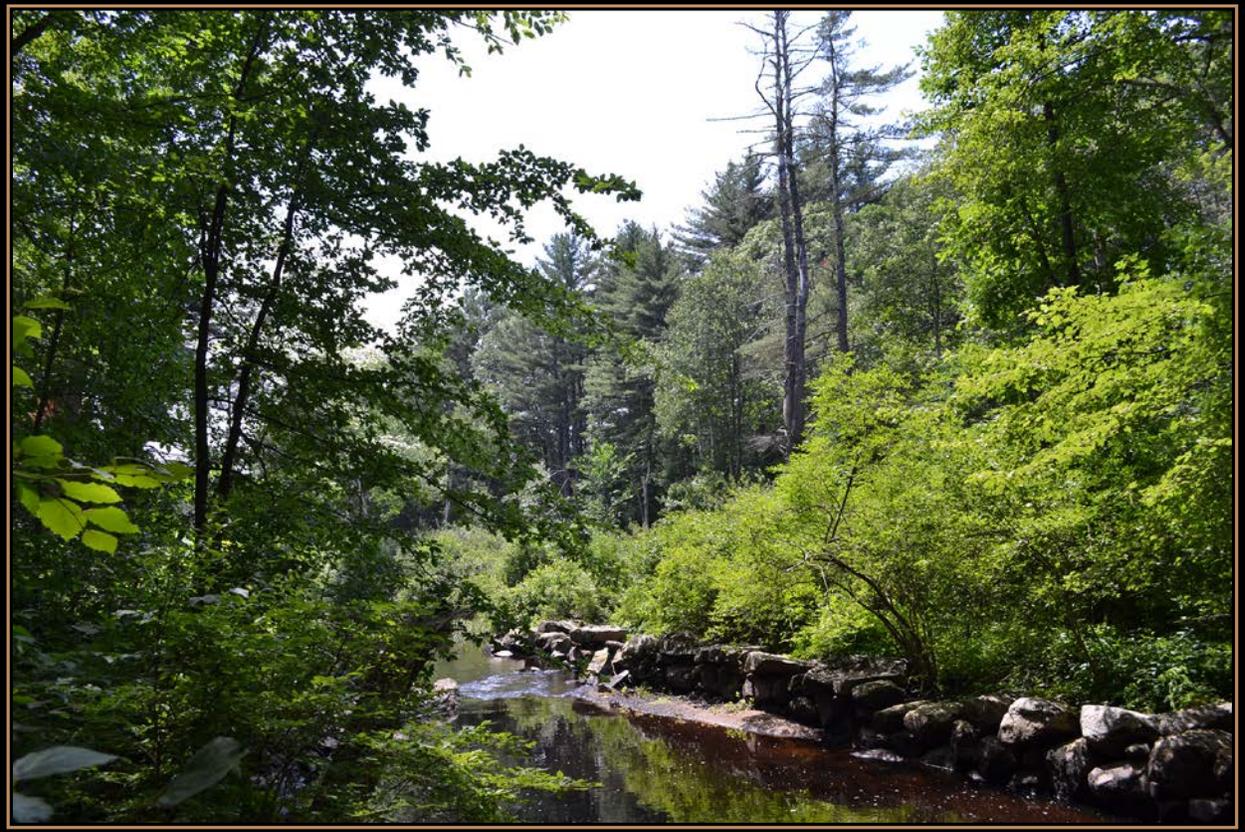




## *Introduction*

# Trail Through Time



- Colonial/Native heritage trail
- North Acton Conservation
- 2 Mile loop



## Nashoba Brook Stone Chamber

# Trail Through Time



### Nashoba Brook Stone Chamber

#### Trail Through Time

*Prehistoric to Industrial era American heritage sites*



This stone chamber with the adjacent stone enclosure comprise one of a group of sites that may be visited along the *Trail Through Time*, a heritage trail through North Acton conservation lands. Here can be seen remains of early Anglo-European buildings side-by-side with stone structures lying along an ancient swath of landscape sacred to Native Americans. For thousands of years, early people used this ritual landscape to sustain their reliance on Mother Earth and the spirit energies of balance and harmony.

This chamber is similar to many structures that once stood throughout the Northeastern woodlands. Of unusual L-shaped design, with a 17-ft passage leading to a 6-ft square room, this structure is of modified post and lintel construction. The pillar at the junction of the passage and room is a unique feature. Eight large, overlapping rock slabs form the roof, which is mounded over with earth.



*Nashoba Brook stone chamber prior to reconstruction*

A single stone tool excavated at the site—characteristic of the Neville culture extant in the region 8,000 years ago—is inconclusive for prehistoric use because of the disturbed soil in which it was found.

Detailed information on this site and others on the *Trail Through Time* can be found at: <http://trailthroughtime.info/>

Masonry evidence hints that the chamber room, built in a large cavity dug into the natural drumlin formation, may have been constructed in pre-Colonial times. However, historic documents record that Moses Wood, a Revolutionary War veteran and blacksmith, established a farmstead at this site in 1774. The archaeological evidence indicates that the chamber and adjacent foundation were used concurrently and for a related purpose. The many hand-wrought nails found in the soils of the enclosure strengthen the case for a foundry at the site.



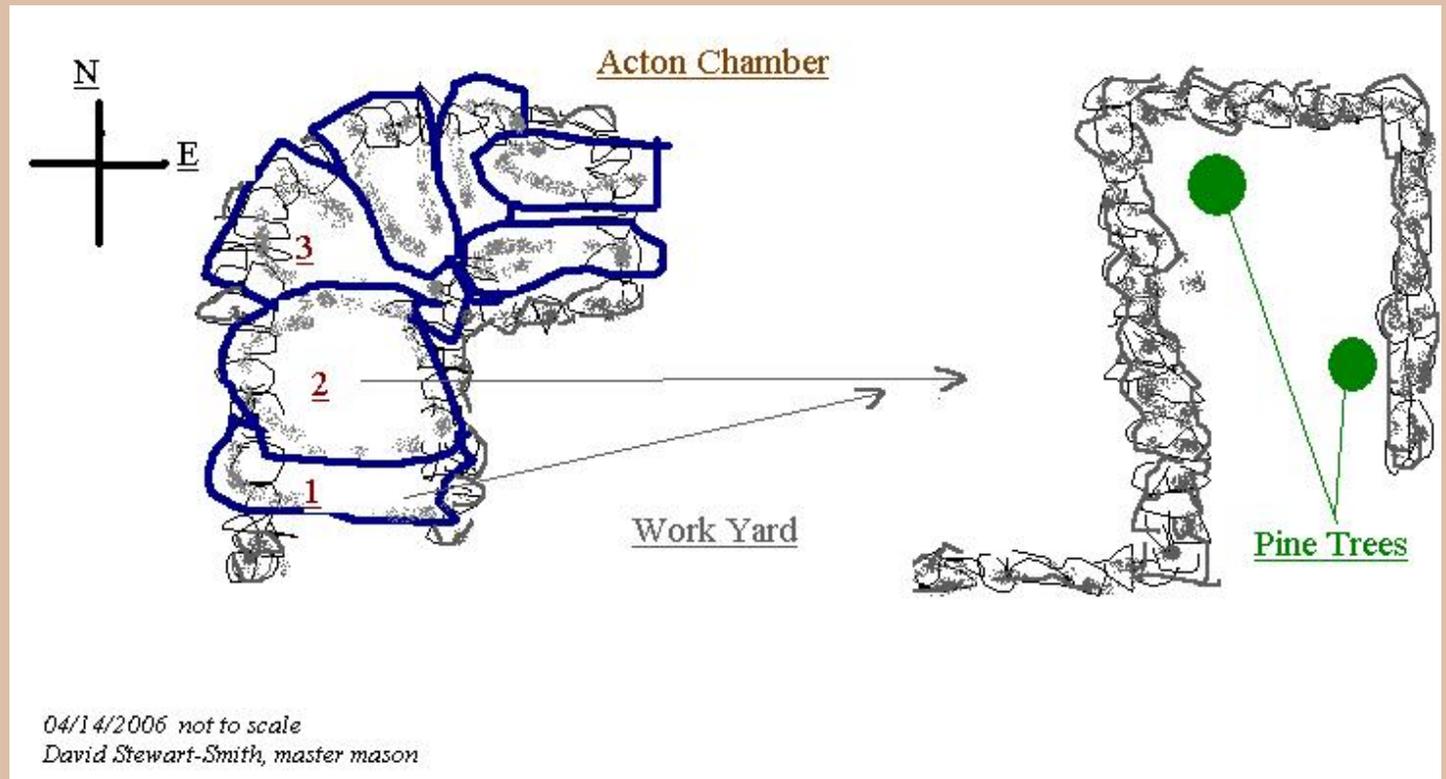
*Stone chamber during reconstruction*

An inventory of assets compiled at the death of Samuel Tuttle, a later owner of the site, lists income from 'rent of ice-house,' implying that the chamber was used to store ice cut from Nashoba Brook. Other uses include storage of farm products such as meat, root crops, apples, and cider.

The evidence, gathered by different research specialties, makes clear that the chamber was built and rebuilt to accommodate the changing needs of current owners.

Restoration of the chamber's collapsing walls was made possible by collaborative funding from the Acton Community Preservation Committee and the New England Antiquities Research Association. This restoration was the first in the state to adhere to Massachusetts Historical Commission regulations and U.S. Secretary of Interior standards. The Acton Land Stewards and friends provided volunteer labor.

- Moses Wood Farmstead (1774)
- Chamber Dimensions
- Archaeological Survey



- Smithy known in area
- Moses Wood was a smith
- Same builder for both structures
- Animal Pen?



# Wheeler Homestead

## Trail Through Time

**TT Trail Through Time** Wheeler Homestead




**Before** you is the foundation of an early 1730s dwelling house built by Thomas Wheeler, Jr., of Concord Towne to the southeast. The purpose of the settlement that developed here was the operation of two mills—one a grist and the other a sawmill—on this upper portion of the Nashoba Brook, just below a pre-existing dam. The dam, shown on an early map as the 'Blood Dam' and located just above the mill complex, was earlier owned by the Blood family of Thomas Wheeler's maternal grandmother.

Thomas Wheeler, Jr. had the mill complex fully operational by 1732. The location is most suitable for mills. Here, the natural topography of the streambed, with its gently up-sloping wooded banks, favored the construction of a canal along the northerly stream bank, configured to supply water to the downstream sluices and gates, with a height of fall sufficient to power two mills.

The large flat stone in front of this foundation marks the entrance to the dwelling house which rested on this original cellar. This masonry was restored in 2008. During that process, under nearly a foot of debris, a floor, composed of large, flat stone slabs neatly fitted together, was discovered. Such a paved cellar was extremely unusual for the period, and may have been used for storage of farm products.

Archaeological evidence from the TTT 2008 Field School suggests that the foundation was renovated c. 1830, at which time stone from local quarries was introduced, the paving stones were set, and granite sills were added. The frame house was moved in the 19th century and demolished in the 20th, leaving the stone foundation largely intact. The staircase replicates one that likely filled the recess built into the west wall.

Extending from the west wall is a low-walled surface enclosure. No records have been found to show whether a wooden structure, or of what type, was supported by this foundation. However, its close proximity to the well at the foot of the large sugar maple suggests that a kitchen shed/creamery was located here. The well, deep and still containing water, provided potable water to the settlement. The well cover was cut from one piece of granite from the North Acton Quarry.

Attached to this first enclosure is a second, with three sides, which may have supplied culinary and medicinal herbs, as was common during this era.

The double-walled stone droving corridor to the west was used to move cattle between pens and pasture. An opening toward its end on its northerly side was likely fitted with a gate into the pasture area. The corridor's southerly wall continues along the edge of the Brook for some distance.

According to early Town Records of Acton, after the farmstead's establishment, the track within the droving corridor became the 'Main Street' connecting it with a settlement further downstream. It overlaid a trail used from even earlier times by Native Americans who harvested fish and other resources from the Brook and its rich marshlands. Later, when additional homesteads and barns were built in the area, 'Main Street' was moved north to where it is located today.

The farmstead, with its associated droving corridor and cattle pens, would have supported the construction, and later the operation, of the mills. All of the extensive stonework you see around you was built by the labor of men with oxen. Later, the oxen were used to move raw materials and products to and from the mills.

As you wander along the droving corridor, you will see to your left—towards the Brook—two stone walls, each perpendicular to the corridor, that lead towards the flood plain. They form a three-sided enclosure now equipped with a handicapped accessible picnic table and a bench which looks out on a wide vista across wetlands towards the Brook.



At one corner of this enclosure, look for a carefully laid-up, flat-sided stone wall that joins the droving corridor at a wide angle. This wall is the butt end of a loading ramp, a structure often seen throughout the rural areas of New England. Such ramps were used to haul wagons loaded with hay, or other supplies, to the upper stories, or lofts, of barns. The presence of this ramp suggests that a two-story barn rested adjacent to the end of the ramp. The area within the enclosure was likely the place where various activities associated with the loading, storage, and offloading of fodder for animals and other supplies was carried out.

Historical documents indicate that there were eventually built several barns and outbuildings associated with this farmstead. However, the only extant remains of possible barns have been incorporated into a retaining wall along the driveway of the nearest house on the west side of Wheeler Lane.

Retracing the pathway back towards the front of the homestead, you will find a stone-dust path leading east towards the mill complex, where the remains of raceways, sluices, gates, and other building foundations are located.

Photo: David Stewart-Smith, master mason  
Detailed information about this site and others on the Trail Through Time may be found at: <http://ttt.connecticut.gov>. Funding for this panel and the research presented here was supplied by a vote of Town Meeting authorizing use of Community Preservation Act funds.



- 1728 Foundation
- Oxen for Labor
- Droving corridor, well, stone floor, animal pens



# Old Road to Concord

## Trail Through Time



**Old Road to Concord**  
Trail Through Time

Before you are the remains of the northerly terminus of the Old Road to and from Concord. These remnants, on the southern bank of Nashoba Brook, provide evidence of a formerly busy way in steady use during the 1730s between Thomas Wheeler, Jr.'s grist and sawmills, and Concord Towne. This road ran directly to the present Pope Road, and today it can be followed from above this slope as far as Triangle Farm, where evidence of the old road ends.

The following entry appears in the Concord Town Records, Old Volume II—Folio 107, on 20 February 1733:

*At the desire of Thomas Wheeler, the Selectmen did then lay out a way from said Wheeler's mill to let him in to the Country Road...to run over the Brook a few rods below his mill to the upland on the easterly [sic] side of the Brook till it comes to a white oak on the side of the hill.*

In return for the allowance of this road, Thomas Wheeler:

*...promised to make the causeway on the westerly [sic] side of the above said Brook, and also a good und sufficient Bridge over it at his own Cost and Charge.*

This public way was accepted on the 11th of March 1733 at a "General Town Meeting of the Notable Inhabitants of Concord." On February 20, 1734, the Concord Selectmen laid out a road to Thomas Wheeler's grist mill and his nearby dwelling house, according to Concord Town Reports. This recorded road is misinterpreted in Phalen's History of Acton to be the present Strawberry Hill Road. However, archaeological evidence, established by the TTT 2008 Field School, supports that these road-remains are, in fact, those of the road, referenced above, which led to the TTT's Wheeler Farm and Mill site.

Roads were the lifeblood of commerce and society in Colonial America. They were designed by first conducting a land survey and then petitioning the Town to grant a Right of Way. These engineered roads were intended to open isolated areas to commerce and provide links to markets. Typically, they were constructed by clearing a road bed using oxen, then laying a sub-structure, followed by a dirt surface, and finally bounded with stone walls.

All plans for such town roads showed dimensions for crews to use in the field. The surveyors would set out the marks for the Right of Way. In this case:

*...four rods wide from the low land by the Brook till it come to the fourth mark...and from then on two rods wide...*



In the 18th century, to set a measurement, a chain with 100 links was used to measure a 4-rod distance (equal roughly to 66 feet, or 20 meters) between two posts.

Just beyond the bridge, the old track narrows to a constant 10-meter width as it ascends the southerly bank of the Brook. The track close to the Brook shows major erosion damage, although, as the land levels out at the top of the ridge, the stone walls are readily discernible, and the road bed is still in good condition. The walls are of local rubble in 2 or 3 courses, depending on their size and shape.



*Remains of large rubble pier on south bank to support heavy loads.*

The remains of the piers which supported the bridge are visible under the modern footbridge. They are of rubble construction also and were ample to support the heavy load of oxen, cart, and corn—or other materials—which would have traveled to the mill daily during the harvest season.

Please do not attempt to climb this portion of the ancient roadbed, as that would cause further erosion.

Photo: Kimberley Connors-Hughes, archaeologist  
Detailed information about this site and others on the Trail Through Time may be found at <http://ttt.connectivity.com>. Funding for this panel and the research presented here was supplied by a vote of Town Meeting authorizing use of Community Preservation Act funds.



- Original abutments at Footbridge Terminus
- Leads to Pope Road
- Wheeler requested
- Wheeler built extensive causeway



## Blueberry Stone Pile Cluster

# Trail Through Time

**Trail Through Time**

*Blueberry Stone Pile Cluster*



The small cluster of stone piles around you is representative of the usual density of such features scattered along this southerly flank of the Nashoba Brook. Look for two clusters a short distance southwest of this site where the density of stone piles is unusually large. Each is marked with a panel.

Stone pile groupings such as these, known in Algonquian as *Káhtóquwuk*, were often created by Native Americans to memorialize an important event, death, or person. In other circumstances, stone piles, earthen mounds, or stone rows were constructed as part of an astronomical/ceremonial complex to establish sight-lines to mark significant astronomical events such as the solstice sunrise or set.

To designate an area as ceremonially important, another type of stone feature, called *Sun catcapinumut* in Algonquian, is occasionally seen, often far from modern trails. Such a feature, originally, was a single boulder with a fault line, deposited by the receding glacier. Over eons of freezing and thawing, this boulder might be broken apart at the fault line. Such split boulders are recognizable by the matching faces at the resulting cleft.

Evidence that such a pair was selected by Native Americans to designate an important ceremonial site lies in the presence of one or more small rocks placed into the cleft. Such rocks may be of different material and color from the host boulder/pair. The smaller rocks may be angular or rounded. See photograph to right. Look for such an enhanced stone pair within the Princess Pine enclosure a quarter mile to the southwest.

**Blueberry *Vaccinium Corymbosum***

Blueberries, along with other berries, were a significant food resource for Native Americans in New England. Large areas where the bushes grew well were cleared of trees, and the bushes were burned annually to promote a good crop. In allocating lands to families of his band, the sachem allotted berry patches as well as crop fields, and hunting and fishing areas.



*Sun catcapinumut*

The presence of stone piles and other stone features throughout these woodlands demonstrates the Native Americans' belief that the natural world is imbued with a spiritual quality. Such structures exemplify the Indian practice, here in the Northeast and elsewhere in North America, of subtly enhancing naturally occurring features of the landscape rather than building large, prominent structures that intrude upon that natural landscape.

Text and photo: Linda McElroy, Director, Trail Through Time.  
Design: Process.

Detailed information about this site and others on the Trail Through Time may be found at: <http://tt.connecticut.com>. Funding for this panel was supplied by a vote of Town Meeting authorizing use of Community Preservation Act funds.



- Half dozen stone piles
- Created by Native Americans to commemorate special events
- Natural World-Spiritual Quality
- Blueberries



# The Plantain Stone Pile Cluster

## Trail Through Time

**The Plantain Stone Pile Cluster**  
**Trail Through Time**

Before you is one of several stone pile clusters located throughout this portion of the Nashoba Brook Conservation Land and its adjacent neighbor parcel, Spring Hill Conservation Land. The Massachusetts Historical Commission states, on the State website, that all stone piles are the product of past agricultural or field-clearing activities undertaken by early European-descended farmers to provide pasturage for domestic animals or agricultural fields for food crops.

Modern Native Americans from Federally recognized regional tribes, however, tell us that stone piles such as these are ancestral tribal stone groupings with ceremonial significance for their people even to this day. Native American beliefs give spiritual significance to all natural objects. Constructed originally to commemorate significant tribal or personal events, such clusters are considered sacred places. Please do not touch or move any of these stones. To do so would destroy their sacred value to Native Americans.

Some who are now studying stone piles in this region have found that field-clearing piles:

- are irregularly shaped and consist of stones of many sizes;
- or, consist of similarly-sized stones with large stones and small stones piled separately;
- have over time assumed the natural 'angle of repose';
- have the appearance of a dumped group of stones; and
- are set next to a field, against a stone wall, or spill over an embankment.

In contrast to these characteristics, observe that the piles in this cluster do not conform to these specifications. Additionally, notice that the area around this cluster and throughout these woodlands generally has not been cleared of stones.

**Downy Rattlesnake Plantain**

Look carefully between some of the piles, and you will find the low-growing evergreen plant, a member of the orchid family known as Downy Rattlesnake Plantain, *Goodyera pubescens*. Native Americans used this semi-rare wild plant as an antidote for snake bite and as a tea for the relief of toothache, colds, kidney disease, and eye problems.

Another archaeological feature at this site is a stone foundation set partially into the slope below the ridge a short distance uphill from this stone pile cluster. Bricks have been found in close proximity, and the masonry technique is European. A tiny flowage of seasonal water is close by. To reach the site, follow the short path, signed with green arrows, starting at the back of the cluster near the stone wall.

This foundation is not shown or mentioned in any deeds and maps of the town; however, this portion of the Nashoba Brook Conservation Land was owned by Dr. Jonathan Davies of Roxbury from 1750 to 1801. He was the brother of Capt. Davies of nearby Bellovs Farm. Town records indicate that Dr. Davies was paid for medical services by the town:

*April ye 2, 1755: ...at the Same time an order to Capt Davies for fourteen Shilling for time Spent in the towns Service the year past and Likewise the Sum of Six Shilling which was Due to Dr. Davies for taking Care of Abigail Russel when She was Sick the whole of his Demands...*

One interesting fact is the isolation of this foundation on the Davies parcel. As the land was owned for over 50 years by Dr. Davies, it is possible that a building on this foundation served as a sick house, or what was commonly called a 'pest house,' for the Davies family or other community members. There were no hospitals in the 18th century, and doctors, or communities, often set up pest houses to keep infectious diseases under control.

Chimney base within the (possible) Davies' Pest House

The plan of this structure, with a huge chimney in the middle separating two 'rooms,' would have provided for two hearths for warmth and separate spaces for the patient and caretaker with less danger of contagion.

Photo and grid map of cluster: Kimberley Connors-Hughes, archaeologist  
Detailed information about this site and others on the Trail Through Time may be found at: <http://ttt.connecticut.gov>. Funding for this panel and the research presented here was supplied by a vote of Town Meeting authorizing use of Community Preservation Act funds.

- A baker's dozen stone piles
- Indian piles vs field clearing piles
  - Same size vs many sizes
  - Shape constructed vs angle of repose
  - Groupings in open area vs next to wall or embankment
- Downy Rattlesnake Plantain



*Pest House*

## Trail Through Time



- 100 Yards Upslope
- Unusual Shaped Foundation
- Two Rooms/Huge Chimney



- The Nashoba
- King Philip's War
- Manitou stones
- Narragansett Tribal Preservation Office



# Regional Native American Lifeways

## Trail Through Time



### Regional Native American Lifeways

#### Trail Through Time



The Native Americans living in the Northeast at the time of European settlement were said to be tall, robustly built, well formed, well nourished, and without infectious diseases. They were light in skin color, and their facial features were caucasoid. Agougonian was spoken in several dialects along the Atlantic seaboard from the Carolinas northward into Canada.

Indian socio-political organization was tribal, based on kinship, each tribe headed by a chief or sachem, who occasionally was a woman. Sub-tribal groups might be led by a sachem. Tribal leadership was usually hereditary through the mother's line. A leader's degree of authority varied among the tribes, but most chiefs governed with advice from their council of elders, and sponsors were sought from subordinate chiefs. There was no law in the Western sense, customs and tradition were the law. The elderly were honored for their wisdom, gained through experience.

Each tribe's territories — for fishing, hunting, berry picking, nut gathering, crop fields, etc. — were defined by a river drainage system or other topographical feature. These lands were held in common, although the chief would allot to each family its own areas for crops, fishing, hunting, etc. No concept of private property in land existed, as is true among Euro-Americans today, a fact that led to many disputes between the two cultures. Personal items, tools, food, and dogs were a family's own, excepting for the observance of hospitality customs.



Northeast stone grinding stone

Southern New England Indians ate a well-balanced diet, according to white settlers, who found them better nourished than Londoners of the same era. The Natives lived in small settlements near their crop fields, where they grew the trio of corn, beans, and squash, as well as melons and pumpkins. By clearing trees, they maintained berry patches, where they harvested blueberries, strawberries, blackberries, cranberries, along with grapes, plums, and many others. Nut-bearing trees were abundant: beech nuts, hazel nuts, and butternuts were eaten raw, chestnuts boiled, and acorns blanched and ground into flour. Summer surpluses were dried and stored for winter consumption.

Large areas of inland forest were cleared and maintained with grass to attract deer, who thrived in the woodlands. When the summer crop harvests were finished, the men turned to hunting deer and other game. Turkeys abounded. Fish were used for food and also for spawning. In the spring, when early spring runs of eels and shad were to spawn upstream made fishing easy. The now semi-famous Robb's Mill dam is thought to have been constructed on the remains of such a weir. Fresh water and sea shellfish were gathered.

Though no obvious habitation sites have been observed in this large conservation area, there is little doubt that Native Americans would have exploited the abundant resources of the extensive wetlands bordering this portion of Mashapa Brook during ceremonial activities. Ducks raising ducklings in spring or migrating in the fall were easy targets. The coarse reeds and reeds could be woven into mats and baskets. Certain woody stems made excellent spines.

The Indians of this region cooked in stone, wood, or birch bark pots, either set into hot coals or filled with water and heated with hot stones. Foods were conformed in numerous ways to provide soup, stew, roasts, berry cakes, and vegetable breads. Maple syrup was prepared. It is said that there were 150 recipes for maize alone, and not a few Indian recipes have been passed down through New England families for generations: for example, Boston baked beans, succotash, corn bread, and Indian pudding.



Two polished stone flint axes and a woman's spindle or spindle stone. The axes could also have been hulled. Cir. 2000 to 1500 AD.

Most New England Indians did not live in wigwams. The southern tribes, living in villages next to crop fields, built permanent shelters. Elm-hole saplings, firmly secured into the ground in a roughly circular or oval plan, were bent into a curve so that ends met in the middle, where they were secured with withes. Cross pieces of flexible, strong reeds or long branches were strung across among the saplings to create a secure frame. A smoke hole was left open at the top, while the rest of the structure was covered with woven mats and animal skins. A doorway, or two, to provide ventilation, could be covered with a leather flap. Sleeping platforms were fashioned at a low height around the interior walls and covered with skins. A ring of stones provided a hearth for heating cooking. Baskets holding household items as well as tools, medicines, and dried food stores were stashed under the bed platforms.

Further north, long houses were built to accommodate several families each with its own hearth. Because wigwams were easily transportable, they were used primarily for temporary camps established during the growing season at various places for the gathering of different foods.

Tools and implements were crafted with ingenuity and often artistry from a wide variety of natural materials. Bowls and cooking pots were made from steatite, a soft stone, until about 1500 AD, when women

learned to make pottery from clay by rolling long slender rods in a circular pattern on top of each other. These vessels were then hardened with fire. Other containers were made by weaving grasses, reeds, and strips of birch bark into baskets of all sizes and shapes for specialized purposes. Both baskets and birch bark canoe coverings were made waterproof by the application of animal fats and vegetable tars and resins.

A variety of knives, adzes, chisels, axes, fish hooks, and many other implements were made by knapping or grinding stone, bones, and antlers. A woman's pestle, or grinding stone, was often carried with her, and basins for the grinding of meat and flour from grains were often created out of conveniently shaped boulders located at well-used camping sites.



Corn (Zea mays)

Called maize in many languages, it was domesticated in prehistoric times by Mesoamericans. It became the staple starch for all native North Americans. A tall, leafy stalk produced several large ears, or cobs, each of which contained many kernels. These grains were ground into flour or meal.

Clothing was fashioned from carefully treated skins, made into a variety of types of leather, and from woven textiles. In summer, men wore lion cloths and woman, short skirts. Children ran naked. Both genders often wore a short cape that covered the shoulders to the waist. In winter, particularly in more northerly territory, furred clothing was tailored. Moccasins were made from soft leather. Leggings were worn by men when going into the bush. Feathers were used for decoration, and sometimes were woven into capes. Bead decoration, after Contact, was very popular.

Tall, Jack Mabry, Beaver Trail Through Time Photos, Jane Mabry, Graphic Design Photos. Further information about this site and others on the Trail Through Time may be found at <http://TrailThroughTime.org>. Funding for this project was supplied by a gift of Tall Meeting authorizing use of Community Preservation Act funds.



- Tribal
- Territories
- Diet



# Native American Spiritual Beliefs

## Trail Through Time



### Native American Spiritual Beliefs

#### Trail Through Time



Many of the numerous and varied stone structures in this conservation preserve are remains of ceremonial architecture of tribal peoples who stewarded these lands for thousands of years before white settlers came.

The Algonquian-speaking tribal groups across the United States are among the oldest recognized ethnic groups here. They share cultural as well as linguistic traits. Their stank or earthen structures bear striking resemblances. Despite the long policy of suppression of Indian culture, first by white settlers and later by the U.S. Government, tribal peoples built an expression of their traditional beliefs in stone, intended to establish balance and bonding with the spirits of the Earth, Sky, and Underworld.



Figure 1. Typical Menhoun stone.

Central to these beliefs is the concept of *Menhou* (Kinopit in Algonquian), an animating essence that resides in all natural objects and phenomena. Land, sky, water, trees, stones, and creatures, as well as earthquakes, thunder and lightning, are all manifestations of the living earth and thus possess *Menhou*. The medicine man, or women, a spiritual figure in Algonquian groups, is revered for possessing capabilities associated with *Menhou*'s worldwide.

The concept of a primary creator may be a million years old in the Northeast; it was called *Kitchan*, meaning "Great Spirit". A more personal manifestation of divinity was known as *Hobonock*, originally a consolidation of *Spirit* of Nature, who in time came to stand more for evil than for good. Often, effigies (*Munakobokanshi*) of these natural beings, such as the local turtles and serpents, were rendered in stone.



Figure 2. Three segments of a 100-year-old cedar in shallow water.

Dale Van Every (*The Disoriented*, New York, 1976) says of the Native American

... he was peculiarly susceptible to every sensory aspect of every natural feature of his surroundings. He lived in the open. He knew every marsh, glade, willow, saring, rock, land creek as only the hunter can know them... he loved the land with a deeper emotion than could any proprietor. He felt himself as much a part of it as the rocks and trees, the animals and birds. His homeland was holy ground, sanctified for him as the resting place of the bones of his ancestors and the natural shrine of his religion. He conceived its waterfalls and ridges, its clouds and mists, its glens and meadows, to be inhabited by the myriad of spirits with whom he held daily communion. It was for the rain washed land of forests, streams, and lakes that he was held by the traditions of his forebears and his own spiritual aspirations.

The Indian did not so much worship his gods, as appease or try to please them. He made no idols to represent them. He did not strive to achieve dominion over all lands and creatures, as Genesis advises. Rather, with noisy ceremonies of dance and chant, and decorated with paint and feathers, he sought favor with his gods as he prepared for planting, hunting, or battle. Singing accompanied the dance, and smoking tobacco, which symbolized the breath of life, was part of the celebration.

Festivals of thanksgiving for good harvests and other bounties, as well as rain dances for summer crops, often went on for days. But, just as likely, a dance would be undertaken to ward off evil spirits, or simply to bring hope to a sick friend.

Such a belief system, when translated into everyday activities, impelled the Indian to maintain reverence for the remains of animals whose lives he took for food. No parts were wasted, and parts unusable for food or practical needs might be returned to the habitat where the animal had lived. Only a portion of the winter's store of nuts gathered by some small creature would be taken for human use.

Burial customs and practices varied widely. In some individual burials, the body was placed with the head facing southwest; others were found in a fetal position. Some group burials were arranged like spokes of a wheel. Cremations were common, and reburials might be bundled. Often, the deceased was accompanied with possessions prized during life and practical objects for use in the world of souls. These might include a man's tobaccop pipe, stone hunting tools, and wampum; or a woman's baskets, grinding pestle, and jewelry; a toy pot might accompany a child.

The apparent relationship between sacred and astronomical observations attributed to the stone features scattered throughout this forest is significant. Often, celestial events that provided a calendar for agricultural activities were also associated with spiritual beliefs. For example, on August 13, the annual Perseid meteor shower is at its peak. Northeastern Indians believed that the streaks of light made by the meteors were the souls of recently-departed loved ones going to their final rest in the Milky Way. The date also marks the beginning of the harvest season, often celebrated by some local tribal people with a week-long festival.

Interestingly, August 13 is a date that recurs throughout North America and Massachusetts as one of ritual significance. It marks the beginning of the short cycle of the calendar Mayan calendar, and in Mayan cosmology is the date when the gods brought forth the world.

In the woodland surrounding the *Trail* are several types of both natural features and man-made stone structures that mark it as a significant center for ritual/astronomical Native American observations. In addition to the multiple *Menhou* stones (See Figure 1), there are curving stone rows which may represent a serpent, sometimes with its tail in a small pool or seep (See Figure 2). Such small pools, if not swamps, may be found with stones at its margins (See Figure 3). Among trees sacred to the Indians of this area are the hornbeam and the cedar; all

parts of the hornbeam were used in sacred ceremonies. If hornbeam was not present, cedar could be used. (See note) Hornbeam trees within the nearby *Princess* Pink stone pile cluster are located among the sites at the center of the enclosure (*Quawon-dyook*).

Similar stone complexes exist along the *Robinson* esker and in the former *Nashoba* Praying Village site in Littleton (1650s to 1670s). Carlsde, to the east, has many stone structures of Indian provenance, with some types not seen in these conservation lands.

They can be reached from the *TTT* via a red trail from the *Robbins* Mill conservation land. These four towns lie within a swath of land, beginning in present-day Lincoln and ranging northwards to Westford, that once comprised an extensive sacred landscape for regional Indians.



Figure 3. Pool formed by a year-round head-flood with stones.

Trail: Linda Melillo, Dennis, Trail Through Time; Photos: Linda Melillo, Anne Melillo, Tim Felt, Design: Prudence

Detailed information about this site and others on the *Trail Through Time* may be found at <http://www.ttttrail.com>. Funding for this project was supplied by a grant from *Trail Through Time*, including use of *Continuity Preservation* by TTT.



- Algonquin
- Great Spirit
- Burial Customs



# Princess Pine Stone Pile Cluster

## Trail Through Time

**Princess Pine Stone Pile Cluster**  
**Trail Through Time**



Most of the stone piles at this site are arranged linearly across the wooded slope before you. Some piles have been constructed on the ground, but many have been arranged on top of glacial erratic boulders. This construction style is unusual for the piles scattered throughout these conservation lands, but so also is the location, on sloping terrain which levels out into a boggy area. In addition to the two dozen piles in the linear cluster, a few piles are scattered within the upper portion of the stone wall enclosure that surrounds the site.

This stone enclosure (*Qusqanyutók* in Algonquian) is also unusual. It is comprised of one straight stone row, perpendicular to the gradient of the slope, and a second, curving stone row which connects with the first at its highest elevation. The curving row wraps around the east side of the slope, separating it from an extensive glacial boulder fan beyond. The lower end of the curved row meets the flowage at the bottom of the slope. This large stone structure is open along the flowage. See the figure for an outline.

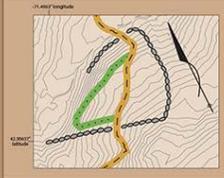
The straight stone row, on the south side of the slope, aligns with the sun's summer solstice rise and winter solstice set. An 'embrasure' (*Shiwahkwi*), a purposely constructed bulge in the axis of this row, would have served as an observation post for an astronomical event or other distant feature. See the photo. At the lower end of this row, notice the marker stone (*Sunsh nipánu*). Also look for the enhanced split boulder pair (*Sun catcapinumu*) within the enclosure, that marks this site as important.

The seep, or spring, at the slope's bottom also suggests that this site was of ceremonial significance to tribal people. Fresh water, either as a seep, a small natural pool, or a small flowage, was almost always present at Native American ritual sites. To them, all nature was sacred, and the Earth was regarded as their mother. Springs and other natural sources of water were the places where the spirit of the Earth emerged. The presence of several distinctive natural elements within a localized area would have enhanced its suitability as a sacred center.

In 1989, Mavor and Dix published *Manitou*, a seminal and comprehensive discussion of their research into Native American ceremonial sites in New England. They concluded

that many of the stone structures which New Englanders refer to as 'stone walls' were not built by English settlers as walls, but by Native Americans as markers of ceremonial/astronomical function. The authors suggested such structures be termed 'stone rows' (also *Qusqanyutók*) to indicate their non-European purposes.

New England woodlands are crisscrossed with these structures. Many were, without doubt, built by settlers as property markers or agricultural field enclosures. However, many others of these 'rows' have no obvious purpose, at least to a Western mind. They may just begin and end without intersecting other rows. Some cross swampland. Many are dead straight; others are slightly sinuous.



Stone embrasure built into straight line stone row

In addition to the solstices, other astronomical events commonly marked with stones and natural topography at Indian sites throughout the U.S. are the equinoctial sunrises and sets, the rising or setting of significant stars or constellations, such as the Pleiades, and the August 12 set (or 13th rise) of the sun. The significance of this date to northeastern Native Americans is not known, but it marks the beginning of the August Perseid meteor shower and, in Maya cosmology, was the date of Creation of the current world cycle. Local Indians hold a weeklong festival at this time each year.

**Princess Pine**  
*Lycopodium obscurum*  
Princess Pine, also known as *Ground Pine*, is native to northeastern North America. Related to the club mosses, it is a low growing evergreen ground cover used by Native Americans to relieve stiffness in the joints.



Text and photo: Linda McElroy, Director, TTT, Enclosure form: Tim Fohn, Design: Process. Detailed information about this site and others on the Trail Through Time may be found at: <http://tllconnectivity.com>. Funding for this panel was supplied by a vote of Town Meeting authorizing use of Community Preservation Act funds.



- Linearly arranged
- Summer and Winter solstice
- Observation Post
- Seep or Spring



## Stone Chamber Roof Slab Quarry

# Trail Through Time

**Stone Chamber Roof Slab Quarry**  
**Trail Through Time**



This outcrop of jagged vertical boulders may be the source of the rock slabs that form the roof of the Nashoba Brook Stone Chamber, located a half mile downstream from this site.

During the restoration of that chamber in 2004, the masons advised us to look for possible sources for the roof slabs. There are seven of these, rectangular slabs of various sizes. They have not been shaped with metal tools, and their size implies a nearby source. Three slabs exposed during the restoration showed signs of weathering. Together, these features suggested an outcrop of layered, or sedimentary, rock as a source.

The chamber's walls are laid up with field stones generously supplied from the nearby ground and streambed. But there is no obvious source for slabs of rock the size of the roof slabs near the chamber site.

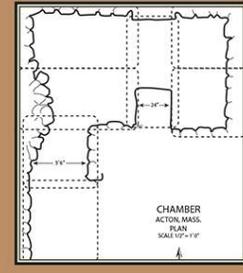
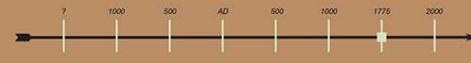
Rounded boulders would not have served for the roof; irregular bulges would have prevented overlapping them so that rain water and snow melt would drain away. Also, wide slabs were needed to span the walls of both the corridor and the interior room. The chamber's roof, in fact, has perfect drainage and spans pre-built walls.

The Colonists quarried stone. So did Native Americans using a passive technique: water poured into naturally occurring cracks in ledges would alternately freeze and thaw, forcing the cracks apart. Wooden wedges placed into the widening cracks eventually broke off smaller pieces. However, this technique is unlikely to have produced large slabs with rectangular shapes and the observed weathering.

During the chamber reconstruction, many volunteers assisted; among these was a physician/amateur geologist who commented, as our masons had already told us, that the stone in the roof slabs did not match the granite in the large quarry located nearby in the Acton Town Forest along Quarry Road in North Acton.

Later, some restoration project participants stumbled upon the rocky outcrop of vertical slabs before you. Some of the original 'teeth' are missing; others lie on the ground where they fell, eroded loose by wind and water. Our physician/geologist confirmed that the stone in the outcrop matches that in the roof slabs.

The straight-line distance from this site to the chamber is short, and both sites are close to the Nashoba Brook. It is reasonable to assume this small outcrop could have provided the roof slabs. Even such large stones could have been moved on log rollers to the Brook's marshland, and from there, during the winter, moved the remaining distance over the ice to the chamber site. Builders sophisticated enough to have raised such slabs and set them onto previously constructed stone walls, without knocking those down, surely would have had the expertise to move the slabs in wintertime.



Chamber Plan Drawing: Bett Petersen, NEARA; Text: Linda McElroy, TTT Project Director; Design: Process.

Detailed information about this site and others on the Trail Through Time may be found at <http://ttt.com/activity.com>. Funding for this panel was supplied by a vote of Town Meeting authorizing use of Community Preservation Act funds.



- Unusual Outcrop
- Similar Composition
- Transport Down River?



*Old Robbins Mill, North Acton, Mass*

- Thomas Wheeler early 1730's
- Wheeler dam rebuilt over Blood Family dam
- Two Mills
  - Grist Mill
  - Saw Mill



*Mill Masonry*

## Trail Through Time



- Stone lined ditch and berm canal
- Masonry gate at lower end
- Two sluiceways brought water to wheels
- Tub Wheel enclosure has been located
- Grist mill foundation behind tub wheel
- Vertical housing at 10' drop



*Pipsissewa Stone Pile Site*

## Trail Through Time



20 plus stone piles

Originates in natural embedded  
boulder field

Bedrock outcrop/sharp right angles

Evidence of wedge gouges



## Pencil Factory Site

# Trail Through Time

### Early American Pencils



Pencil factory on this site, circa 1700s

**A**merican pencil making began in the early years of the 1800s when, it is believed, a Bradford woman constructed the first American pencils by removing the joints of alder twigs with a knitting needle and filling them with a mixture of arabic glue and graphite. The first to construct pencils for New England trade was a young Concordian named David Hubbard, but according to Actonian Horace Hosmer, the pencils "were of little value, and but few of them were manufactured."

In 1813, another Concordian, David Munroe, created a better product by mixing the lead, or plumbago, with an adhesive substance, and spreading the soft paste into grooves cut into a cedar casing, leaving them to dry. The slabs were then sealed with a thin cedar veneer, and the individual pencils were cut from the slab, each slab generating four to ten pencils. Munroe's pencil factory was located along Concord's Mill Dam.

Munroe hired the journeyman and cabinet maker, Ebenezer Wood, to help him operate the two-man saw used to cut slab and veneers from cedar logs. Wood showed a talent for inventing, and was able to mechanize the production of pencils in Munroe's factory and to develop the techniques which allowed Munroe to automate and thereby increase production for the Boston market.

Henry David Thoreau, Wood's contemporary and a fellow pencil maker, was initiated into the trade by his father, John Thoreau. John Thoreau's brother-in-law, Charles Dunbar, had discovered a deposit of high quality plumbago in Berlin, New Hampshire, and set up the business, Dunbar and Stone. Dunbar mixed plumbago in large quantities, and wishing to expand the business, invited John Thoreau to join him in 1823. The partnership eventually disbanded, and the firm was re-named John Thoreau & Company, Thoreau & Co. produced pencils of sufficient quality to be sold in the Boston market.

Thoreau and Munroe became fierce competitors, and since both firms had their plumbago ground at Ebenezer Wood's mill, Munroe attempted to convince Wood not to continue grinding Thoreau's material. However, because Thoreau's business was larger and more lucrative for Wood, it was Munroe's plumbago grinding which was eventually curtailed.

All of the early pencil makers attempted to replicate the refined techniques of the Europeans, especially that of the Frenchman, Nicolas-Jacques Conte, who invented a process for producing high quality pencils in 1795. Secrecy prevailed among the American pencil makers as each experimented with different techniques and mixtures.

**Ebenezer Wood (1792-1880)**

Ebenezer Wood was a cabinet maker, inventor, Mason, veteran of the War of 1812, and a gentleman. In 1835 he was Acton's town moderator. The 1800s witnessed a national boom in pencils because of new construction techniques that were developed in Concord and Acton, and Ebenezer Wood played a key role in this technological development. Pencil making was the high-tech business of the day.



*Ebenezer Wood*

**Ebenezer Wood's Improvements in Pencil Production**

Munroe's early methods were slow and painstaking, so he hired Wood to develop mechanized ways of automating pencil production. According to Wood's contemporary, Acton's Horace Hosmer, Ebenezer Wood "stands in the very front rank of American pencil makers." Wood set up the first circular saw used in the production of pencils which, Hosmer writes, "was a great curiosity for a long time." Using the principle of the circular saw, Wood was able to cut six grooves at a time in a rapid fashion, and he also invented a molding and trimming machine and a wedge press that could glue 12 gross of pencils at a time, significantly boosting production. According to Hosmer, Ebenezer Wood "was an inventor of high order, and his hand and brain largely helped to make Munroe's fortune."



Early pencils from Acton

Ebenezer Wood constructed the first hexagon and octagon shaped cases for pencils, and thus is the inventor of the modern style of pencil that we have today. Rather than glue a thin veneer onto the slab, Wood glued two four-sided shafts together to make his pencils.

However, rather than patent his inventions and techniques, Wood shared them freely with all who sought his help, and at least one such machine was built by the New York company, Eberhardt Faber, which would soon become a leader in pencil production.

Wood became known for his high quality plumbago (or lead), which he ground with a millstone, harnessing Nashoba Brook as his power source. Such was the quality of the plumbago that Mrs. John Thoreau would purchase all her plumbago from him for their own pencil factory in Concord. The Thoreaus' process of making pencil lead was highly secretive, and the mixture of graphite mineral and clay was burnt to harden instead of being air dried, as was Munroe's technique.

While little is known of Ebenezer Wood's life, Hosmer characterized Wood as a gentleman who appreciated letters, writing that even when Wood was 60 years old he would commit to memory "long political articles which he found in magazines and newspapers." At one point in his career, Hosmer even rented Wood's factory.

- Pencil Factory Site
- Ebenezer Woods
- Existing 4 sided kiosk



*Work Going Forward*

## Trail Through Time



- Trail routes
- Panel Infill
- Robbin's Mill Dam
- Observation Platform