

NATURE'S

Grapevine

WASHINGTON CROSSING STATE PARK, NJ

Winter 2008

The History of Maple Sugaring

By Lauren Seiler

The Legend

When I was first introduced to the art and history of maple sugaring, I was told an old Native American legend about its discovery. As the legend goes, a Native American chief, Woksis, went hunting one morning in early March. He yanked his tomahawk from the tree where he had thrust it the night before and went out for the day. The weather turned warm and sunny as the day went on, and sap began to flow from the gash his tomahawk had made in the tree. The sap dripped into a container that was sitting at the base of the tree.

When Woksis' wife, Mogwa, was preparing dinner, she noticed the container full of sap. She tasted the sap and decided to use it when she prepared that night's meal to save herself a trip to fetch water. When Woksis returned, he said it was the best meal he ever tasted. Thus, says the legend, the practice of maple sugaring was discovered.

There are many versions of this old Iroquois legend, and as with all legends, the amount of truth in it has been forgotten over the years. Some historians believe that it was more likely the Native Americans discovered the sweetness of the sugar maple tree by eating "sapsicles," the frozen maple sap formed at the end of a broken twig. Regardless, it is well known that the Native Americans were knowledgeable in the ways of maple sugaring long before settlers arrived in North America.



Christine Cambrook

Maple sugaring is a whimsical activity that evokes strong images of goneby eras. Here, the author (left) and another volunteer re-enact an 18th century technique of maple syrup production over an open cast iron kettle.

The Native American Method

To collect sugar maple sap, Native Americans would simply cut a V-shaped groove into the trunks of maple trees and let the sap drip down into a container. Since the Native Americans had no metal tools, they used only wooden troughs or bowls and pottery made out of clay for their processing.



The Native Americans first learned that sugar could be extracted from maple trees. Sap would have been boiled by adding hot rocks to a ceramic vessel or a dugout log similar to the one shown above.

In the early days, maple sap was boiled down into solid maple sugar more often than syrup, which is more common today. This is because there were no easy ways for the Native Americans and early settlers to store syrup as a liquid. Hardened and dry however, maple sugar was easily stored for later use and because it didn't require refrigeration. From the journals of early New England explorers, we have learned that there were three types of maple products made by the Native Americans: "grain sugar," a coarse granulated sugar (similar to what we know as brown sugar); "cake sugar," which is sugar poured into wooden molds and formed into hard cakes or blocks; and "wax sugar," which was made by pouring thick syrup over snow. This "wax sugar" is still known and enjoyed today as "sugar on snow."

There are two common methods the Native Americans used to make maple sugar. In one method, they would pour maple sap into a large container (possibly a hollowed out log, or clay bowl) and heat large rocks in an open fire. When the rocks were hot enough, the Native Americans would pick the rocks up with green sticks and put them into the raw sap to make it



steam. In this way, water would evaporate out of the sap and the sap would slowly condense and become concentrated. When the sap had thickened enough, the liquid sugar was manipulated to make the three different maple products: it was poured over snow to produce the sweet “wax sugar” treat, stirred until it began to crystallize and poured into wooden molds, or the sap was stirred until it crystallized into a coarse sugar.

The other common Native American processing method was partial freezing. In this method, a trough or container of maple sap would be left out in the cold. Some of the water in the sap would freeze on the surface of the liquid, and in the morning, this ice would be discarded. The remaining liquid would be allowed to freeze again, and the process repeated until only a thick, sweet liquid remained. This sweet liquid would then be manipulated with the methods mentioned above.

The Early Settlers

When the colonists came to America, the Native Americans taught them how to procure maple sugar from the indigenous sugar maple trees. Soon thereafter, the settlers adapted their metal tools and cookware to the practice and developed their own specialized maple sugaring techniques.

As early as 1790, it was suggested that cutting into the bark of sugar maple trees to obtain sap could be detrimental to the health of the trees. Therefore, the settlers started to drill half-inch holes with augers into the trees and insert a spile to allow the sap to run out. The early spiles were made of short soft wood branches that had a soft center (commonly sumac). One end of the wood spile was whittled away, leaving something akin to a point, and the opposite end of the spile was carved like a spout. The soft center of the spile was pushed out or burned away using hot metal rods. Then the spile was inserted (point-first) into a drilled hole in the trunk of a tree. Sap flowed through the spile and into a collecting container.



A homemade sumac spile crafted and photographed by the author

With the colonists came iron and copper kettles, and these new tools were then used for maple sugaring. One of the earliest methods that the colonists used to boil sap involved hanging a large kettle over an open flame (usually outdoors). This apparatus was used to boil down a single batch of sap into maple syrup or sugar. This was an extremely time consuming method, as the single kettle had to be constantly stirred and looked after to

avoid burning the sap.

Later, the three-kettle method was developed. Similar to the single kettle method, the three-kettle method involved a long, open fire and a lot of attention. Three different sized kettles were arranged – big to small – over an open flame. The sap was added to the biggest kettle, and after it condensed a certain amount, it was poured into the smaller kettle next to it and a new batch was added to the big kettle. The sap was moved to a smaller and smaller kettle as it condensed, and this method allowed a single person or family to create three batches of maple syrup or sugar in the time it used to take to make one.

I was introduced to a clever technique called “the lazy man’s balance” in my experience of maple sugaring history. In this method, a wooden pole was placed vertically into the ground near a fire pit. A second pole was balanced horizontally across the flattened or hinged top of the first pole (forming a “T”). A kettle of sugar maple sap was suspended from one end of the horizontal pole, and the other end was counterweighted with rocks or a bundle of firewood. The whole apparatus resembled a large balance scale or teeter-totter, with the bundle and kettle situated on either end of the horizontal pole and the horizontal pole was balanced across the top of the vertical pole. The settlers would light a fire under the kettle of maple sap. As water evaporated from the boiling sap and the kettle became lighter, the balance of the apparatus would shift in favor of the counterweights, and the kettle would slowly be lifted away from the fire to prevent burning. In theory, this method allowed the maple sugar maker to be less attentive to the kettle as he or she attended to other maple sugaring tasks.

Since the Early Days

Over the next two hundred years or so, maple sugaring evolved with the changing way of life in the new colonies. In the mid-1800’s, metal spiles, metal buckets, and metal tanks became available for sap collection and storage. For boiling, large metal pans soon replaced the three-kettle method. These new metal pans were more efficient because of their larger surface area that was exposed to the fire, which greatly cut down on the time needed to boil sap. Soon “evaporators” were invented, (specifically designed flat pans with channels for the sap to flow through as it boils). With the addition of channels, fresh sap can be added to one end of the evaporator and finished syrup can be drawn off at the other end. Today, maple syrup is still made in evaporators of similar design.

In the early 1900’s, metal sap-gathering tubing was invented in New York to cut back on the time and labor needed to collect sap. However, metal tubing proved to be impractical because it was prone to freezing at night, leakage, and damage. In the mid-twentieth century, a plastic sap-gathering pipeline system was patented by Nelson Griggs, and the first commercial power-tapping tool was marketed. These and other new technologies revolutionized the business of maple sugaring, demanding much less labor and time. Nowadays, there are still places like Washington Crossing State Park and other “backyard” sugaring operations that tap trees by hand and use

individual buckets. However, the commercial maple sugaring industry has long since embraced the newer technologies such as power tapping, plastic tubing and gas-fired evaporators.

My Experiences

Although I have never experienced the festivities of maple sugaring at Washington Crossing State Park, I have had the pleasure of learning about maple sugaring elsewhere. I am a student at Penn State University (main campus), and in State College, PA, there is a Nature Center affiliated with the university. This Nature Center, Shaver's Creek, is a great place for students to learn and gain experience in nature instruction. For the last two years, I have volunteered to teach at Shaver's Creek Maple Harvest Festival. The festival takes place every March and consists of four educational stations (Tree Identification, Tapping, History, and "The Sugar Shack"), music, food, access to the center's exhibits, and more.

My friends and I specifically chose to teach the maple sugaring history station because it sounded like fun... and it gave us the golden opportunity to dress up in genuine 1800's garb. At our station, we told the legend of Woksis while demonstrating the single-kettle boiling method. We also demonstrated the Native American method of boiling down sap with hot rocks, the lazy man's balance and spile-making. There was always a long line of children at the spile-making station, where we used an authentic saw horse, draw knife, and hot pokers to create real sumac spiles. Both years, I came home from the maple harvest festival smelling like sumac sap and campfire smoke, but it was great fun.

Maple Sugaring at Washington Crossing State Park

Every year park staff and volunteers at the Nature Center in Washington Crossing State Park conduct group and public programs on the art and techniques of maple sugaring. The park demonstrates some of the history of maple sugaring by using homemade sumac spiles, crafted here in the park. The sap is collected with these homemade spiles and boiled down on a small maple sugaring evaporator. The Center's maple sugaring programs demonstrate all the techniques and knowledge used to execute these processes.

Maple sugaring programs at the Nature Center start with an interesting and educational slide presentation on the history, folklore, mechanics, and science of maple sugaring. The group then hikes into the forest for a demonstration and some personal practice in sugar maple tree identification and tapping. There are extensive stands of sugar maple trees throughout the state park, and there are two "sugar bushes," (areas in the forest with a higher concentration of sugar maples), within fairly close proximity to the Nature Center. During such programs, visitors will enjoy tagging as many sugar maples as they can find within that season's sugar bush. After a tree-tapping demonstration, all the sap collected from previously tapped trees is brought back to the Nature Center. The evaporator pan is put to use in a processing demonstration, and then visitors are treated to samples (syrup quantities permitting). After the main demonstration, children are sometimes given the opportunity to make their own genuine sumac spiles. Visitors are encouraged to ask questions of the

Nature Center's knowledgeable staff, and everyone goes home having learned something new and interesting.

Maple Sugaring is a very interesting topic, and I wholeheartedly encourage anyone who has an opportunity to go check it out. If you are interested, peruse the schedule in the last two pages of this newsletter for the dates and times of this year's public maple sugaring events. Groups such as scouts and schools should call the Nature Center to arrange sugaring activities specifically for their group. Don't wait, because dates and programs fill up fast!

There is much more to know about the interesting topic of maple sugaring than what was covered in this article, such as information on maple sap or the economic and cultural impact of maple sugaring. For more information, consult the article/pamphlet written by my mentor, Wayne Henderek, reprinted from a Nature's Grapevine feature called "Maple Sugaring at Washington Crossing State Park", available upon request at the Nature Center.*

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Lauren Seiler is a junior at Penn State University and a member of the Schreyer Honors College. She is double-majoring in Environmental Resource Management and Agricultural Extension Education and hopes to teach high school in the future. In the meantime, she enjoys running and the outdoors.

Volunteer Notes

Dr. Bill Schindler Jr., Mercerville, did a wonderful job organizing our Primitive Technologies Weekend in October. We would also like to thank the numerous volunteers who came out that weekend to give presentations and demonstrate their skills and knowledge. We are especially grateful to Bill's dad,



Bill Schindler Sr., Shrewsbury, who worked tirelessly throughout the weekend conducting the atlatyl demonstration and competition. Congratulations everyone, on a job well done!

Jim Wade, Princeton, put on a great presentation on Native American cultures in autumn. Jim also participated as a demonstrator on Primitive Technologies Day.

Nettie Rekowski, Ewing,, **Jenny Schwing**, Robbinsville, and **Greg Baber**, Yardley all came in to staff the Nature Center while the park naturalist was otherwise occupied.

Priscilla Damiani, Ewing, came out to perform maintenance on the Yellow Dot Trail.

Thanks go to Nettie, Priscilla, Greg, **Cheryl Burgos**, Morrisville, and **Al Fitipaldi**, Titusville, for assisting with our holiday wreath making program.

AROUND THE PARK

☘ School, scout and home school groups from West Amwell, Wayne, Lambertville, Lumberton, Yardley and Hopwell Twp. participated in group programs at the Nature Center this past autumn.

☘ An unusually warm autumn combined with late frosts and freezes kept leaves on the trees about 2 - 3 weeks beyond the normal early November drop. Although fall colors were initially muted, fairly nice hues eventually developed.

☘ Customer Service Representative, **Gloria McIntyre**, has retired from 34 years of service to Washington Crossing State Park. Gloria assisted with the administration of the park from the main office. She plans to enjoy her retirement with travel and volunteer work. Congratulations Gloria and best wishes for a happy and healthy retirement. You'll be missed.

LOOKING BACK: JOYCE KILMER, NEW BRUNSWICK'S POET AND PATRIOT

by Joe Ryan/The Star-Ledger/
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http://www.nj.com/news/index.ssf/2007/12/looking_back_joyce_kilmer.html

On Dec. 6, 1886, a boy was born in New Brunswick who developed a love for words, country and -- most famously -- trees. Joyce Kilmer's father was a chemist. But like his mother, a poet and composer, the young Kilmer favored the library over the laboratory. He studied at Rutgers and Columbia Universities and taught high school Latin in Morristown before breaking into New York City's literary scene. He edited dictionaries, worked for the *New York Times* and in 1911, began writing poetry. His first

book, "Summer of Love", debuted in 1911. Two years later, "A Magazine of Verse" published a 12-line sentimental verse Kilmer titled "Trees." The critics scoffed, but the public loved it. And Kilmer became famous.

Kilmer was outraged when a German submarine torpedoed the *Lusitania* in 1915. He enlisted in the Army as a private, too eager to undergo officer training. He rose to the rank of sergeant nevertheless, and was shot in the head in 1918 while scouting a German machine gun nest in France.

Trees, (1913)

I think that I shall never see
A poem lovely as a tree.

A tree whose hungry mouth is prest
Against the sweet earth's flowing breast;

A tree that looks at God all day,
And lifts her leafy arms to pray;

A tree that may in summer wear
A nest of robins in her hair;

Upon whose bosom snow has lain;
Who intimately lives with rain.

Poems are made by fools like me,
But only God can make a tree.

--Joyce Kilmer



The Cooney Family, Lambertville, won first place in November's Family Scavenger Hunt and took home the trophy.

WINTER PROGRAMS AT THE NATURE CENTER

The following is a list of activities being offered through the Nature Center at Washington Crossing State Park in Titusville, New Jersey. Some programs will require advanced registration as indicated below. Attendance is always limited and is available on a first-come, first-served basis. Programs will commence at the Nature Center unless otherwise indicated. An adult must accompany all children.. In the event of inclement weather some programs might be canceled. It is always advisable to call ahead before coming out. These events are intended for families and individuals only. Programs for scouts, schools and other groups are scheduled separately by special arrangement. **Phone : (609) 737-0609.**

WINTER NATURE WALK (all ages) Saturday January 5, 1:00 - 2:00 p.m. Come out to explore Washington Crossing State Park for signs of the winter season on this short informal hike. Free.

NATURE VIDEO Sunday January 6, 1:30 p.m. Video on wildlife in Antarctica. Title to be announced. Free.

THE NATURE IN ME (5 yrs. – 8 yrs.) Sunday January 13, 1:30 - 2:30 p.m. Do you ever wake up feeling like a bear or perhaps a butterfly? Do you eat like a bird or maybe you sleep like a log. We, all at times, relate to objects in nature. With the help of a parent or other adult, children will trace and cut out a life-sized paper outline of themselves. They will then fill in the empty space with appropriate pictures and illustrations cut from old nature magazines in this fun nature craft activity. Free

BALDPATE MOUNTAIN HIKE (pre-teen – adult) Sunday January 20, 1:30 – 3:30 p.m. We will take the new red trail from its trail head on Church Rd. to the top of the hill. Meet at the parking lot by Neiderer's Pond (Church Rd). Advanced registration required. Bring a water bottle and wear hiking shoes. Free.

NATURE VIDEO Sunday January 27, 1:30 p.m. *A Year in Whitetail Country.* This is a fascinating summary of the whitetail deer's life cycle with great nature photography. Free.

NATURE VIDEO Saturday February 2, 1:00 p.m. *Turning the Tide.* This half-hour documentary showcases the hidden beauty of the tidal areas in and around the Hackensack Meadowlands of northern New Jersey and the Hamilton-Trenton Marsh just south of the state capital of Trenton. Free

NATURE VIDEOS Sunday February 3, 1:30 p.m. *Down Jersey* explores the environment, history, and culture of Salem, Cumberland and western Cape May counties. Profiling individuals whose lives reflect the region, the program examines how residents of the area have managed to keep their traditional work, their cultural heritage, and their environmental resources intact after so many years. *The D&R* is a documentary on the history of the Delaware and Raritan Canal narrated by Jean Shepherd. Free

THE PALEO AND ARCHAIC INDIANS OF NEW JERSEY Sunday February 3, 1:00 p.m. **Jim Wade**, former archivist and researcher with the N.J. State Museum will take participants on a journey back to the time of the last ice age, when the earliest Native American peoples entered what is now New Jersey. Discover how these Paleo-Indians lived and survived in an arctic landscape filled with strange, prehistoric fur-covered animals, like the woolly mammoth, great elk, and musk oxen. Learn how these earliest people adapted to their harsh environment and hunted with specialized Clovis spear points. See how these prehistoric hunters opened the way for new bands of Archaic peoples who followed, with new innovative stone tools and lifestyles. The program will include a slide presentation and Native American artifacts will be on display. Free.

NATURE / HISTORY VIDEOS Sunday February 10, 1:30 p.m. *The Highlands Rediscovered* focuses on the rich natural history and the water resources in northern New Jersey. *Bear Country, New Jersey* is a very interesting presentation documenting the occurrence of the black bear in the state. Free.

NATURE VIDEO Saturday February 16, 1:30 p.m. *Pine Barrens Journey.* The Pine Barrens is a popular recreation destination for bikers, campers, hikers, canoeists and nature lovers from around the state and country. Take a virtual trip to New Jersey's Pine Barrens to examine the rich culture and colorful heritage of this secluded region. Free.

(Nature Center Programs Continued)

NATURE VIDEO Sunday February 17, 1:30 p.m. *The Earth Speaks*. This video presents naturalist Tom Brown as he takes viewers on a trip back into the "heart of creation." In this program, Brown shows viewers how to relearn their appreciation for the wilderness, and how to see anew, the surrounding world. Free.

MAPLE SUGARING (All Ages) Saturday February 23, 1:00 – 2:30 p.m. This event is a participatory demonstration in the procedures of home maple sugar production. Advanced registration required after 1/22. Free.

MAPLE SUGARING (All Ages) Sunday March 2, 1:30 – 3:00 p.m. This event is a participatory demonstration in the procedures of home maple sugar production. Advanced registration required after 2/5. Free.

MAPLE SUGARING (All Ages) Saturday March 8, 1:00 - 2:30 p.m. This event is a participatory demonstration in the procedures of home maple sugar production. Advanced registration required after 2/5. Free.

MAPLE SUGARING (All Ages) Sunday March 9, 1:30 – 3:00 p.m. This event is a participatory demonstration in the procedures of home maple sugar production. Advanced registration required after 2/5. Free.

WINTER BIRDS OF THE PARK (All Ages) Sunday March 16, 1:30 - 3:30 p.m. Come join veteran birder **Lou Beck** of **Washington Crossing Audubon** as we walk the trails in search of a variety of winter bird species and perhaps some early spring migrants. Advanced registration required after 2/12. Free.

WINTER PROGRAMS AT THE VISITOR CENTER MUSEUM

Call (609) 737-9303

HISTORY VIDEO Saturday March 1, 2:00 p.m. *The American Revolution, Volume One: The Conflict Ignites.* This 50-minute video looks at the dramatic outbreak of the war at Lexington and Concord, and examines the forces that made the American Revolution unavoidable.

HISTORY VIDEO Saturday March 8, 2:00 p.m. *The American Revolution, Volume Two: 1776.* This 50-minute video portrays the most important year of the American Revolution when independence was declared and almost lost.

HISTORY VIDEO Saturday March 15, 2:00 p.m. *The American Revolution, Volume Three: Washington and Arnold.* This 50-minute video tells the story of two of America's great commanders and their turning point victories.

HISTORY VIDEO Saturday March 22, 2:00 p.m. *The American Revolution, Volume Four: The World at War.* This 50-minute video examines the expansion of the war, the Battle of Monmouth, the winter at Valley Forge and the hard winter at Morristown.

HISTORY VIDEO Saturday March 29, 2:00 p.m. *The American Revolution, Volume Five: England's Last Chance.* This 50-minute video examines the British failed attempt to win the war in the southern colonies.

AUTUMN PROGRAMS AT THE JOHNSON FERRY HOUSE

WINTER HEARTH COOKING CLASS Saturday, January 12, 10:00 a.m. - 4:00 p.m. **Mercy Ingraham** will instruct this class. Theme to be announced. Call (609) 737-2515 to reserve a place. Fee: \$40.

CHOCOLATE WORKSHOP Saturday February 2, 11:00 a.m. - 4:00 p.m. **Susan Plaisted** will instruct this workshop. Call 215-219-9542 for fee and to register.

GEORGE WASHINGTON'S BIRTHDAY CELEBRATION Sunday February 17, 1:00 p.m. - 4:00 p.m. Continuing domestic and educational activities from the 18th century. Good family event. No fee. Donations appreciated to cover costs, punch and gingerbread.



New Jersey Department of Environmental Protection



NATURE'S *Grapevine*

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