

Towpath Topics

Middlesex Canal Association P.O. Box 333 Billerica, MA 01821

www.middlesexcanal.org

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This picture, taken in October of 2021, depicts the new deck which was dedicated on 10/03/2021. The wonderful photograph is attributed to Pat Perino, a member of the Cogley Construction Company staff.

Please mark your calendars!
MCA Sponsored Events – 2022 Schedule

Winter Zoom Meeting, 1:00pm, Sunday, February 20, 2022
 Adrienne Card, “Horses and Oxen. No Mules.”
 Information: www.middlesexcanal.org

Hike Beautiful Billerica, 9:45am, Saturday, March 12, 2022
 Marlies Henderson, two hour walk south to the smallpox cemetery
Sign up at Billerica Recreation Department, wait list at
<https://www.facebook.com/groups/HikeBeautifulBillerica/>
 \$7.00 fee

Spring Walk, 1:30pm, Sunday, March 20, 2022
 Billerica to Chelmsford walk along canal
 to Chelmsford plaque near 121 Riverneck Road
 Meet at the Middlesex Canal Museum and Visitors’ Center
 71 Faulkner Street, North Billerica, MA 01862

Lowell Bicentennial: 1:00pm, Sunday, April 3, 2022
 1. This Enchanted Land, a novel by Wayne Peters, and
 2. “Lowell and Canal Economics. Two talks by J. Breen.
 Location: The Reardon Room, Middlesex Canal Museum and Visitors’ Center,
 71 Faulkner Street, North Billerica, MA 01862

Bicycle Tour South, 11:15am, Sunday, April 24, 2022
 Meet at the Lowell MBTA Train Station
 Leaders: Dick Bauer and Bill Kuttner
 Helmets Required

Spring Meeting, 1:00pm, Sunday, May 15, 2022
 MCA Annual Meeting Lecturer: TBA

20th Annual Fall Bicycle Tour North, 9:00am, Saturday, October 1, 2022
 Meet at the Middlesex Canal Plaque right of the entrance to the Sullivan Square T
 Station, 1 Cambridge Street, Charlestown, MA 02129
 Leaders: Dick Bauer and Bill Kuttner
 Helmets Required

Fall Walk: 1:30pm, Sunday, October 16, 2022
 Meet at the Middlesex Canal Museum and Visitors’ Center, 71 Faulkner Street,
 North Billerica, MA 01862 for a three mile walk south along the canal to the
 smallpox cemetery, a round trip of less than three miles

Fall Meeting, 1:00pm, October 23, 2022
 Lecture: TBA

The Visitors Center/ Museum is open Saturday and Sunday, Noon – 4:00pm, except on a holiday (April 17, 2022, Easter). The Board of Directors meets the 1st Wednesday of each month, 3:30-5:30pm, except July and August. Check the MCA website for updated information during the COVID-19 pandemic.

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Annual Appeal: A Note of Thanks from Russ Silva, Treasurer

The Middlesex Canal Association’s thanks go to the forty individuals who, as of Sunday, January 9th, have donated \$3,865 to the 2021 Annual Appeal. This includes \$423 to the Endowment Fund and \$1,404 to the Building Fund.

Although this amount is only a little more than one third of last year’s Annual Appeal total, some of our largest contributors have donated significant amounts directly to the 2 Old Elm Museum Building renovation project throughout the past year. Thanks to them too for their generosity.

If anyone else wishes to send a contribution for the benefit of the Endowment Fund, the New Museum/Building Fund, or the “General” Fund for Current Expenses, please do, and thank you in advance.

Editors’ Letter

Dear Readers!

A new year brings a new issue of *Towpath Topics*! This one is packed with useful information and interesting articles. Read on!

Starting off, we have fall events recaps by Dick Hawes and Robert Winters. Bill Kuttner’s account of the MCA bicycle trip has “You Are There” quality which will be perfect reading on a freezing winter day.

Bill Gerber, gone to Pennsylvania, but certainly not forgotten, has sent us an article with fascinating photos on “The Wheel.” His articles are always interesting and this one continues the trend.

The October issue hinted at two ideas we were working on for future editions. The future is now! First up is the very first article of the very first issue of *Towpath Topics* from October 1963. Alec has done some additional research and has filled in the story with biographical information about the author. If any of our readers remember her and how she was connected to the MCA, let us know and we will include it in a future issue.

The second plan was to collect visitor reminiscences of the Middlesex Canal Museum and Visitors Center over the past 20 years. Our first entry is from Shayne Reardon and it certainly brings back memories! Alec was involved at the “beginning” with Shayne and her husband John. His reminiscence may appear in the next issue. The hope is that we can include more with every issue, so start writing!

Finally, we have an update from Betty Bigwood on the progress of the new building at 2 Old Elm Street, the President’s Letter, calendar of events, and the usual miscellany.

In closing, the editors would like to extend their heartfelt condolences to MCA Treasurer Emeritus Howard Winker and his wife Lenore over the unexpected passing of their son, Jim.

The Editors – Deb, Alec, and Robert

MCA Sponsored Events

Winter Meeting: The winter meeting is scheduled for February 20, 2022 at 1:00pm. The Middlesex Canal Association will host a ZOOM talk by Adrienne Card. To the question: “Why horses were used on the Middlesex Canal and not mules as on the Erie Canal?” She answered that the fodder grown in Massachusetts was injurious to mules. Card has a degree in animal science and raises horses and cattle in Billerica. Details on the ZOOM meeting will be posted at www.middlesexcanal.org.

Walks and Bicycle Tours: For more detailed information please access the MCA website at www.middlesexcanal.org about a week prior to the scheduled event.

Directions to Museum: 71 Faulkner Street in North Billerica, MA

By Car: From Rte. 128/95

Take Route 3 (Northwest Expressway) toward Nashua, to Exit 78 (formerly Exit 28) “Treble Cove Road, North Billerica, Carlisle”. At the end of the ramp, turn left onto Treble Cove Road toward North Billerica. At about ¾ mile, bear left at the fork. After another ¼ mile, at the traffic light, cross straight over Route 3A (Boston Road). Go about ¼ mile to a 3-way fork; take the middle road (Talbot Avenue) which will put St. Andrew’s Church on your left. Go ¼ mile to a stop sign and bear right onto Old Elm Street. Go about ¼ mile to the bridge over the Concord River, where Old Elm Street becomes Faulkner Street; the Museum is on your left and you can park across the street on your right, just beyond the bridge. Watch out crossing the street!

From I-495

Take Exit 91 (formerly Exit 37) North Billerica, then south roughly 2 plus miles to the stop sign at Mt. Pleasant Street, turn right, then bear right at the Y, go 700’ and turn left into the parking lot. The Museum is across the street (Faulkner Street). To get to the

Visitor Center/Museum enter through the center door of the Faulkner Mill and proceed to the end of the hall.

By Train:

The Lowell Commuter line runs between Lowell and Boston’s North Station. From the station side of the tracks at North Billerica, the Museum is a 3-minute walk down Station Street and Faulkner Street on the right side.

President’s Message – “First Fruits”

by J. Breen

In March 2014, the Association was deeded, for a nominal one dollar, a dilapidated, 150-year-old woolen cloth storehouse at 2 Old Elm St. The owner, Pace Industries, represented by Bill Donovan, president of Pace’s local division, had received notice from the Billerica Historic District Commission to repair the storehouse. Donovan, rather than spend money on the unneeded building, offered it to the Association.

The foremost purpose of the Association as stated in the 1963 Articles of Organization is “To acquire, restore and preserve all extant remains” of the historic canal. The southern lot line of 2 Old Elm is the north wall of the canal, 90’ of stone retaining wall. The 30’ wide canal is extant between the north and south walls.

The second purpose is to establish a museum. The storehouse is 200’ south of the Billerica Falls Dam, on the bank of the summit pond, aside the canal, and at the site of the 1794 groundbreaking ceremony. Across Old Elm are the only visible remains of the twenty locks. No better location, location, location.

In 2012 the board of directors of the Association retained an attorney for advice on the Purchase and Sales Agreement (\$250/hour, \$1,150 paid). In 2014, an architect prepared preliminary plans (\$5,290) after consulting a structural engineer (\$540). A gen-



“May the Eye of Wisdom and the Eternal Mind aid this work designed for the benefit of the present & all Future Generations,” prayed Loammi Baldwin. September 10, 1794, Billerica, Massachusetts.

eral contractor estimated \$600,000 for construction based on the preliminary plans. A year later, after \$600,000 had been pledged, the first words from the contractor as he came to a second meeting, It's a million dollars! A two-year shock, but in 2017 the Association was able to begin the project, contracting with an architect for plans suitable for a building permit.

Before the Building Commissioner issues a permit, the assents of various boards, commissions, and other regulatory authorities are required. The project was submitted to the Billerica Conservation Commission in September 2018 and the seven commissioners assented nine months later with conditions as spelled out in a 28-page order published in Book 33074, Pg 159, North Middlesex Registry of Deeds. Three months later, Oct 2019, the building commissioner gave permission to renovate the falling-down, 150-year-old storehouse. But in Aug 2021, an application for permission to work beyond renovation towards use as a museum was denied.

This message to the proprietors and associates reviewing the major obstacles over seven years towards a museum/visitor center at the location of the groundbreaking in 1794 would be discouraging except the obstacles have eventually been passed. And after seven years, the first fruits have appeared with an observation deck and interpretive panel.



Fall meeting's talk on the Billerica & Bedford Railroad

by Richard Hawes

The B&B talk centered on the rise and fall of the 2-foot gauge railroad and its designer, George E. Mansfield. George devised a small gauge alternative to the large and expensive standard gauge railroads prevalent at the time. George was born in 1839 in Lebanon, NH, but his family soon moved across the river to Westminster, VT where George grew up. During this time the railroad added a line along the river where George lived. George got to see firsthand how to create a roadbed and lay track. This experience got railroading into George's "blood" where it would remain for the rest of his life. At 13 years old George built a gravity powered railroad on his property made entirely of wood. It was small 8" gauge track with a flat platform for George to ride on, but it worked! At 18 George moved to Lowell to become part of the industrial revolution and all the excitement that went with it. He married and eventually moved in with his wife's relatives in Chelmsford.

During the Civil War, George was laid off from his job at the mill due to lack of southern cotton. He almost immediately found employment at a sewing machine company in Boston and moved to Charlestown. George did well at his new trade with machine repair. This steady employment allowed George to rent a new house in Hyde Park. After moving his family to Hyde Park, he decided to build another gravity powered railroad on the vacant lots behind his house. This would be a 10" gauge railroad with the ability to carry 5 adults per car. This railroad became a popular attraction in the area and during the summer it is estimated he gave rides to over 3 thousand people at no cost to the riders. This Railroad brought George a large amount of free publicity including newspaper articles and much interest from railroad owners.

This new notoriety brought him to a Billerica Farmers Club meeting in December of 1875. After two standing room only meetings the people of Billerica and Bedford decided to try George's 2-foot gauge railroad concept although it had never been done in the U.S. Due in large part to George's innovative designs, this railroad became a great technological success. George had to overcome many biases and naysayers as he steadfastly designed an elegant and safe small railroad. However, this railroad was doomed from the beginning by under-capitalization and cost overruns with the excavation and rail-bed construction. The railroad began its regularly scheduled runs in November of 1877 and was out of business by May 1878.

Before the B&B had dissolved, George had many inquiries from towns in New England about building their own 2-foot gauge RR. One was from Farmington Maine that proved to be George's salvation. Technically still employed by the B&B, George went to Maine and helped plan a new railroad, later to become the Sandy River Railroad. In June 1878, George moved to Maine and became the Superintendent of the Sandy River with a one-year contract. Thanks to glowing reviews of the B&B in prominent technical journals George had no problem convincing prospective railroad builders about the validity of a two-foot gauge railroad. George's contract with the Sandy River was not extended for unknown reasons, but George had many offers from other towns literally around the world. He helped in planning railroads out west after Sandy River, primarily short ore mining roads although none of this came to fruition.

He found himself back in Maine in 1881 exploring a railroad for the Farmington area. This road was financed and once again George found himself employed as the builder and superintendent of the Bridgeton and Saco River Railroad. The first train ran in 1883 and after a year George tried to become the lessee of the railroad. The board of Directors turned him down and George left to move on to other things.

Surprisingly, George bought a newspaper in North Conway NH. But George had ulterior motives. He intended to form a group to build a railroad in the North Conway area and owning a newspaper would allow for great publicity for the railroad. As hard as he tried George could not bring the plan to completion and the railroad never materialized. By 1885, many family issues kept George from his main focus of building railroads. George had reached his personal “high water mark”. In the middle 1880’s George even traveled to Central America to advise on railroads built to move goods from plantations to the shipping docks but this also did not work out due to a variety of ecological reasons. He also investigated the building of another railroad in Columbia in 1889, also to no avail. George opened a business as a Railroad Consultant in Boston even though he was still living in Maine. George kept looking for opportunities but they were far and few between. He took more travels out west but the kind of long term work he hoped for was elusive and never found.

George and his wife were given the family property in Greenfield NH. After acquiring the property, they took out a \$500 mortgage. But by 1899 funds were drying up, the property went into foreclosure and the Mansfield’s were evicted. Just after this George and his wife separated. It is not known where George went to live directly after the separation but his last known address was at Warren Ave. in Boston. In the early 1900’s Georges health declined along with some form of dementia and in 1907 he was committed to the State Insane Asylum where he passed away in 1914 at the age of 75. He is buried next to his first wife in unmarked graves at the Forest Hill Cemetery.

This is just a very short history of the life of George E. Mansfield that touches on the highlights. I would recommend the book “George E. Mansfield and the Billerica and Bedford Railroad” by Don Ball for a more detailed account of George and his achievements. If this group has interest, I could write another article on the B&B equipment and what made it so unique for its time.

The fall museum talk was attended by 10 Zoom participants and a couple more who viewed it at the museum. Some of the viewers were members of the Mass Bay Railroad Enthusiasts club. The talk seemed very well received. If you missed the talk and would like to hear it, it is available through BATV. Look for the COA section.

Fall Walk Report

by Robert Winters

On October 17, 2021, about 40 participants joined walk leaders Jim Winkler and Robert Winters for our Fall Walk in Winchester/Medford starting at Shannon Beach on the Upper Mystic Lake. Though this canal segment features the southernmost visible remnants of the Middlesex Canal, they are few, and the challenge is to supplement what is visible with maps, stories, and descriptions of what were once spectacular features of the canal such as the aqueduct over the Aberjona River and the Brooks

Bridge which once stood near the Sagamore John monument on Medford’s Sagamore Street. Walk participants were very interested in the history with some doing research with their phones as we walked and sending additional historical references via email after the walk.

As much as we all enjoyed the walk, it will forever be a source of sadness for me. My co-leader on the walk, Jim Winkler, passed away unexpectedly in December. Jim organized the Meetup group through which recent canal walks were promoted. During the pandemic he took the reins of leader for our previous Spring Walk. I really enjoyed his company and was looking forward to co-leading canal walks with him in the future.

Jim was the latest in a long line of people who have played a role in leading and organizing our Middlesex Canal walks going back over 50 years, including Fred Lawson, Malcolm Choate, Louis Eno, Nolan Jones, Larry Henchey, Dave Fitch, Betty Bigwood, Howard Winkler, Fran VerPlanck, Burt VerPlanck, Jean Potter, Wil Hoxie, Bill Gerber, Dave Dettinger, Dave Barber, Carolyn Osterberg, Tom Raphael, Roger Hagopian, Robert Winters, Dick Bauer, J. Breen, Marlies Henderson, and Jim Winkler.

Is there Light at the end of the Tunnel?

by Betty M. Bigwood

The Building Committee for the new Museum has started planning for getting an occupancy permit targeting August 2022 as a realistic objective. It will not be completed but there will be sufficient space to move in and set up exhibits while we put on the finishing touches. Meanwhile there is much planning to do.

The Commonwealth of Massachusetts has received 4 billion dollars from the American Rescue Plan Act for Covid-19 relief. We are fortunate that Billerica State Representative Marc T. Lombardo earmarked \$50,000 for the Middlesex Canal Museum building fund. This project has taken longer and cost more than we ever dreamed it would.

MCA Bicycle Ride North Report

by Bill Kuttner, Freight Program Manager, Central Transportation Planning Staff
Boston Region Metropolitan Planning Organization

By 9:00am on Saturday, October 2, 2021, a group of about 20 bicycle riders have assembled at Sullivan Square Orange Line station to ride to North Billerica. The distance is 18 miles as a crow flies; the actual route somewhat longer. In past years the ride has gone all the way to Lowell, but the Middlesex Canal Museum, both its current and its future venues, is an important destination this year and will serve as the formal endpoint.

Sullivan Square is a good place to start. Some participants have parked their cars in the MBTA parking lot. Some have brought the bikes on the Orange Line. The station has a rest room. Sullivan Square, we have been told, was the southern end of the Middlesex Canal and is named after Governor James Sullivan, a driving force behind the canal’s construction. The upper-level busway offers an elevated vantage point to view the immediate locale.

Largely comprised of vigorous, confident riders, this group is ready to roll. But wait! There is a historical plaque affixed to a nearby wall some decades ago by the

Middlesex Canal Commission. The plaque shows the location of the canal superimposed on a map of the modern streetscape, and the southern end of the “incredible ditch” was, in fact, in the middle of what today is a giant traffic rotary, clearly visible from the busway.

But this is not the south-most Canal Commission plaque. In the distance to the south is the iconic brick Hood Milk smokestack. Is a plaque nearby the “real” southern end of the Middlesex Canal? Well, sort of. There was a mill pond next to today’s Rutherford Avenue. Then there’s the Charles River . . . it just gets more complicated and we need to start riding.

What we see between Sullivan Square and Haymarket is a problem that has always challenged designers of fixed-guideway transportation systems: the last mile. Pharaohs, Caesars, and Ming emperors built canals that were marvels of their times, but depended on getting goods to and from the canal. The railroad barons of the gilded age faced the same challenge. Wagons could be hauled by animal power anywhere, but this mode had its own serious limitations.

We’re finally off. The canal route and its design and construction techniques will be explored as the ride progresses to the museum in North Billerica. Ongoing research and scholarship efforts by Middlesex Canal Association members have provided fresh insights into a number of aspects of Middlesex Canal history, including the critical issue of connecting the canal corridor to key markets at both the north and south ends. Exhibits at the museum make clear the complexities at the southern end of the canal that are only hinted at when viewed from a distance at Sullivan Square.

The first stop is at Foss Park in East Somerville. No need to talk over the buses and trains at Sullivan; this is a much quieter site and the introduction to the legal and financial history of the canal is presented. Maybe not as fun as climbing on the Shawsheen aqueduct, but the institutional history is vital and must not be overlooked.

The canal route has been totally covered with urban development in Somerville and most of Medford. About a half mile south of Winchester the bike route reaches the south-most visible remnant of the canal adjacent the Mystic Valley Parkway, a road owned and maintained by the Department of Conservation and Recreation. The group inspects the site of an earlier aqueduct that carried the canal across the Mystic River. On the west side of Mystic River, the canal disappears again into a residential neighborhood.

Canals were basically flat. If you’re riding your bike up or down it means you’ve either left the canal route or there was a set of locks. At Horn Pond in Woburn there was a flight of three locks. North Billerica has the highest elevation on canal’s route, so up we go. Don’t like riding uphill? Join us for the spring ride on Sunday, April 24 and we’ll ride down the Horn Pond flight of locks.

H.H. Richardson designed the Woburn public library, and we stop at this historic building to use the rest room. The Woburn Police Station is a block away and is also available.

Shortly after the police station we reach the first canal remnant with water. Between Woburn and the Merrimack River there are number of wet canal segments, some long, some short, some accessible, some remote. One thing they all have in common is that

many substantial trees have taken root in the canal beds, berms, and tow paths. These trees must not be removed because this would harm the historic canal bed. You must use your mental Photoshop to make them disappear.

Still in Woburn, we stop to picnic next the canal remnant and canal engineer Loammi Baldwin’s house. We learn about Loammi Baldwin’s engineering skill, his tasty apple, and his odd-duck neighbor, Count Rumford. There is a Stop & Shop across the street.

After lunch it is “real riding” all the way to North Billerica with the exception of two dry canal remnant high points. First is the oxbow in the Wilmington town forest. The oxbow created the rope marks in the rocks. These are hard to explain so you just need to come on the ride and see them yourself. The oxbow ends at the site of the Maple Meadows aqueduct. After some more real riding is the aforementioned, very photogenic Shawsheen aqueduct. After a final burst of riding and crossing some wet canal remnants we reach the Middlesex Canal Museum in North Billerica.



October 2, 2021 MCA North Bicycle Ride Participants. The author, Bill Kuttner, is pictured in the center immediately behind the Middlesex Canal sign.

The progress on the new museum building across the street is inspiring. Our own building! Think of it. The exhibits in the current space get attention, too. David Dettinger’s exhibit about how canal traffic was able to efficiently serve Boston begins to make sense of the various elements of early infrastructure at the southern end of the canal system. The plan is to take a 3:38 train with our bicycles from North Billerica. Any riders going all the way to North Station are invited on an exploration ride through the industrial area between North Station and Sullivan Square that will attempt to sort out the canal, industrial, and land use history of this out-of-the-way corner of Boston.

The days are significantly longer in late April than in October, so the route goes all the way from Lowell to Boston. Riders can always use the parallel commuter rail service to shorten their route. There will be opportunities to explore the vital connecting canal subsystems at both the north and south ends of the canal corridor. Stay tuned for details.

The Wheel
by Bill Gerber

Over the years, one of the great assets that Middlesex Canal historians have had access to is a collection of about 300 glass slides of canal remains, taken in the 1930s by Leon Cutler and Moses Wichter Mann. Mann's contribution to the collection totaled 81 slides, the very last of which is titled "Part of Stern Wheel of Steamboat Merrimack and old steering gear and tackle".

Figure 1, following, is the photo which corresponds with that description.



Photo by Moses Wichter Mann

Figure 1: Part of Stern Wheel of Steamboat Merrimack, old steering gear and tackle [sic]

Long ago, when I was researching John Langdon Sullivan's steam towboats, see <http://middlesexcanal.org/towpath/towpathtopicsFeb2010.htm>, it became apparent that 'the wheel' could not have been associated with the 1818, fifth generation, towboat *Merrimack*, as Mann implied, nor could it have been associated with the 1812, third generation, towboat. Based on Mann's assessment that the wheel was, nevertheless associated with a towboat, I surmised that it may have been one of the paddle wheels from the 1816, fourth generation, towboat.



Photo by Fred Merriam

Figure 2: Drive wheel, wooden, used in operation of the Middlesex Canal lock at Pawtucket Falls; 4 spokes, square frame, 42" in diameter.



HAER Photo

Figure 3: Paddle Gate Actuator, Swamp Locks, Pawtucket Canal

Alas, that was incorrect; Mann and I are both wrong!

Considering our long standing errors, what's the correct interpretation?

Very recently, Fred Merriam, Chelmsford historian, sent me photos of the very same wheel, now physically in his possession (Figure 2) and with it a note.

Fred wrote: "We are getting ready to display the wheel that was described as a Middlesex Canal relic in the attached very old photo from your collection [i.e., Figure 1, shown above], and I suspect it was a wheel used to open and close the paddle gate

on one of the lock gates leading down to the Merrimack River. I think the square frame in all photos was nailed on to keep the wheel together but had no function on the lock. — Do you agree with my conclusion?"

Initially I disagreed; but I shared thoughts with other canal afficianatos. Very quickly Keith Morgan responded with a photo of a paddle gate actuator used at Swamp Locks on the Pawtucket Canal (Figure 3). Clearly that mechanism has a spokedwheel firmly attached to the actuating mechanism.

Soon thereafter, Fred Merriam sent many more photos of 'the wheel' and parts thereof, and backed up his interpretation with a listing of estate sale items (Figure 4); in particular, note item number 2.

Given that 'the wheel' was used "in operation of the Middlesex Canal lock at Pawtucket Falls; ...", what does that mean? How exactly was it used?

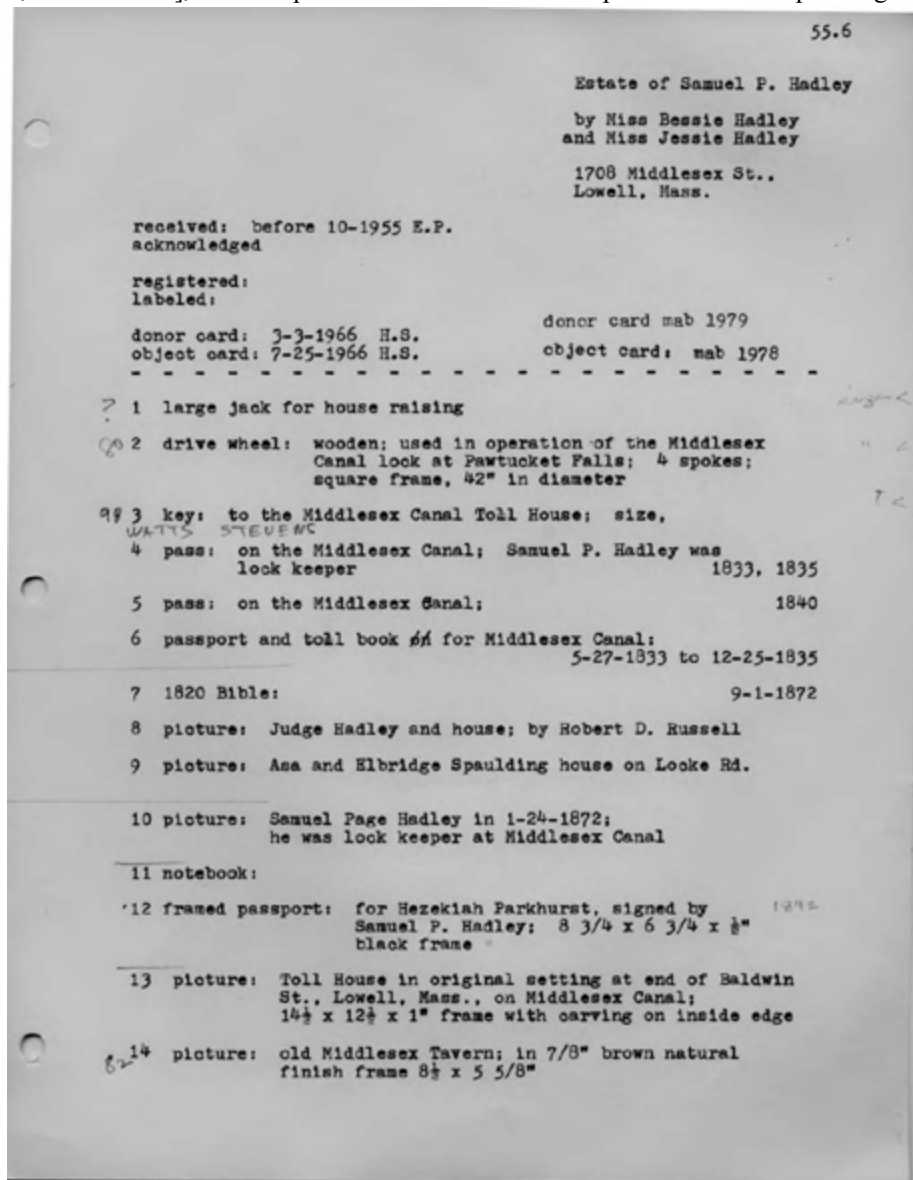
Recall that the Merrimack flight of locks, i.e., a three-lock staircase, were the first Middlesex Canal locks that Loammi Baldwin built; and initially these may have been the only 'properly built' locks on the entire system (i.e., constructed of granite and bound together with true hydraulic cement/mortar). As such, they incorporated bypass-channels on either side of the lock to conduct water around the lock gates; — as compared to employing paddle-gates installed in the lock gates themselves, as was done on the Pawtucket Canal, the Canals of the Merrimack, and perhaps other locks along the Middlesex.

We know this from correspondence between Baldwin and his mentor, William Weston¹, wherein the two men discussed the merits of constructing bypass channels only on one side of each lock, verses both sides. (In the interest of construction economy, Baldwin argued for one side, while Weston argued for both sides so as not to impede traffic if something blocked one channel). We also know that Weston used his own patterns to have rack and pinion actuators, of iron, fabricated for Baldwin's use on these locks.

And, we have Judge Samuel Hadley's account² of, as a young boy (when the locks were being serviced, thus no water in them) of sliding in the channels from one lock to another. (Must have been slimy; I wonder what his mother thought about that??)

Since these locks clearly employed the bypass channels, each channel would have had some sort of sliding panel, actuated by the rack and pinion gears that, like a valve, would have slid — up to admit water into the channel, or down to close it off.

Shown in Figure 5, is a photo of wicket actuators at one of the locks along the Droitwich canal in England. (This is a 'water-saver' lock, hence the two actuators side-by-side; there are additional actuators at the top and the bottom of the same lock.) Based upon what we know about them, the rack-and-pinion actuators installed by Loammi Baldwin at the Merrimack flight would have looked and functioned very much like the Droitwich actuators (which are similar to many of the historic actuators still in use



Copy by Fred Merriam

Figure 4: Listing of Samuel P. Hadley Estate sale items

1 Baldwin, James F.; Minutes of the History of the Middlesex Canal; unpublished draft, January 1830. Courtesy, The Winterthur Library: Joseph Downs Collection of Manuscripts and Printed Ephemera, Col. 204.

2 Journal of the Old Residents' Historical Society, Lowell MA. Hadley, Honorable Samuel P., "Boyhood Reminiscences of Middlesex Village"

on canals throughout England).^{3 4} Standing to one side is Bob Barth holding a ‘key’, i.e., a crank-handle that is universally used in England to open and close wickets and paddle gates. (The handles are available to all boat crews for this purpose (heaven help you if you drop one in the canal!); i.e., they are not a fixed part of the actuator - deliberately so to deter mischievous operation of the actuators by passers-by.)



Photo by the author

Figure 5: Wicket actuators, ‘Water Saver Lock, Droitwich Canal, UK

— So — could ‘the wheel’ have been used at the Merrimack flight of locks, in place of a ‘key’, to operate a wicket actuator? Yes, almost certainly it was. Those were ‘tended’ locks, not ‘do-it-yourself’, thus less likely to be bothered by mischievous operation, and so the wheel might very well have been permanently attached (as the one at Swamp Locks obviously is). If so, there probably would have been multiple such wheels, likely eight of them, two inlet and two outlet actuators for each of the three locks in the flight. Or, said another way, one inlet bypass channel control and one outlet bypass channel control on each side of each lock, but where the outlet control of the top lock is the inlet to the middle lock, and the outlet of the middle lock is the input to the lower lock.

Most likely, the mystery of ‘the wheel’ has been resolved. Perhaps, someday, the physical item will be on display in the new Middlesex Canal Museum. I hope so!

³ See “Explanation of the annexed Rough Sketch”, <http://www.middlesexcanal.org/towpath/towpathtopicsJan2017.htm>

⁴ Baldwin, James F.; Minutes of the History of the Middlesex Canal; unpublished draft, January 1830. Courtesy, The Winterthur Library: Joseph Downs Collection of Manuscripts and Printed Ephemera, Col. 204.

Middlesex Canal Museum and Visitors Center Anniversary Remembrances from 1996-2021

by Shayne Reardon

Editors’ note: Since the MCA Museum and Visitors Center will soon be moving across the Concord River to a new site at 2 Old Elm Street in North Billerica, we are encouraging members to record their remembrances over the twenty years the Canal Museum was located at 71 Faulkner Street. Remember the ceremony when the museum opened, the debate over which color MCA tee shirt was the most popular, the model trains show, the Winter Meeting when the temperature outside was fourteen below zero, the presentation concerning the fish ladder and/or the dam removal, etc.? Consider joining Shayne and share your memories. We would love to print them in *Towpath Topics*.

Each of the nine towns along the 27-mile route of the Canal was asked to have at least one person represent their town on the Middlesex Canal Commission (Section) and that was Marion E. Potter, Member, in Billerica. Marion was a well-known force in Billerica and knew the regulations of how to run a town sanctioned meeting. She had been a long-time member of the Middlesex Canal Association.

1996 was the year my husband, John “Kenny” Reardon, was drafted into joining the newly reconstituted Middlesex Canal Commission as an Alternate in the Billerica Section of the MCC. The Billerica Section consisted of: Marion Potter, Helen Knight, Carl Seaburg, and John Reardon. As Marion Potter was advancing in age, John became her protégée. Neither John nor I had ever attended a board meeting so did not know the Roberts Rules of Order under which each meeting had to meet standards and reporting. I was asked to fill in as recording secretary. Monthly meetings were held at Billerica Town Hall until an agreement was made with Ron Pare`, owner of the Faulkner Mills, that we could from then to present, meet at our own meeting room in the Mill.

Phase 5, and the last of Phases 1-5 of the Commission, was to build a museum to house artifacts and teach the public about the history and importance of the canal route. It was the feeling of the Billerica Section that if you did not have any tangible place to show the public, how could you develop and hold the public’s interest until Phase 5 of the canal restoration was completed, many years down the road. It was decided to focus and channel efforts at the Mill Pond where it all began. NMCOG (Northern Middlesex Council of Governments) was to administer the \$100,000 grant funds awarded to the Commission by the State for all Sections. An initial planning meeting was held Sept. 26, 1996, at Billerica Town Hall with consultants Brian DeVellis and Christian Huntress along with members from other town boards including Recreation, Master Plan, Billerica Plan, other Section members with instructions to have an RFP prepared.

Alec Ingraham, along with our landscape architects, Brian DeVellis, and Christian Huntress, met with a photographer, Marion Potter, and Ron Pare` on a very cold and slippery February 1997 day at the dam falls to draw attention to our dream of opening a Canal Visitor’s Center and Museum. Following many meetings, a “Planning Charrette” was held at Town Hall on February 15, 1997 with about 100 residents and town boards participating to offer their ideas.

Ron Pare` was extremely generous in offering help in many different ways over the years. When we had a Lowell Street clean-up, Ron supplied the food and portable rest facilities for the House of Correction inmates (Community Work Program) as well as 5-6 men to remove the debris. He offered free meeting space in the mill, additional space to store artifacts, parking lot and any other help we could use, including fund raising.

At one point, we had 7 people appointed to the Billerica Section Board. Sadly, there are only 3 Board members presently. I cannot name all those who gave of so much of their time, skills, donations, and good humor when we all pitched in to build the present museum at the Faulkner Mills. All volunteers - except for professionals to install the bathroom facilities, tile flooring, electrical and heat/air installation. For those who have passed and those still interested, you gave me/us wonderful memories. The build-out and running of the Museum were a fulfilling 10 years for John and me.

Alec Ingraham and Andy Bowen gave so much with their willingness and abilities in woodworking (and tools). They were always on-call and were full of knowledge that John, the project manager, needed as he was a rough carpenter and piledriver by trade. Alec has, through all these 20 years been the Treasurer of the Billerica Section which includes submitting monthly/yearly reports to the town and state. And may I say, a true friend to John and me.

To my knowledge, no one in the Billerica Section had a background or much knowledge of what it takes to open and run a museum. The Billerica Section purchased a membership to the New England Museum Association and purchased several reference books. Debby Fox (Historic District Commission), Donna Doucette, Karen Carpenito and I attended several workshops to expand our limited knowledge. All in all, I feel we were quite successful and met many helpful people.

Deb Fox, Education Committee, worked as liaison to the Billerica teachers on a guide to focus on people, lifestyles, and work on the canal. Students from Billerica Enrichment toured the Museum as well as yearly visits from Wilmington 3rd graders through the consistent work of Betty Bigwood.

Karen Carpenito, volunteer, and an accountant, took on the responsibility of "Store Manager" (\$10,000 grant from Nortel Networks). Karen set up a scanning system, suggested items, and ordered inventory after Board discussions, made sure the funds were in the register for each event as well as buying books on the internet for our reading/research room and sales area. She also reported profit/loss to our Board, the town and state. Karen even recruited her brother, sister-in-law and family who volunteered in so many ways.

Norm Donchin was a great graphic designer and took on publication of our "Canal Routes" newsletter with the first edition published Yankee Doodle weekend, September 1997. As Norm was our "media person" he also designed and produced candy wrappers for our chocolate bar fund raising, designed, and had printed our Canal brochures which I delivered to NPS (National Park Service) in Lowell, Boston, Concord, Lexington, etc. as well as many other tourist information racks and Chambers of Commerce from Boston to Lowell. Through this contact source we were visited by many outside groups including Cape Cod Community College of Lifelong Learning. He was

one of our radio and TV appearance people. Norm obtained six bookcases and several lateral file cabinets from the company for which he worked. He even was the driving force behind the theatrical production by the Atlantis Playmakers at the Museum for the sold-out hit – "Tales of the Middlesex Canal".

Andy Bowen's main interest was signage around our town that would let people know where the canal ran, signage to the Museum from the Route 3 and in town (mostly funded by donations). Andy was nominated a Volunteer of the Year and that is an understatement for all he did for the Museum and Town. Andy created an exhibit section of the Meeting Room to publicize the Narrow Gage Railroad and how its history fit within Billerica. He also developed a great exhibit "Chronology of the Concord River Dam, showing the history of the dam which was constructed in 1828.

Bob Stanton took on the maintenance of the High Street Monument site – mowing the grass and tending to the plants (as well as helpful neighbors).

The above-mentioned volunteers with many others, were also tasked with snow removal, cleaning the facility and bathrooms, being present for facility rentals and cleaning afterwards and general maintenance and upkeep. These volunteers had their hearts in the Museum and were saving much needed funds to run the Museum by doing all these chores themselves.

On September 7, 2000, our preview opening with an "Appreciation Reception" was an unqualified success. We gave thanks to each and every organization and person that helped get the Museum from an idea to a reality. It took countless hours, many ideas started and revised, untiring energy and co-operation from so many people. I made many new friends that I would never have had the chance to meet otherwise.

Betty Bigwood and I traveled to the Commonwealth Museum in Boston to pick up borrowed exhibit items with our "revolving display" idea ("Colonial Women in Boston" and "George Washington"). Bill Gerber has a special interest in New Hampshire canals, surveying equipment of the day, other out-of-state canals, and he created displays to showcase each of his interests. He has been an unstoppable researcher and contributor.

Students from Billerica and Wilmington have been integral to the Museum by visits and exhibit building:

- Christian Tirella constructed to scale, the main entrance display on the Shawshen Aqueduct out of clay and Legos. His whole family became involved as volunteers in the Museum.
- A Wilmington student built another display following her classroom instructions introduced by Betty Bigwood.
- Zeb Couch (Montessori student) and his family researched, developed glass slides, and mounted a full room display named "Pictorial History of North Billerica" as an Eagle Scout project. This exhibit debuted New Year's Day, 2005 with 500 invitations being printed, as part of Billerica's 350th Anniversary. The whole family became volunteers!

The National Park Service in Lowell, with whom we had a working agreement, promoted our museum in 2001 for Canal Days by including a bus loop Museum visit with

demonstrations and refreshments. Tourists were also able to ride the train from Lowell to Billerica. The previous Canal Days attendance on an August weekend double to approximately 1,200.

Several of our volunteers worked on grant requests in varying amounts and were successful in each attempt. Grant writing was a large portion of the funds used to run the Museum. We had the strong backing our Town Managers, Select Boards, Recreation Dept. We all continued to fund raise and advertise what events were being held at the museum. What fun we volunteers had putting on fundraiser “teas”, working with Lowell National Historical Park rangers each Yankee Doodle with new, creative ideas to showcase the Canal that the townspeople really enjoyed. We also celebrated Canal Days tours each summer, Riverfest each July, Faulkner Mills hosting a “block party” with DJ and hot dogs. And yard sale fund raisers. We also walked yearly in the Chelmsford 4th of July parade pulling the exhibit of the packet boat, while in full 1800th century costumes (and let me tell you it was very hot) to hand out flyers and publicize the Museum. We also did this for Billerica’s Yankee Doodle parade. Then there was “Ladies Night Out” as a fundraiser. Boy Scout Troop 55 was helpful on many occasions with brush clearing on the towpaths, general cleaning for a special occasion.



Champaign Glass utilized to “toast” at the dedication of the Middlesex Canal Museum and Visitors Center.

A Museum is only as good as the people who care for it; run it on a daily basis. Without hundreds of volunteers over the years, this Museum would not have happened. Each person left their mark and friendship with the rest of us. Such good memories therein.

And don’t forget, all this (and so much more) has been offered to the townspeople free of charge for 20 years.

Reminiscences of Middlesex Village

by Susan Richardson Pevey

Reprinted from *Canal News*, Volume 1: No. 1

When I was a little girl, I grew up in Middlesex Village - a quiet, little country place about three miles from the heart of the city of Lowell, Mass. Great, tall elms bordered Middlesex Street on both sides, which made it wonderfully shady to walk along leisurely for miles, past the many stately homes.

Some very distinguished people lived in Middlesex Village in the Eighties and Nineties. One of these people was Henry Ferrin, who had a carriage shop, and oh! what fun we children all had in those handsome, shiny buggies, playing hide-and-seek in the huge barn. Mr. Ferrin’s horses were known far and wide for their beauty and training. My brother played with Mr. Ferrin’s grandsons, so we all knew the place inside and out.

Further up the street lived James T. Smith whose home was a beautiful red brick colonial. It is still standing, but the old street will never again be the same. Mr. Smith, I believe, was one of the Founders of the Lowell Textile School. We used to have “afternoon tea” there, being seriously admonished beforehand by our mother, to be on our dignity and best behavior.

One of Lowell’s leading druggists of that time, Charles Carter, married Julia Tyler, daughter of Mrs. Sam Tyler who will be remembered as the benefactor who gave land to the city of Lowell for what is now Tyler Park. Henry Clough was a neighbor and owned a granite quarry. Like Mr. Ferrin, he had a lovely white house and barn with many horses.

I recall that there were several Pratt families who owned land where the Old Middlesex Canal ran through. Judge Hadley and his family lived on the corner of the street which is named after him. His neighbor to the right was George L. Fowler, Wood Dealer. We always thought he had the oddest-shaped house.

Then there was the Old Middlesex Tavern; in front of it stood a large watering-trough where all the Middlesex Village horses knew they could get a refreshing drink. In back of the Tavern, the canal ran down to the railroad tracks where the Village Depot was located. The Village children went to meet the five o’clock train from Boston every day, a highlight then which could not even be imagined in these days. We also made daily trips to the Village Post Office where Mr. Simpson was Postmaster. Mr. Simpson’s sister kept house for her brother.

Baldwin Street ran from Middlesex Street to Westford Street and was named for Loammi Baldwin, who was reputed to be the first major Civil Engineer in America.

The Middlesex Canal made its meandering way through land owned by several of these village people, but one little stream in particular was called “Black Brook” and to me, it signified a delightful haven, because I remember all of the neighbor children wading in its cool, clear water, rippling down through the meadows which bordered all of my father’s land and finally emptied into the Merrimack River, at the junction of Middlesex Street and Pawtucket Street. My father had ice-houses there.

We skated on Black Brook from Thanksgiving Day all the winter long, and in summer we did a lot of fishing there. I can see my father fishing for long silver trout in all the brooks around where we lived. All these things make fascinating recollections in my later life.

Herbert Pickering built a hosiery mill along the railroad tracks across the street from our house in the 1890’s. I do not think there are many people still alive today who lived in the Village in those days.

I remember, too, that all we Village children walked three miles to Lowell High School and back every day and it did not seem too much of a hardship then. With all the cars and busses at their disposal these days, I suppose it would be difficult for the present students at Lowell High School to believe such a story.

These days have all gone into the past but the memories of those happy times will be cherished in the re-telling of the many tales to our children, grandchildren and great, grandchildren.

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Reminiscences of Middlesex Village

Editors' Note by Alec Ingraham

In October of 1963, the feature article in the first edition of *Towpath Topics** was "Reminiscences of Middlesex Village" by Susan Richardson Pevey. Since Middlesex Village was the northern terminus of the Middlesex Canal, surely Susan's reminiscences would be of interest to the readers of the newsletter, but why the article was chosen as the feature for the premier edition is unknown. Deb and I thought it would be of interest to republish the article in this edition. It is a timeless representation of years gone by, still as interesting today as it was in 1963.

A trip through Middlesex Village nowadays would be far different from the area Susan describes. Rush hour traffic at the Rourke Bridge over the Merrimack River is nearly grid locked. The location of the family home was on Middlesex Street which is now lined with countless commercial enterprises. The stately elm trees she describes are gone but Hadley Park and Baldwin Street speak to the existence of an earlier time. When the Canal was dug, Middlesex Village was part of Chelmsford, but when Susan was growing up it had been annexed by Lowell. Since her name is not among those typically mentioned among the founding members of the Middlesex Canal Association, I thought learning something of her background should be included with the reprint of her most interesting reminiscences.

Susan was born in Lowell on March 5, 1885, the daughter of Henry and Carrie (Nash) Richardson. In the 1910 Federal Census, her father was listed as a hotel clerk at the Richardson Hotel in Lowell. In other censuses his occupation is listed as a farmer, an ice dealer and even a lawyer. It appears from her reminiscences that the family lived near 1460 Middlesex Street in Middlesex Village. Today there is a Wendy's hamburger restaurant at this address.

She graduated from Lowell High School and in 1907 married John C. Pevey (1885-1962), also of Lowell. He was a recent graduate of Lowell Textile Institute. His obituary in the October 10, 1962 issue of the *Lowell Sun* makes note that he "was prominent in Textile Field," to which John devoted his entire life. At different times, he was superintendent of the Boott Mills in Lowell, the president of the Farmac Fabric Com-

pany in Lowell, superintendent of the Pepperell Textile Manufacturing Company in Biddeford, Maine and prior to his retirement, in 1950, general manager of the Exeter Manufacturing Company in Exeter, New Hampshire.

The couple had four children, three girls and a boy. Needless to say, the family must have moved often. At the time of John's death, Susan continued to live at their residence on 20 Lincoln Avenue in Haverhill, Massachusetts, and was living there at the time of her death in 1968. They were both active parishioners of the Amesbury Methodist Church. According to Susan's obituary in the April 30, 1968 edition of the *Lowell Sun*, she was a proud member of the Daughters of the American Revolution.

*The first three issues of the MCA newsletter were entitled "Canal News," after which the name was changed to *Towpath Topics*.

Baldwin Apple in *The New York Times*

by Howard Winkler

I wondered what I would find if I used Loammi Baldwin as a search term in The New York Times archives, and found an article dated, May 30, 1895 about Baldwin and his namesake apple.



From The Boston Globe.

The Rumford Historical Association of Woburn, Mass., will erect a monument where, about 100 years ago, was discovered the Baldwin apple. Samuel Thompson of Woburn, while surveying a route for the Middlesex Canal, discovered this apple. His attention had been drawn to it by the number of woodpeckers which gathered about the tree on account of the apples. Mr. Thompson thought it a new variety, and, as it pleased his taste, he called the attention of his neighbors to it, and he and his brother hastened to graft from it many trees on their own estates. It was first called the "pecker" apple, then the "Butters" apple, from the owner of the land where the tree was found.

The brothers Thompson were indefatigable in their efforts to disseminate it far and wide, and for miles around the people secured scions and grafted their trees. The neighbor and friend of the Thompsons, Col. Loammi Baldwin, the eminent engineer, showed the fruit to his many guests, who came from distant parts of the country, and this did much for the spread of the apple's fame, which in a few years came to be known as the "Baldwin." The granite shaft which is to be erected by the Rumford Historical Association of Woburn is seven feet high, and is surmounted by a representation of a Baldwin apple.

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Back Issues - More than 50 years of back issues of Towpath Topics, together with an index to the content of all issues, are also available from our website <http://middlesexcanal.org/towpath>. These are an excellent resource for anyone who wishes to learn more about the canal and should be particularly useful for historic researchers.

Estate Planning - To those of you who are making your final arrangements, please remember the Middlesex Canal Association. Your help is vital to our future. Thank you for considering us.

Membership and Dues – There are two categories of membership: **Proprietor** (voting) and **Member** (non-voting). Annual dues for “Proprietor” are \$25 and for “Member” just \$15. Additional contributions are always welcome and gratefully accepted. If interested in becoming a “Proprietor” or a “Member” of the MCA, please mail membership checks to Neil Devins, 28 Burlington Avenue, Wilmington, MA 01887.

Museum & Reardon Room Rental - The facility is available at very reasonable rates for private affairs, and for non-profit organizations to hold meetings. The conference room holds up to 60 people and includes access to a kitchen and restrooms. For details and additional information please contact the museum at 978-670-2740.

Museum Shop - Looking for that perfect gift for a Middlesex Canal aficionado? Don't forget to check out the inventory of canal related books, maps, and other items of general interest available at the museum shop. The store is open weekends from noon to 4:00pm except during holidays.

Nameplate – Excerpt from a watercolor painted by Jabez Ward Barton, ca 1822, entitled “View from William Rogers’ House”. Shown, looking west, speculation has it the packet boat George Washington being towed across the Concord River from the Floating Towpath at North Billerica.

Web Site – The URL for the Middlesex Canal Association’s website is www.middlesexcanal.org. Our webmaster, Robert Winters, keeps the site up to date. Events, articles and other information will sometimes appear there before it can get to you through Towpath Topics. Please check the site from time to time for new entries.

The Canal the Bisected Boston: <https://www.youtube.com/watch?v=u3yv1BAPGmg>
The Middlesex Canal (1793-1860), dug by hand from the Merrimack River at Middlesex Village in Chelmsford to the Charles River at Charlestown during the second term of George Washington’s presidency, played a major role in the development of Boston. Boats were drawn by horse to the Charles River. There they were pulled by chain across the Charles River and down Mill Creek, which bisected the city, to the long wharfs of Boston Harbor. Written and narrated by David Dettinger, author of the definitive study of the Canal extension in Boston from 1810-1830. — Videotaped and edited by Roger Hagopian

The **first issue** of the Middlesex Canal Association newsletter was published in October, 1963. Originally named “Canal News”, the first issue featured a contest to name the newsletter. A year later, the newsletter was renamed “Towpath Topics.”

Towpath Topics is edited and published by **Debra Fox, Alec Ingraham, and Robert Winters**. Corrections, contributions and ideas for future issues are always welcome.