Maple Sugaring at Carriage Hill Walk + Talk

I. Introduction:

II. Maple Sugaring in the United States: A Timeline of Maple Sugaring History

1540 First written observation of North American maple trees, by Jacques Cartier, French explorer traveling up St. Lawrence River.

1557 First written record of maples in North America yielding a sweet sap, by French scribe Andre Thevet.

1606 Marc Lescarbot describes collection and 'distillation' of maple sap by Micmac Indians of eastern Canada. (Histoire de la Nouvelle France)

1788 Quakers promote manufacture and use of maple sugar as an alternative to West Indian cane sugar production with slave labour.

1790 "Maple Sugar Bubble" grows, with high hopes among national leaders that a home grown alternative to slave-produced cane sugar from the British Caribbean had been found. Key advocates include Thomas Jefferson, Dr. Benjamin Rush and Judge James Fenimore Cooper.

1791 Dutch company buys 23,000 acres of Vermont land and attempts to hire local workers to make sugar to compete cane from West Indies. Project fails; Vermonters prefer to work their own land.

1791 Thomas Jefferson and George Washington discuss plans to start "maple orchards" on their Virginia plantations. Most trees die or fail to thrive; Jefferson remains a maple booster.

1810 Augers coming into popular use to drill holes for wooden spouts or sap spiles. Crude gashings or "boxing" techniques becoming obsolete.

1818 Maple sugar selling for half the price of imported cane sugar.

1858 Early patent for evaporating pan to D.M. Cook of Ohio.

1859 Eli Mosher patents first metal sap spouts.

1860 Peak maple production year for U.S.: 40 million pounds of sugar and 1.6 million gallons of syrup, from 23 states reporting to USDA.

1875 Introduction of metal sap buckets.

1880 Cane sugar and maple sugar approximately equal in price.

1884 Early patent for sugar evaporator, G.H. Grimm, Hudson, Ohio.

1893 Vermont Maple Sugar Makers' Association formed; instrumental in setting industry-wide standards.

1905 U.S. Pure Food and Drug Act makes adulteration of maple syrup with glucose illegal.

1940-1945 Maple prices frozen at $3.39 per gallon during World War II. Production suffers.

1959 Plastic sap-gathering pipeline system patented by Nelson Griggs, Montpelier, Vermont.

10 states produce. Ohio number 5. Vermont, Maine, New Hampshire, New York

III. Maple Sugaring on the Farm:
Maple Syrup production on the Arnold Farm:

A. The Sugar Camp at Carriage Hill:
-Located down near the maintenance lane and shull road. New growth, no existing maples in that location. 50-100 trees tapped between Henry & Joseph's farmland

B. Documentation for Maple Sugaring

1883 from Henry H. Arnold's diary
Wednesday Feb 28
I & the boys sawed some firewood fir Silas. Aaron & I ground 103 bushels in 5 hours and 5 minutes. The boys opened the sugar camp.

Friday March 2
Went to Woodbury mill for flour in the forenoon. In the afternoon I boiled down sugar water for the boys.

Note: Sap from the trees is referred to by Henry and others during this time as "sugar water"

Monday March 5
Boiled off 21 quarts of molasses and canned it up.

Note: Maple molasses is a thick version of syrup. Made by boiling sap into syrup, then boiling the syrup a bit longer. It's thicker than syrup, other resources say it spreads like jam. You can think of it like just like modern molasses.
21 quarts=5 gallons!!

Other days Henry boiled and made molasses:
March 8, 12, 17, 21, 27
Finished boiling sap on April 4, 1883

C. How much did they get?

*Typically it takes 40 gallons of sap to equal one gallon of finished syrup.

Henry sold 4 gallons of syrup in Dayton for $5.5 per gallon
That year sorghum was selling for about $1 per gallon
Summary for 1883 (estimated using the diaries as a reference)

60-100 quarts of syrup produced
15-25 gallons of syrup
600-1000 gallons of sap collected
50-100 trees tapped between Henry & Joseph's farmland
(Assume 10 gallons of sap per tree for the season)

IV. Supplies Needed for maple sugaring:

A. Trees: As shown in the earlier history of maple sugaring. It was found that sugar maples were the best trees to tap. However, other maples can produce just as much sap, but with different tastes and sugar content. Other maples that were tapped include:

-Red Maple
-Silver Maple
-Sugar Maple
12 species of maple total

-Norway Maple: came to the U.S. during the 18th century. Can be invasive.
- Paperbark or Japanese: Asia. Also invasive.

B. Other trees that could be tapped?

-Hickory: Can be found commercially. Has a slightly bitter taste. 1880s Kansas frontier.
-Poplar
-Box Elder
-Birch: Is tapped in Russia and in Alaska. Has a lower sugar percentage. Usually it requires anywhere from 60-80 gallons of sap to produce one gallon of syrup.

C. How is the sap produced?

-Maple Sugaring happens during a six month span.
-With the correct temperatures, the sap will flow through the tree and tapping it will cause it release sap.
-Carbs and starch converts to sugar and in turn dissolves into sap. During warmer weather these sugars break down and are moving from the roots through the trunk.

D. When did you tap trees?

-Typically trees were tapped in the colder months(February-March). To have successful sap flow you need temps. To be below 32 degrees at night and above 45 during the day. This causes the sap to flow quite well. A tree builds up pressure during warmer weather and during cooler weather it absorbs more water into its roots.

V. Tapping Trees:

A. Tapping a healthy tree will not damage it. Tapping a tree might remove 10% or less of the sugar in the tree, which will not hinder it.

B. The old method was to use a axe, thus, damaging or sometimes killing it.

-Tree should be 1 1/2' in diameter and have a healthy crown.
-Drill 3 feet from the ground and 1 ½-2" into the trunk. Drill with a 3/8" bit and angle it upwards.
-Insert the spile and bucket.

VI. Boiling down Maple Sap.

A. The larger the surface area of the pan, the easier to boil the water out. Evaporator pans.
B. Keep 1.5" of liquid in the pan at all times.
C. 7 degrees over the boiling point of water. 212 degrees. Must be 185 degrees to can.
D. when it converts to syrup it will do it quickly. Watch so it doesn't scorch or burn.