the hive against the cold winds of winter, and make certain that the bees had food enough to last until spring. The hives were to be set on boards on stilts, and protected by a covering of straw or a windbreak of boards or bushes. Thomas Tusser suggested that the farmer "Place hive in good ayer, set southly and warme."[38] If the bees had not built up a sufficient supply of honey, or the farmer had been a little too greedy in his collection, sugar or honey water was given to the bees. John Thorley advised feeding the bees in October, by mixing honey, water, and salt together, pouring it over a honey comb, then

gently placing it in the hive. Additional feeding, he warned, might have to be made before spring.[39] An unidentified American author gave this recipe for feeding bees:

> Take one, two or more pounds of sugar (just as they stand in need of weight) put to each pound four ounces of water, heat them just sufficiently to make the sugar melt, put into a bladder, to the neck of which tie part of a watering spout....(40)

In the early spring the hives were removed from their stilts and set near the bees' food source, preferably about a yard apart.[41] A noted expert, Daniel Wildman, cautioned the apiarist to avoid setting the hives near plants which would make the honey bitter, such as yew, boxwood, red poppies, or nightshade.[42]

In the late spring or early summer the bees swarmed; this was the time of greatest activity for the beekeeper. Richard Bradley and Crevecoeur mention swarming times as early as April. William Faris, who kept bees in his Annapolis garden, however, was rarely troubled with swarms until late May or early June, and one year his bees did not swarm until July 6. At the time of swarming the colony split, forming new hives, and the apiarist's task was to make certain that at

least one colony remained on the farm. Without skill the bees would be lost, the honey spoiled, or the beeman severely stung. Landon Carter was among those who found that swarming bees were difficult to tame. In 1772 he lost many when his servants neglected to provide clean, attractive hives for them.[43] "Take heede to they bees, that are readie to swarme," wrote Tusser in his suggestions for the month of May

> The loose thereof now is a crownes worth of harme:
> Let skillful be readie and diligence seene,
> Lest being to careless, thou losest thy beene.(44)

The farmer was to watch when the weather became warm and the bees began to cluster at the mouth of the hive. One author advised sticking twigs of fennel or balm in nearby bushes to attract the bees, then catching them in a new hive as they alighted. Others covered the hive itself with herbs and sugar water.[45] Beating a brass kettle was apparently a time-honored method of forcing the bees to land rather than fly away--the noise distracted and confused them. However, one expert thought "the best way is to fire a Pistol, charged with Powder, between them and the Hive, about ten yards behind them, and they will settle upon the

first Bush they can come at." The beekeeper needed to provide a clean hive for each swarm, and was to disturb the bees as little as possible after they settled.[46]

"What a pity it is that creatures, of so great excellency and usefullness to mankind, should have any enemies; but certain it is they have many," wrote bee fancier, John Thorley.[47] He went on to list innumerable pests of the bee, including mice, birds, and spiders. Titmice, sparrows, and swallows were particular predators: "Shoot them or set traps for them," he advised. Mice could best be deterred by making the entrance to the hive too small for a mouse to enter. And spiders, which often caught bees in their webs, were to be crushed, and their webs destroyed. Thorley also warned against wasps and hornets, which would enter the hive and try to steal honey.[48] Another troublesome pest was the bee moth, which laid eggs in the hive. When the larvae hatched, they spun webs which finally encumbered the hive and forced the bees to leave. As with other pests, the farmer had few defenses against the bee moth. The best Wildman could suggest was to inspect the hive each morning and kill any moths or larvae found there.[49]

Crevecoeur found kingbirds to be another enemy of the bee. He once watched one eat 171 bees. He later killed the bird, opened the craw, and took them out, laying them on a cloth in the sun. To his delight fifty-four recovered. They "joyfully went back to their hive," Crevecoeur reported, "where they probably informed their companions of such an adventure and escape as I believe had never happened before to American bees!"[50] Crevecoeur also observed ants stealing honey from his hives. He destroyed them by pouring boiling water into their nest.[51] Cold weather was another hazard for bees. Against this the apiarist had little recourse but to shelter his colonies with a windbreak, and to stop the entrance to the hive in really severe weather. John Beale Bordley found that positioning his hives near the bees' food source saved many of them from perishing in the storms on his Wye Island estate.[52] John Thorley watched his hives carefully, and picked up bees and warmed them in his hands when they became chilled.[53]

Bees, in the colonial period, were also susceptible to a number of bacterial diseases. American and European foulbrood were the most common; both affected the hatching larvae, and eventually

decimating the colony. Colonial farmers had no remedy for this and, indeed, often did not recognize the disease when it occured, but at least one student of colonial apiculture believes that American foulbrood accounted for the decline in beekeeping after 1670.[54]

A final destructive element were the bees themselves. The European black bee--the type imported into America--was a feisty animal, which swarmed easily, and often fought with rival hives, with which they competed for food. Occasionally bees would also enter neighboring hives and steal honey. One author claimed that the bees generally fought in August and recommended breaking up the swirling masses with a pistol.[55] Another recommended that marauding bees be shooed away, while those defending their hive be aroused to attack by waving stinking madder in the air.[56] All authors recommended placing hives at intervals, and refraining from over-populating any one area.

Produce of the Hive

The chief product of the apiary was, of course, honey. It had obvious culinary uses--as an ingredient in cakes, breads, and other desserts, or served plain

in beverages or on biscuits or cornbread. It could also be used to preserve fruits and make jam. Its syrup-like consistency and pleasing flavor also made it a favorite ingredient in medicines. The Virginia Almanack for 1768 included it in recipes for coughs and consumption, and claimed that it was an integral part of a cure for the ill-effects of drinking cold water when one was hot. The following year the Almanack suggested spreading honey on boils to relieve the itching and swelling.[57] Occasionally farmers also used honey to make mead or metheglin. One recipe from the colonial period recommended this method of making mead.

> Take eight Gallons of Water, and as much Honey as will make it bear an Egg; add to this the Rind of six Lemmons, and boil it well, scumming it carefully as it rises. When 'tis off the Fire, put to it the juice of the six Lemmons, and pour it into a clean Tub, or open earthen Vessel, if you have one large enough, to work three Days; then scum it well, and pour off the clear into the Cask, and let it stand open till it has done making a hissing Noise; after which, stop it up close, and in three months time it will be fine, and fit for bottling.(58)

St. Jean de Crevecoeur was among those who made mead, especially when he wanted to preserve the windfall of a large bee tree. He thought that his mead had a

superior flavor because his wife put "two gallons of brandy in each barrel, which ripens it, and takes off that sweet, luscious taste, which is apt to retain a long time."[59]

Wax was another by-product of bee-keeping. Its chief use was for candle-making, though it also served an occasional purpose such as sealing corks, lubricating quilting needles, or sealing jars of preserves. Sometimes it showed up as an ingredient in poultices, or as a salve for burns.[60] Both candles and medicines required a very pure wax, obtained by an elaborate method. The first step was to sort the combs, setting aside those which still held young bees, or bee bread, or were infested with insects. These did not produce high quality wax and were generally discarded. The remaining combs were placed on a coarse cloth over a container so that the honey would drain off. The empty combs were then put into a copper kettle filled with clean water; the whole was brought to the boil and simmered until the wax had melted. The mixture was run through coarse cloths or bags, which caught the wax, and allowed the water to drain off, then put into a press to complete the separation of the wax. Sometimes the wax was boiled and pressed several times to produce a very fine, clean wax.[61]

Both wax and honey were minor commercial articles during the colonial period. In 1698 Gabriel Thomas noted that these products were sold in the market places of Philadelphia, and that wax, especially, enjoyed "a considerable Commerce."[62] Fifty years later Peter Kalm also noted the trade in bee products, stating that honey was sold for home use, while wax was generally purchased by tradesmen.[63] Large plantation owners, in need of wax for candles, or as a lubricant, also bought the surplus from farmers who kept bees; George Washington, for example, purchased a large quantity from a Maryland farmer in 1760.[64] Around the mid-eighteenth century small quantities of honey and beeswax were exported from the Chesapeake region. In 1730 Virginia exported 156 quintals, and in 1743 there was an annual shipment of about four tons of beeswax.[65] The price of these commodities seems to have fluctuated according to year and region. Around 1794 beeswax sold for twenty-five to twenty-six cents per pound in Philadelphia.[66] Honey cost generally between five and fifteen pence per pound, though in the late eighteenth century Richard Parkinson saw some which sold for three shillings a pound.[67]

Maple Sugar

Maple sugar, another home manufacture, was an alternative to honey or expensive imported sugar. Native to America, the Acer sacharinum, or sugar maple tree, grew wild throughout the Chesapeake area, especially in the mountains and northern section of the region. It had long been a source of sweetening for the Indians. In the early spring the trees produced a watery sap which could be condensed to make a thick, sweet syrup, or granular sugar. The Indians had gashed the trees when the sap began to rise, collected the liquid in gourds or bark troughs, and evaporated it by freezing and removing the water ice, or dropping hot stones into the sap and boiling off the excess liquid.[68] They boiled most of the sap until it became sugar, which they packed into rush baskets and carried with them on journeys. "A few spoonfuls in water," wrote a visitor to Pennsylvania, "afford them a pleasant and strengthing meal."[69]

It was from the Indians that the first white immigrants learned to use the sap of the sugar maple. From the earliest days of colonization the trees were considered a chief advantage of the New World. The sugar maple was the "gift of...a benevolent

Providence," wrote one enthusiast, who admitted that he viewed the tree "with a species of affection and even veneration."[70] William Eddis, travelling through Maryland, saw the presence of the sugar maple as proof that the American colonies were blessed with the ability to provide themselves not only with the necessities, but the luxuries of life.

> Even sugar, of a tolerable quality, they will be able to manufacuture without application to the British Islands. A planter at whose house I partook of some refreshment produced a Quantity of that capital luxury, the grain of which was tolerable and the taste not disagreeable. This he assured me, was the produce of his own possessions, extracted by incision from a tree, great numbers of which grow throughout the interior regions of the American provinces. The simple process of boiling brought the luscious liquid to a proper consistancy; and he was persuaded, whenever more important concerns would permit a necessary attention to this article, the inhabitants of the British colonies would be amply supplied from their own inexhaustable resources.(71)

Demanding European travellers noted that though the sugar was often "somewhat dirty and viscous" it could be refined to make a very palatable product.[72] Robert Beverely, after a thorough examination of the region's maple products, pronounced them "bright and

moist, with a large full Grain; the Sweetness of it being like that of good Muscovada." But, with a note of disappointment, he went on to mention that only scanty use was made of this resource.[73]

Like honey, the production of maple sugar was often extolled for its embodiment of a number of moral virtues. It represented thrift (for it cost nothing to make and required only a few weeks of work) and that most prized of American traits--self-sufficiency. Toward the end of the eighteenth century, when dependence on foreign commerce was held in disdain by prominent agriculturalists, there was an active movement to encourage farmers to produce their own sugar. Maple products were easily obtainable by "frugal" farm families, declared one treatise; it could be made at a time of year (February and early March) when there was little other work to be done on the farm, and sugaring required very little equipment beyond that used in other household tasks such as soap-making or cider production.[74] John Beale Bordley thought every farm should have grove of sugar maples, both for the sugar they would produce and because they were an attractive addition to the farm scenery. "The sugar-maple is a handsome clean tree, which gives a deep shade," he wrote

> a grove of them, two or three acres, would give comfortable shady walks, and sugar for family use; the making whereof would require but a short time, and be an entertaining harvest. The trees 30 feet apart, are 48 on an acre; which at a low reckoning would yield 200 lb. of sugar an acre. Two acres yielding 400 lb. would pay an annual rent of 30 or 40 Dollars an acre, deducting only a trifle, not so much for labour as for short attention in the leisure month of February.(75)

The method used by colonists to make maple sugar differed only in detail from that used by the Indians. Sap started rising in February at a time when the snow began to melt and the days started to lengthen. Ideal "sugar weather" featured sunny days which thawed the ground, and frosty nights which froze it again. As soon as the snow began to melt the farmer cut a gash, or bored a hole in the sugar maples. Towards the end of the period the latter method was favored; one expert recommended that a 3/4 inch auger be used for the job. The gash or hole was to cut no more than two inches into the trunk, and was to be made, preferably, on the south side of the tree.[76] A trough was set under the gash, if this method was used; when holes were drilled the farmer fitted them with small spouts, which dripped either into pails, or troughs. All of these implements

were to be made of wood which was firm but tasteless--for the sap easily picked up odor or flavor. Benjamin Rush suggested maple, ash, linden, or aspen for pails and troughs, or sumac for the spouts; Crevecoeur used elder.[77] Basswood spouts and butternut troughs were also used.[78] The sap was then collected each day, for syrup and sugar could not be made from sap more than twenty-four hours old.[79]

Rush estimated that it took five gallons of sap to produce one pint of syrup, or twenty to thirty gallons of sap for five or six pounds of sugar.[80] Several methods of reducing the sap were available. The first was a system by which the sap was continually allowed to freeze, and the frozen water was removed until a concentrated syrup remained. A second was spontaneous evaporation, a method largely discounted because it was time consuming, and produced an inferior quality of syrup. The preferred method was to boil the sap. Both Rush and Peter Kalm, who observed sugar-making all over the United States, thought copper kettles were best for boiling the sap; "a copper vessel affords a sugar of a fairer colour than an iron vessel," wrote Rush.[81] The sap was strained into the kettles, through a blanket or cloth to eliminate twigs, leaves, and other debris, and set to boiling rapidly. A number of authors advised adding butter, lard, or tallow to keep the sap from

boiling over. Others suggested that lime, lye, or eggs be added to clarify the sugar and insure a fine texture. One author advised using a heaping spoonful of slaked lime for six quarts of sap. Another thought that "a spoonful of slaked lime, the white of one egg, and a pint of new milk are the usual proportions of these articles which are mixed with fifteen gallons of sap." The sap was then cooked until it could no longer easily be stirred; it was removed from the fire, stirred until it began to grain, then quickly poured into molds, pails, or bowls to harden into sugar. When the run of sap was over, the holes in the trees were plugged with pegs made of the same wood.[83]

In 1748 Peter Kalm observed Americans in Pennsylvania making maple sugar. Those who only made their sugar casually generally followed the method given above, but Kalm observed a number who took great care in the production. His description of the colonial method of "sugaring off" is one of the best in existence.

> Others who wish to be more particular in cooking sugar use the following method. The cooking of sugar begins when enough sap has been collected. There are usually many kettles, one of which is larger and contains the wort which is being cooked. Fresh sap is put into the other kettles and allowed to cook until it has boiled down to half of

the originial quantity or less. It is then poured, as hot as it is, into the large kettle containing the more concentrated wort. The large kettle remains on the fire, cooking all the time until the wort becomes quite thick and then special care must be taken not to add cold sap. The sap and wort are cooked together until they become quite thick. There are two ways to judge if the sap and wort are sufficiently cooked to form sugar. First, while the wort cooks there is usually a heavy scum on it, as long as the sucm shows the wort is not sufficiently cooked; the more nearly it is cooked the smaller the amount of scum on the wort. The second method of testing is to take a spoon of the wort and allow it to cool in order to see if it thickens and turns to sugar. If it does not harden, it has not been cooked long enough. It is said that those accustomed to the process can easily judge when cooking and thickness are sufficient, but it is not as simple to learn from description and directions as from experience.

When the proper thickness has been reached, the kettle is taken from the fire, set on the coals, and stirred rapidly to prevent the wort from burning, and the sugar from sticking to the kettle. The stirring is continued until the wort gets so thick that it begins to be like flour. The kettle is then put in a cold place. The sugar obtained by this method is like the brown flour-like sugar or muscovado.

If cakes or solid pieces are desired, the stirring in the kettle is not continued until the sugar becomes flour-like. Instead, while the substance is quite liquid, it is poured into shells or other vessels, depending on the shape desired, and allowed to cool.(84)

Because the sap could not be stored, boiling took place every day of the season, which lasted from four to six weeks. Every year the sap was different; trees of equal size standing next to each other produced varying amounts of sap, and weather conditions could greatly influence both the quantity and quality of the sugar. Prudent farmers took care to tap only trees large enough to spare the sap--usually ten inches or more in diameter--and to cut but a few holes in the outer growth ring. A disadvantage of the Indian method of gashing the trunk was that the tree often died after a few years. Older trees did not always give more sap. It was thought that those growing on stony or mountainous land produced sap that was sweeter.[85]

Just how many colonists in the Chesapeake area followed this method to produce their own sugar is difficult to tell. Johann Schoepf noted that the sugar maple was "largely used by the people of these parts because the carriage makes the customary sugar too dear for them...."[86] Peter Kalm thought that, at least in Pennsylvania, the trees were prevalent; the average farmer, he wrote, had twenty to forty for his own use.[87] Yet Robert Beverely wrote that, in Virginia, the number of people who made maple sugar was

insignificant. "The Woods produce great Variety of...Trees bearing Honey and Sugar as before mentioned," he wrote, "yet there's no Use made of any of them either for Profit or Refreshment."[88] Probably the practice was most common in mountainous regions, where the sugar maple was common and imported sugar was difficult to obtain, or in areas where self-sufficiency and thrift were highly prized, as among the Germans of Pennsylvania and Maryland.

Most of the maple sap was reduced to sugar, though a bit was kept for making syrup. "Whenever sugar is made, some syrup usually remains," Peter Kalm remarked. "The last sap collected is usually quite thin and is used in the making of syrup."[89] Kalm also reported that the syrup was chiefly used, mixed with water, as a drink. It was also occasionally employed in making confections and in preserving fruits.[90] Maple sugar was interchangeable with cane sugar in many recipes for cakes and pies, and in 1776 the Pennsylvania Evening Post called for it in a recipe for curing meat.[91] Both maple syrup and sugar were considered healthful, especially when diluted with water and taken as a tonic.[92] The sap was also considered a base for vinegar and for a mild beer; one author even suggested

that, if distilled, it would produce good spirits.[93] Most maple sugar, however, seems to have been eaten either plain, as a kind of candy, or spread on bread. In 1778 Jonathan Carver wrote that "even when they consume the sugar which they have extracted from the maple trees, they use it not to render some other food palatable, but generally eat it by itself."[94] His observation is borne out by the fact that Amelia Simmons, a student of early American cookery, did not include any recipes specifically calling for maple sugar in her volume, American Cookery.[95]

In general, maple sugar was produced only for home consumption; commercial transactions were rare. Toward the end of the eighteenth century, however, a number of societies were organized to promote the large-scale cultivation of maple trees for the production of maple sugar. The advocates of this plan saw a number of benefits: independence from the cane sugar trade, which was controlled by Europeans; the boycott of a product produced by slave labor in its ugliest form; and the expansion of diversified agriculture in the middle Atlantic region. Men in both New York and Pennsylvania encouraged farmers to plant at least 150 trees, and one group, the Holland Land Company, purchased 10,000 acres of land on which to start a maple sugar industry. In Philadelphia, Benjamin Rush

called for government protection of the sugar maple, and conducted experiments to prove that maple sugar was as sweet as cane sugar.[96] The farmer's preoccupation with staple crops, and the rapid advance of the cane sugar industry at this time, however, kept the dreams of a major maple sugar industry from materializing. Individuals like William Cooper, who sold six hundred and forty pounds of sugar for sixteen pounds in 1790, remained rare entrepreneurs in the seventeenth and eighteenth centuries.[97]

Other Sweetners

Several other minor sources of sugar were avaiable to the colonial farmer. Among these was a sweetish paste found in the pod of the honey locust tree (*Gleditsia triacanthos*). Early explorers had noted that the Native Americans extracted the paste, then dried the pod and powdered it. They used it to "sweeten parched corn and to make a sweet drink...."[98] Around 1700 John Lawson encountered the tree in North Carolina, and mentioned that mead was sometimes made from the paste, "there being Orchards planted in *Virginia* for that intent."[99] Robert Beverley also made note of the tree, which he found growing near the head of the rivers and which he likened to the tropical carob tree.[100] As late as 1785 George Washington was

utilizing the honey locust for food. In October of that year he reported the following in his diary: "Finding the Seeds of the Honey locust had come nearly, or quite to a state of maturity, although the thick part of the pod still retained its green colour, I had them gathered, lest when ripe they should be gathered by others to eat."[101]

Corn stalks were another source of sweetening. John Lawson noted in 1700 that "the Stalks bruis'd and boil'd, make very pleasant Beer, being sweet like the Sugar Cane."[102] In 1775 Landon Carter, a curious farmer living in Virginia, experimented with making corn syrup. He found that a foot of stalk produced nearly a cup of juice, but was dissatisfied with his efforts to reduce it to a viscous syrup. He thought that boiling it down to one-seventh of its originial volume would perhaps bring it to the right consistency, but he seems to have been only partially successful in his attempts to do so. "I do know we can get a large quantity of juice from them, "Carter wrote after a week of experimentation with the stalks; "but can't say whether it has particles of Saccharine nature strong enough to bring it to a Syrup. And yet I was at the boiling some that did make a tawny Syrup."[103] (See

Appendix). Carter soon gave up his efforts, and most others used the stalks and leaves of their corn for fodder rather than trouble to extract the rich syrup.

None of these products, either singly, or in tandem, ever eliminated the importation of sugar and molasses. Sugar ranked with wine, and textiles as one of the most important items imported from abroad during the colonial period.[104] After the beginning of the West Indian sugar trade (at the end of the seventeeth century), and the development of a similar industry in Louisiana about 1720, sugar and molasses became cheaper to buy in Pennsylvania than in England.[105] Nonetheless, they were still dear. For the average farmer molasses was the staple; a traveler in Maryland remarked that in general people subsisted on "Water, mush, milk or Molasses, Hominie, fish, and wild fowl."[106] Even strong, coarse molasses was not cheap, but it was far more affordable for the average farmer than refined sugar. In 1766 rough brown sugar cost a shilling per pound in Piscataway, Maryland--by comparison a broad hoe cost only eleven pence, and a woman's satin hat sold for nine shillings, six pence.[107] In 1772 Landon Carter paid two shillings per pound for brown sugar.[108] White or loaf sugar, sold in

tall compact cones, was considerably more; it cost up to fifty cents per pound in 1792. (By comparison molasses cost only thirty-three cents per gallon in 1794.)[109] Though on large plantations, farmers such as George Washington had a "great and constant" demand for sugar, for most it remained a luxury.[110] Less than ten percent of those trading with the firm of John Glassford and Company in Piscataway, Maryland could afford to buy sugar during the year 1766. What was bought was used for company or on special occasions. Thus honey, maple sugar, and other homemade products, combined with molasses, remained the dominant sweetners in the Chesapeake area.[111]

Footnotes

[1] See Reay Tannhill, Food in History (New York: Stein and Day, 1973), p. 263; Ferdinand Braudel, The Structures of Everyday Life (New York: Harper and Row, 1981), pp. 224-227; and "A Relation of Maryland, 1635," in Clayton Colman Hall, ed., Narratives of Early Maryland, 1633-1684 (New York: Charles Scribner's Sons, 1910), pp. 97-98.

[2] See Eric V. Nelson, "History of Beekeeping in the United States," in U.S. Department of Agriculture, Beekeeping in the United States (Washington, D.C.: Government Printing Office, 1967), pp. 2-3; and Jeremy Belknap, "On the Question, Whether the Honey-bee is a Native of America?", in A Discourse Intended to Commemorate the Discovery of America by Christopher Columbus (Boston: Belknap and Hall, 1792), pp. 118-120.

[3] Lewis Cecil Gray, History of Agriculture in the Southern States to 1860 (Gloucester, Mass.: Peter Smith, 1958), I, p. 28; and Frank Chapman Pellett, History of American Beekeeping (Ames, Iowa: Collegiate Press, Inc., 1938), pp. 2-3.

[4] Amandus Johnson, The Swedish Settlements on the Delaware (New York: Burt Franklin, 1970), p. 536n.

[5] Peter Collinson to John Bartram, May 2, 1738, in William Darlington, Memorials of John Bartram and Humphrey Marshall (Philadelphia: Lindsay and Blakiston, 1849), p. 118.

[6] Nelson, "History", p. 3; and Pellett, American Beekeeping, p. 1.

[7] Thomas Anburey, Travels Through the Interior Parts of North America (New York: The New York Times and Arno Press, 1969), II, p. 282.

[8] Peter Kalm, Peter Kalm's Travels in North America, edited by Adolph B. Benson (New York: Wilson-Erickson, Inc., 1937), II, pp. 151-152; and Thomas Jefferson, Notes on the State of Virginia, edited by William Peden (Chapel Hill: University of North Carolina Press, 1955), pp. 71-72.

[9] Lyman Carrier, The Beginnings of Agriculture in America (New York: McGraw-Hill Book Company, 1923), pp. 258-259; and Dewey M. Caron, "The Art of Beekeeping in Maryland--Past and Present," Associates NAL Today, I, No. 3, p. 37.

[10] Nelson, "History", p. 2; and Pellett, American Beekeeping, pp. 2-3.

[11] Robert Beverley, The History of Virginia in Four Parts (London: 1722), p. 282.

[12] Belknap, "On the Question," p. 121.

[13] Gabriel Thomas quoted in Percy W. Bidwell and John I. Falconer, History of Agriculture in the Northern United States, 1620-1860 (New York: Peter Smith, 1941), p. 32.

[14] Ibid.

[15] Stevenson W. Fletcher, Pennsylvania Agriculture and Country Life, 1640-1840 (Harrisburg: Pennsylvania Historical and Museum Commission, 1950), p. 407.

[16] St. Jean de Crevecoeur, Letters from an American Farmer (New York: Doubleday and Company, 1963), p. 36-38.

[17] Nelson, "History", p. 2.

[18] Inventories for Prince Geroge's County, Maryland, Liber BB1 (1696-1720), Maryland Hall of Records, Annapolis, Maryland (hereafter cited MHR).

[19] Prerogative Court Records, 1674-1675, Liber I, MHR.

[20] Anburey, Travels, II, p. 282.

[21] Inventories for Prince George's County, Liber DD2 (1747-1754), and SS1 (1755-1759), MHR.

[22] Gray, History of Agriculture, p. 208.

[23] See, e.g. John Beale Bordley, Essays and Notes on Husbandry and Rural Affairs (Philadelphia: Thomas Dobson, 1799).

[24] St. Jean de Crevecoeur, Sketches of Eighteenth Century America, edited by Henri L. Bourdin, Ralph H. Gabriel, and Stanley T. Williams (New Haven: Yale University Press, 1925), pp. 54-55; and John Thorley, An Enquiry into the Nature, Order and Government of Bees (London: J. Johnson, 1772), pp. 1-31; quotation, p. 20.

[25] Richard Parkinson, The Experienced Farmer (Philadelphia: Charles Cist, 1799), II, p. 289.

[26] Richard Bradley, The Country Gentleman and Farmer's Monthly Director (London: Woolman and Lyon, 1727), p. 20; and Crevecoeur, Letter, p. 32.

[27] Ibid., pp. 36-37.

[28] Ibid., p. 37.

[29] Parkinson, A Tour in America in 1798, 1799, and 1800 (London: 1805), II, p. 359.

[30] Ibid.

[31] Bradley, Country Gentleman, pp. 20-21.

[32] Bordley, Essays and Notes, pp. 96-97; and Parkinson, Experienced Farmer, II, p. 291.

[33] Thorley, Government of Bees, pp. 141-143.

[34] Ibid., p. 142; also Parkinson, Experienced Farmer, II, pp. 289-290.

[35] Thomas Tusser, Five Hundred Pointes of Good Husbandrie (London: English Dialect Society, 1878), p. 40.

[36] Thorley, Government of Bees, p. 141.

[37] Tusser, Five Hundred Pointes, p. 40; and also ibid., p. 123.

[38] Thorley, Government of Bees, p. 121.

[39] Untitled clipping in copy of Parkinson, Experienced Farmer, Rare Book Division, Library of Congress.

[41] Thorley, Government of Bees, p. 123.

[42] Daniel Wildman, A Complete Guide for the Management of Bees Throughout the Year (London: 1780), p. 26.

[43] Bradley, Country Gentleman, p. 85; Crevecoeur, Letters, p. 37; William Faris Diary, June 5, 1795, May 31, 1796, July 6, 1796, June 6, 1798, Maryland Historical Society, Baltimore, Maryland; and Jack P. Greene, ed. The Diary of Colonel Landon Carter of Sabine Hall 1752-1778 (Charlottesville: University Press, Virginia, 1965), p. 696.

[44] Tusser, Five Hundred Pointes, p. 114.

[45] Bradley, Country Gentleman, p. 85; and Greene, ed., Landon Carter, p. 696.

[46] Ibid.

[47] Thorley, Government of Bees, p. 131.

[48] Ibid., p. 131-135.

[49] Wildman, Complete Guide, p. 36.

[50] Crevecoeur, Letters, pp. 32-33.

[51] Crevecoeur, Sketches, pp. 119-120.

[52] Bordley, Essays and Notes, p. 97.

[53] Thorley, Government of Bees, p. 135.

[54] Nelson, "History", pp. 2, 86.

[55] Bradley, Country Gentleman, p. 142.

[56] Thorley, Government of Bees, p. 128.

[57] Virginia Almanack, 1768, 1769, copies in George Washington Papers, Library of Congress.

[58] Richard Bradley, The Country Housewife and Lady's Director (London: Woolman and Lyon, 1727), p. 136.

[59] Crevecoeur, Letters, pp. 37-38.

[60] Virginia Almanack, 1769, Washington Papers.

[61] Wildman, Complete Guide, pp. 31-32.

[62] Thomas quoted in Bidwell and Falconer, Agriculture in Northern States, p. 32.

[63] Kalm, Travels, II, p. 151.

[64] John C. Fitzpatrick, ed., The Diaries of George Washington (Boston: Houghton-Mifflin, 1925), I, p. 134.

[65] Gray, Agriculture in the Southern States, I, p. 208.

[66] Thomas Cooper, Some Information Respecting America (New York: Augustus M. Kelley, 1969), p. 155.

[67] Bidwell and Falconer, Agriculture in the Northern States, p. 32; Parkinson, A Tour, II, p. 359; and Parkinson, Experienced Farmer, II, p. 292.

[68] John Lawson, A New Voyage to Carolina, edited by Hugh Talmadge Lefler (Chapel Hill: The University of North Carolina Press, 1967), pp. 110-111; and Frank Greenwood, Maple Sugar and Syrup (New York: privately printed, 1946), pp. 12-13.

[69] Benjamin Rush, An Account of the Sugar Maple Tree of the United States (Philadelphia: R. Aitken and Son, 1792), p. 11.

[70] Ibid., pp. 6, 13.

[71] William Eddis, Letters from America, edited by Aubrey C. Land (Cambridge, Mass.: Belknap Press, 1969), pp. 67-68.

[72] Johann Schoepf quoted in H.A Schuette and Sybil C. Schuette, "Maple Sugar: A Bibliography of Early Records," Transactions of the Wisconsin Academy of Sciences, Arts, and Letters, Vol. XXIX, p. 220; also Ester Louise Larsen, translator, "Peter Kalm's Description of How Sugar is Made from Vaarious Types of Trees in North America," Agriculture History, Vol. XIII, p. 155.

[73] Beverley, History of Virginia, pp. 118, 282.

[74] Rush, Sugar Maple Tree, pp. 8, 9.

[75] Bordley, Essays and Notes, pp. 5-6.

[76] Rush, Sugar Maple Tree, pp. 5-6; Fletcher, Pennsylvania Agriculture, pp. 332-333; Larsen, trans., "Peter Kalm's Description," p. 153; and Crevecoeur, Sketches, p. 98.

[77] Rush, Sugar Maple Tree, pp. 5-6; Crevecoeur, Sketches, p. 98.

[78] Fletcher, Pennsylvania Agriculture, pp. 332-333.

[79] Rush, Sugar Maple Tree, p. 7.

[80] Ibid., p. 4.

[81] Ibid., p. 7; and Lawson, trans., "Peter Kalm's Description," p. 153.

[82] Rush, Sugar Maple Tree, pp. 7-8; and Schuette and Schuette, "Maple Sugar:; A Bibliography", p. 220.

[83] Lawson, trans., "Peter Kalm's Description," p. 153; and Crevecoeur, Sketches, p. 99.

[84] Ibid.

[85] Ibid., p. 154.

[86] Schoepf quoted in Schuette and Schuette, "Maple Sugar: A Bibliography," p. 220.

[87] Kalm, Travels, p. 156.

[88] Beverley, History of Virginia, p. 282.

[89] Larsen, trans., "Peter Kalm's Description," p. 156.

[90] Ibid.

[91] Recipe from Pennsylvania Evening Post in Jack P. Greene, ed., The Diary of Colonel Landon Carter of Sabine Hall 1752-1778 (Charlottesville: University Press of Virginia, 1965), p. 1069.

[92] See Larsen, trans., "Peter Kalm's Description," pp. 155, 156.

[93] Richard Croom Beatty and William J. Mulloy, eds., William Byrd's Natural History of Virginia (Richmond: The Dietz Press, 1940), p. 35.

[94] Jonathan Carver quoted in Schuette and Schuette, "Maple Sugar: A Bibliography," p. 218; also Larsen, trans., "Peter Kalm's Description," p. 155.

[95] Amelia Simmons, American Cookery (Grand Rapids: William B. Eerdmans, 1965).

[96] Fletcher, Pennsylvania Agriculture, pp. 334-335; and Rush, Sugar Maple Tree, p. 12.

[97] Fletcher, Pennsylvania Agriculture, pp. 335; and Schuette and Schuette, "Maple Sugar: A Bibliography," p. 221.

[98] Beverely, History of Virginia, pp. 284-285.

[99] Lawson, New Voyage, pp. 104.

[100] Beverley, History of Virginia, p. 118.

[101] Fitzpatrick, ed., Diaries of George Washington, II, p. 428.

[102] Lawson, New Voyage, p. 81.

[103] Greene, ed., Landon Carter, pp. 921, 922, 927.

[104] See Lawson, New Voyage, p. 70; and George Alsop, "A Character of the Province of Maryland, 1666," in Hall, ed., Narratives, p. 364.

[105] Carl Carmer, ed., American Husbandry (New York: Columbia University Press, 1939), p. 133; and Fletcher, Pennsylvania Agriculture, p. 406.

[106] "Eighteenth Century Maryland as Portrayed in the "Itinerant Observations of Edward Kimber," Maryland Historical Magazine, LI, p. 324.

[107] John Glassford and Company Papers, Piscataway, Maryland Ledger, 1766, p. 18, Library of Congress.

[108] Greene, ed., Landon Carter, p. 672.

[109] Fletcher, Pennsylvania Agriculture, p. 406; and Cooper, Some Information, pp. 153-154.

[110] Fitzpatrick, ed., Writings, XXIX, p. 112.

[111] Glassford Papers, Piscataway, Maryland Ledger, 1766, LC.

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