AmericanCanals

Bulletin of the American Canal Society

www.AmericanCanals.org

Vol. XLVII No. 3 Dedicated to Historic Canal Research, Preservation and Parks Summer 2018

From the President

By David G. Barber

This will be my last President's letter as I have decided that the time has come to pass the gavel on to someone else. Officers are elected by the directors at their annual meeting. This year, that meeting will be in Akron, Ohio on October 19th before the joint meeting of the Pennsylvania and Ohio Canal Societies.

It has been my pleasure to serve as ACS president for the past sixteen years and I believe the cause of canal history has been advanced by our many members during that period. Please welcome and support our next president when selected by the directors.

In This Issue

C&O Canal Towpath facing toward Lock 69 in Oldtown, Md. Plans to improve and maintain the C&O Canal towpath are outlined on page 8. – Photo by Steve Dean

American Canals

BULLETIN OF THE
AMERICAN CANAL SOCIETY

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The objectives of the American Canal Society are to encourage the preservation, restoration, interpretation, and use of the historical navigational canals of the Americas; to save threatened canals; and to provide an exchange of canal information. Manuscripts and other correspondence consistent with these objectives are welcome.

An annual subscription to ***American Canals*** is automatic with ACS member-ship. Regular Single Membership, $25; Dual Membership, $35; Sustaining (no change) $35; Patron, $50; Life Membership $500.00. Single copies, $3. Four issues per year. Printed in the United States of America. ISSN 0740-588X.

Other Publications: *The Best from American Canals; American Canal Guides,* William E. Trout III, editor and publisher

DEADLINE: Material for our next issue must be on the editor's desk no later than October 1, 2018. Send to Steve Dean, PO Box 132, Saint Leonard MD 20685, Editor, American Canals; 301-904-9068; 184.5_miles@comcast.net

Material submitted to ***AMERICAN CANALS*** for publication should be typed and double-spaced or sent by email in WORD format. You may send actual photographs (which will be scanned and returned), or digital versions may be emailed or sent on a CD.

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American Canals Indexes Updated

Thanks to some hard work by David Barber, the index for *American Canals* is now updated to reflect the full 45 year history, from 1972 to 2016. Separate indexes allow searching by article, author and photographs. The indexes are available at the following link: www.americancanals.org/AC%20Indexes/AC_Indexes.htm

Additionally, past issues of *American Canals* through 2014 are now available. They can be found at: www.americancanals.org/AC_Issues/American_Canals.htm

American Canal Society Sales

The Society has the following items for sale:

Best from American Canals #2	published 1984	$4
Best from American Canals #5	published 1991	$4
Best from American Canals #6	published 1993	$5
Best from American Canals #7	published 1996	$5
Best from American Canals #8	published 1998	$6
American Canal Guide #1: West Coast	published 1974	$1
American Canal Guide #2: South, NC to FL	published 1975	$2
American Canal Guide #3: Lower MS & Gulf	published 1979	$3
American Canal Guide #4: WV, KY, Ohio River (Photocopy)	published 1988	$3
American Canal Guide #5: DE, MD, VA	published 1992	$3
20 year American Canals Index 1972-1992	published 1992	$3
Canal Boat Construction Index (12 pages)	published 1992	$2
Picture-Journey Along the Penn. Main Line Canal	published 1993	$10
ACS Burgee (blue on white cloth)		$15
ACS cloth sew on patch (2” x 3” red, white & blue)		$3

Special Offers – while stocks last

Back issues of American Canals - free to members – enquire for a list of available copies and mailing cost.

An ACS bumper sticker (“Support Your Local Canal” or “Restore Your Local Canal”) will be sent **free** with each order

Shipping and handling: Orders can also be sent by mail with a check payable to American Canal Society to 24 Northview Terrace, Cedar Grove, NJ 07009. **Include $3 postage for first item and $1 for each additional item** for Media Mail within USA. Enquire for other destinations and expedited delivery. Allow for your order to take up to 4 weeks to dispatch. Email Sales.AmericanCanals@gmail.com for further information.

2018 World Canals Conference

Every year, the World Canals Conference brings together hundreds of canal and waterway enthusiasts, professionals and academics from around the world. During the conference delegates exchange ideas about canal management and development including: the protection of historic features; technical developments; revitalization of canal systems and harbors; recreational opportunities; and the promotion and presentation of canal history. Ways of promoting tourism and invigorating rural economic development and urban renewal are explored.

Since its inception in 1988 the World Canals Conference has grown significantly and now welcomes waterway management agencies and professionals, users and enthusiasts from Asia, Africa, Europe and North America.

Conference delegates, official partners and sponsors will have a range of both formal and informal opportunities involving presentations, networking, exhibitions, educational tours and social programs to share and exchange experiences, technical solutions and learnings.

On September 10–12 2018, the World Canals Conference will take place in Athlone, Ireland. Themed Restore Regenerate Reimagine, the conference will showcase Ireland's many restoration and re-imagining projects in a three day event were delegates can update their knowledge of innovative waterways management experiences and techniques from all over the world.

Visit wccireland2018.com for conference information, including details about registration, events, accommodations, pre-conference tours and Athlone.

Conference Program

Sunday 9th September 2018
2-8 pm – Registration
7 pm – Welcome Reception

Monday 10th September 2018
Morning – Opening Session
Morning Break
Plenary Session
Lunch
Afternoon – Breakout Session
Afternoon Break
Evening – Civic Reception & BBQ

Tuesday 11th September 2018
All Day – Technical
Evening – Free Evening

Wednesday 12th September 2018
Morning – Breakout Session
Morning Break
Lunch
Afternoon – Breakout Session
Afternoon Break
Closing Ceremony
Evening – Conference Dinner

Full program with details on speakers and locations is available at
wccireland2018.com/conference-programme/

Government and Canals

By Rod Mackler

The Trump administration plan proposes to shift responsibility for harbor channels and inland waterways from the U.S. Army Corps of Engineers to the Department of Transportation — and, in some cases, out of federal control altogether. (Washington Post, June 21, 2018)

This idea, officially announced by the Office of Management and Budget in the White House, will probably go nowhere, for reasons discussed below. Nonetheless, it prompts us to consider the role of governments in the construction and maintenance of canals in this country.

There were a handful of canals begun in America in the 18th century. The Middlesex Canal ran between Boston Harbor and the Merrimack River, near Lowell. Ground was broken in 1794 and it was completed in 1803. The Great Dismal Swamp Canal, from Chesapeake Bay to Albemarle Sound, at the Virginia/North Carolina border, was originally proposed by George Washington in 1763, begun in 1793 and finished in 1805. Washington was also president of the Patowmack Canal Company, which built skirting canals around the five worst sets of rapids and falls in the Potomac; Virginia and Maryland signed a compact to build the canal in 1785, but the canal around Great Falls took 17 years to complete, opening in 1802, over two years after Washington‘s death.

Today the Middlesex Canal exists only in disjointed remnants. The Great Dismal Swamp Canal is still in use, part of the Intercoastal Waterway, operated and maintained by the U.S. Army Corps of Engineers. The Patowmack Canal was succeeded by the Chesapeake and Ohio Canal, which was fully operational from 1850 to 1924, and is now a National Historical Park in the District of Columbia and Maryland. The George Washington Memorial Parkway manages the ruins of the earlier canal around Great Falls in Virginia.

In the late 18th and early 19th century, there were no professional canal engineers in the United States. Washington, for instance, hired a Scottish inventor, James Rumsey, who had demonstrated a steamboat on the Potomac River, to oversee the effort on the Patowmack Canal. Some Americans went on study tours to England, especially to examine the canal built for the Duke of Bridgewater in northwest of England.

The Duke of Bridgewater ‘s canal was opened in 1861 to transport coal from the Duke’s mines to the industrial city of Manchester. The Duke had gotten the idea for a canal after a visit to the Canal du Midi in the south of France. He may have done much of the engineering himself, but he hired James Brindley, who had drained one of his mines, to assist. Brindley went on to build 365 miles of British canals. The Bridgewater Canal was quite successful, causing a 50 percent drop in the price of coal in Manchester and setting off a “canal mania” in England.

A parallel canal mania was touched off in North America by the success of the Erie Canal. It made a profit, a rarity among 19th century waterways. The state of New York had approached the federal government for funding; the request was refused, and since the entire route was within one state, New York Governor DeWitt Clinton decided to go it alone. Of course, state funds were the primary source of finance for the canal. Engineers who had worked on the Erie Canal were in high demand to plan and supervise work on other American canals.

Albert Gallatin

Geneva-born Albert Gallatin was seemingly everywhere in the early days of the American republic. He was an instructor at Harvard, member of the Senate and House of Representatives, minister to France, student of Native American languages, and founder of New York University. His statue stands in front of the Treasury Building on Pennsylvania Avenue and an-

other at Friendship Hill, his home in southwest Pennsylvania, now operated by the National Park Service. The house today sits on a bluff overlooking the coal barges plying the Monongahela River, a waterway maintained by the Army Corps of Engineers.

Gallatin was for a dozen years Secretary of Treasury, under Presidents Jefferson and Madison. He helped to plan the Lewis and Clark expedition; when the Corps of Discovery reached the headwaters of the Missouri River, they named the three forks for their sponsors: the Jefferson, Madison and Gallatin Rivers.

The Senate asked the Secretary of Treasury for a plan for "internal improvements," that is, roads and canals to link the United States. Washington and Jefferson realized that there needed to be transportation links over the Appalachian Mountains to unite the young country. Otherwise, as the Aaron Burr conspiracy illustrated, settlers in Kentucky or Ohio would be wooed by Spanish, French or British powers. In 1808, Gallatin delivered a plan, reading like a blueprint for most of the major highways and canals that were later built in the eastern U.S., from the National Road to the Intercoastal Waterway. It included what became the Erie Canal, the Pennsylvania Main Line, the Chesapeake and Ohio Canal, and the James River and Kanawha Canal. Like Jefferson, the Swiss-born Gallatin was a fiscal conservative, believing in a balanced budget. As factions devolved into parties in the early Republic, Gallatin sided with Jefferson and Madison, in opposition to Adams and Alexander Hamilton. Despite cost of the Louisiana Purchase, Gallatin paid down the debt that had been run up by his predecessor Alexander Hamilton, until the War of 1812 blew up his efforts to balance the books.

U.S. Army Corps of Engineers

The history of the U.S. Army Corps of Engineers (USACE) goes back to 1775; when the Continental Congress organized an army, it included a chief engineer and two assistants. The engineers' original tasks included building fortifications, such as at Bunker Hill. In 1802, President Jefferson created the Corps and an academy at West Point; an engineer commanded the U.S. Military Academy there until 1866 and West Point was the premier engineering school in the United States during this period. In addition to military tasks, Congress assigned civil work to the Corps. The General Survey Act of 1824 authorized the USACE to survey canal and road routes. Soon thereafter, Congress gave the Corps responsibility to maintain the navigability of the Ohio and Mississippi Rivers. The Washington Aqueduct, the Washington Monument, the Panama Canal, the Pentagon and the Tennessee-Tombigbee Waterway were all USACE projects.

Politics and Pork

The Tennessee-Tombigbee (Tenn-Tom) Waterway is the most recent major canal project in the United States, connecting the Tennessee River to the Gulf of Mexico, passing through Mississippi and Alabama. The idea for such a waterway goes back to colonial times, but the more recent impetus for the project came from President Nixon, as part of his "Southern Strategy." The waterway is a prime example of pork barrel politics, embraced by southern politicians who claim to be fiscal conservatives. The names of the locks on the canal read like a who's who of politicians of the Deep South: Senator John Stennis (D-MS, Rep. Jamie Whitten (D-MS), G.V. Montgomery (R-MS), Howell Heflin (D-AL), and so forth. This pork barrel aspect of the Corps' work illustrates why the idea of the current administration will go nowhere in Congress. In addition, the prime cargo for the larger navigable waterways – the Mississippi, the Ohio, the Monongahela, etc. – is coal, a commodity with a strong political constituency.

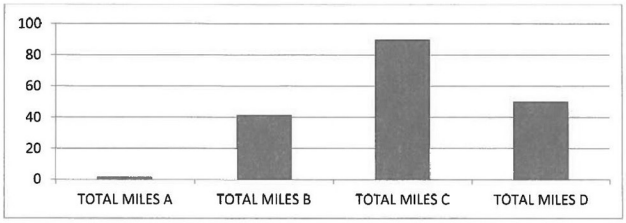
A Path to Success: The Towpath Master Plan

By Stephanie Spencer

When most people think of the Chesapeake and Ohio Canal (C&O Canal), they envision a long path trailing along the Potomac River and winding through towering trees. They also envision lockhouses, locks, and aqueducts along the towpath that stretches 184.5 miles and provides an avenue of exploration for those traveling its length. The towpath is more than just a path. It is a hiker's playground, a historian's wonderland and a visitor's memory. This is what makes it so important to maintain and preserve the place where many have trodden and where others may find their way.

Three years ago, Greg Kniesler, the park's Chief of Maintenance, determined that the park needed a strategic plan for maintaining one of its most important assets. By teaming up with the Allegheny Trail Alliance (ATA) to do a safety assessment of the towpath surface, the park began its journey of creating a towpath master plan.

This safety assessment did not include structural assessments of culverts, aqueducts, bridges, tunnels or other historic structures, but it focused on the entire length of the towpath, which with the Great Allegheny Passage, is part of a route that stretches from Pittsburgh, Pa., to Washington, D.C. The assessment assisted with providing trail documentation and a rating for each mile of the towpath, from Mile 2 through Cumberland, Maryland, at Mile 184.5. The rating values included:



Distribution of towpath miles by assessed condition grade – Courtesy of the Allegheny Trail Alliance

Very Good (A)

Good (B)

Fair/Poor (C)

Poor/Very Rough (D)

The assessment ratings of A through D considered trail width, trail surface, mud, center grass strip, ruts/potholes, and drainage. The towpath trail, with its typical green center grass strip straddled by a dirt surface, has weather, bike tires, horse hooves, hiking boots, and general wear and tear continually impacting its condition.

The ATA's ratings are based on a clear set of criteria, according to optimal towpath conditions. The trail width, which varies throughout the park, is at best 8 feet. The surface of this 8-foot-wide pathway ranges from compact organic materials, consisting of leaves, grass, twigs, etc., of various sizes to deep tracks and muddy areas.

The frequent muddy areas had a large impact on the assessments, particularly due to most of the towpath having a good foundation but a very muddy surface during wet conditions. The buildup of mud and the lack of adequate drainage create ruts and potholes, which are quite common and cause travel and safety issues.

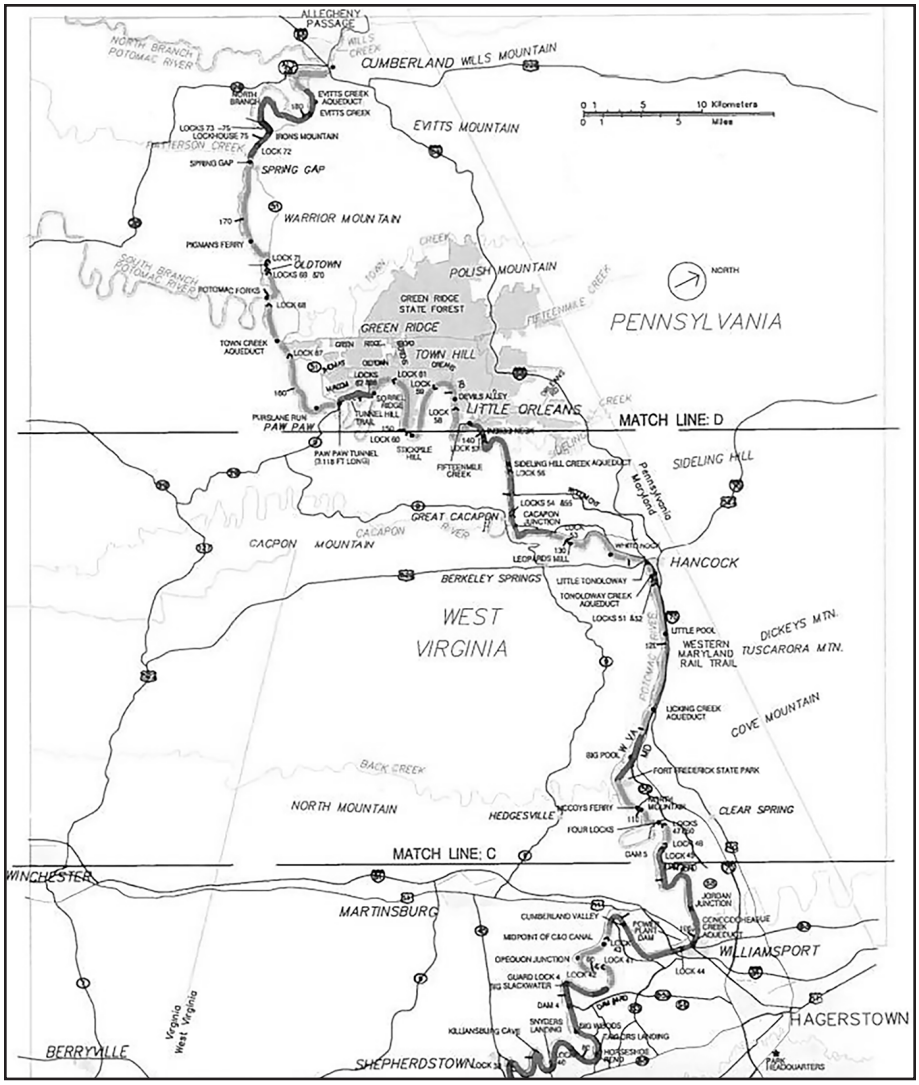
The green center grass strip running along most of the 184.5 mile pathway also negatively impacts the towpath by inhibiting drainage and full use of the towpath. Around 70 percent of the towpath has the strip, which equals about 130 miles. It is ideal for water to drain from either both sides of the center or from one side or the other, but the current conditions allow for water to pool along the tracks.

Throughout many years, the trees along the towpath have grown greatly and so have their roots. These roots grow more and more each year, encroaching upon the towpath and causing safety hazards. Tree roots are reportedly the greatest cause of injury to towpath users. In the past six years, over 200 towpath injuries were reported, 71 percent of which involved towpath defects such as root exposure.

Based on the assessments, the ATA created a set of best practices for maintaining the C&O Canal towpath. The most apparent is the removal of the center grass strip, which will also assist in creating better drainage off the pathway. The frequently occurring ruts and potholes can be repaired by removing the settled organic material and resurfacing the towpath with new material.

The recommendation for the new trail surface is a 2-inch layer of AASHTO[1] #10, a material of 3/8 inch crushed stone dust that drains well and is good for walkways. In order to alleviate the frequently occurring compact and wet path conditions, the ATA recommends increasing summer mowing and blowing off organic materials once a year.

Safety is always an important consideration, making the removal or covering of encroaching tree roots and stones such an important aspect of towpath maintenance. Removing dead trees, which is part of an ongoing hazardous tree removal project, and correcting informal paths that erode the sides of the towpath will also assist with alleviating hazards within the park.



C&O Canal Towpath, Hagerstown, MD and above. Courtesy of the Allegheny Trail Alliance

The ratings based on the set of criteria, along with engineer drawings and the best practices for maintenance and upkeep, resulted in an ATA-built five-year master plan for improvement. This plan identifies the worst areas of the towpath, based on the assessment results. However, it is presented by access point to access point rather than mile to mile. The park's database and hierarchy are written mile to mile, making the park's production of ATA-assessment-based projects a challenge.

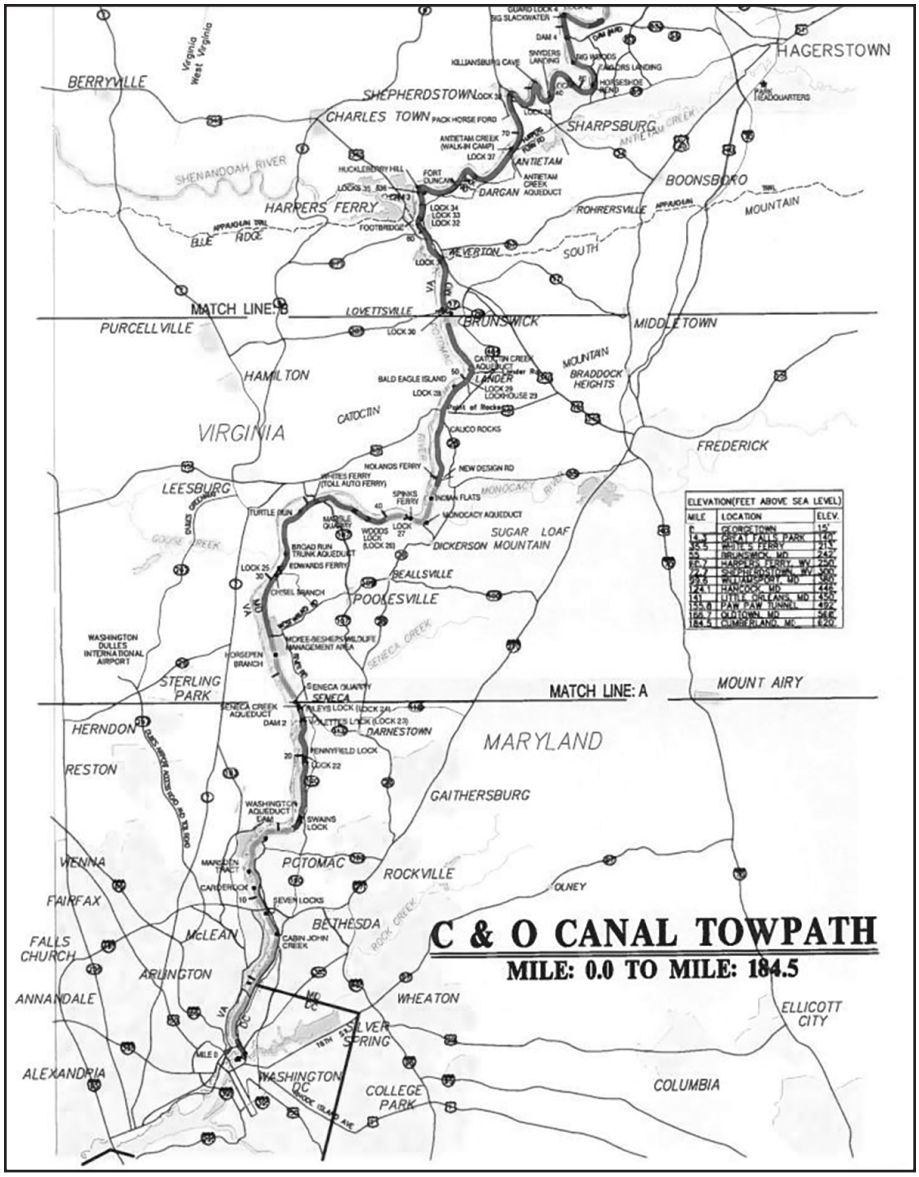
Other limitations for the proposed five-year-plan include limited in-house capabilities, creating work packages based on the associated costs, and finding the appropriate funding for the created work packages. Due to these limitations, the C&O Canal is formulating its own master plan based off the ATA's detailed assessments.

"Five miles of resurfacing a year over 184.5 miles means the towpath will be resurfaced in 37 years if the park relies only on cyclic funding."

Despite limited workers, park staff have accomplished great tasks with in-house efforts. Beginning in August 2017, C&O Canal staff began implementing the plan to "link up the areas that were proposed to be under contract in order to provide a smooth and clear ride for as long as possible," says Mike Messenger, the Western Maryland Supervisory Facility Engineer.

With this goal in mind, park staff has targeted areas for the removal of the center grass strip, clearing of pot holes, smoothing of the surface, and adding of extra towpath material to fill in the pot holes. Their efforts assisted in creating a better towpath surface over 9 miles in the areas from Dam 5 (Mile 106.8) to Licking Creek Aqueduct (Mile 116.04).

Presently, the staff are working to re-compact the already repaired sections between Dam 5 and Hancock, which spans a total of 16.1 miles. They are also removing the center grass strip, smoothing the surface, and filling in pot holes from the construction area at the Conococheague Aqueduct (Mile 99.72) to Dam 5. Following the work's completion, the towpath from the Conococheague up to Hancock should provide a smoother and clearer ride. This is 23.17 miles of towpath repaired and resurfaced by in-house staff.



C&O Canal Towpath, Hagerstown, MD and below. Courtesy of the Allegheny Trail Alliance

Several different materials have been used for the path surface, including a "crush and run" gravel material that was good but too rough for a top surface and a 4-inch wearing surface that was too thick and did not compact well enough. Due to the incompatibility of previous surface materials, the AASHTO #10 is the recommended material for the well-worn path.

There have been several past towpath resurfacing projects completed through contract work. From 2013 to 2015, 8 miles of the towpath were repaired. Six of those 8 miles were resurfaced using the old towpath material, which is a mix of bank run sand and gravel held together by clay. The other 2 miles were the first to be resurfaced using the AASHTO #10 material.

According to Brian Hixon, the park's Exhibits Specialist, the park has had "numerous complaints in the past about the rough surface of the towpath." Because of these complaints, the AASHTO #10 surface material has been used on a small stretch of the towpath and is found to be "a much smoother riding surface for bicycles compared to the 3/4 inch dirty crusher run that we normally use for towpath resurfacing. Only time will tell how this new material will hold up on the towpath," says Hixon.

As the C&O Canal moves forward with its towpath master plan, funding requests play major roles in determining how effectively the towpath can be repaired. With cyclic funding, one 5-mile stretch of towpath can be resurfaced a year. T.J. Stottlemyer, the park's project manager, points out that 5 miles of resurfacing a

year over 184.5 miles means the towpath will be resurfaced in 37 years, if the park relies only on cyclic funding. With the help of alternative funding sources, such as the Transportation Alternative Program (TAP) grants from the state of Maryland, the park's efforts can be more than doubled, completing the resurfacing effort in a more reasonable time frame.

Historic photo of the C&O Canal Towpath at "Log Wall," miles 10-11 – Courtesy of the National Park Service, C&O Canal National Historical Park

Aside from funding complications, the towpath master plan meets challenges related to work access and visitor usage. Many sections of the park are remote and have limited or widely-spaced access points, making it difficult for staff, contractors, and equipment to access project areas. Nearly 5 million people visit the park each year and take advantage of its resources. With such a high volume of visitors, construction projects are sure to impact visitor use.

Currently, there are a number of projects in place that address the towpath sections assessed with a (D) rating, meaning they are poor/very rough. The worst areas are being addressed first, with projects created based on funding. In fiscal year 2018, cyclic funding has provided for a project to address a 5-mile stretch of towpath between Edwards Ferry (Mile 30.8) and Whites Ferry (Mile 35.5). TAP grants funded a project to address a 12-mile section between Harpers Ferry Bridge (Mile 60.7) and Shepherdstown (Mile 72.8).

Both the past and current projects push the park closer to achieving its overall goals of transitioning the entire stretch of towpath to "a safer and more enjoyable state," states Joe Reed, the park's civil engineer, and beginning an annual routine maintenance plan following a full resurfacing of the towpath. Until that point, each year the park will continue to strive for the smaller goal of resurfacing 5 miles with cyclic funding and 10 to 15 miles with TAP grants.

With more and more people discovering the tranquility and adventures of the towpath, it becomes ever more crucial to preserve and protect this resource for current and future generations to enjoy. Through projects and in-house teamwork, the winding historic pathway can remain an inspirational, educational, and safe resource for years to come.

Note:

1. AASHTO is the *American Association of State Highway Transportation Officials*

S*tephanie Spencer is a professional photographer and journalist from Pennsylvania who graduated from the University of Maryland University College. She currently works at the C&O Canal National Historical Park headquarters as the Maintenance Division's Facility Services Assistant.*

Illinois and Michigan Canal Begins A Restoration Project

By Arnie Bandstra

The Illinois and Michigan Canal was an important public works project for our young American country. It was the last canal built during the great canal building era of 1790 to 1850 before the railroads dominated the transportation needs for people and goods.

A canal to connect the Great Lakes to the Mississippi River was envisioned by Father Marquette in 1673, the first canal envisioned in the new world. Washington and Jefferson saw the need for transportation improvements to connect the colonies with the frontier of the Northwest Territory. With the beginning of construction of the Erie Canal in 1817 and the statehood of Illinois in 1818, the earlier idea of our canal became a priority for the young state.

Construction of the I&M Canal began in 1836 and it was completed in 1848. The new canal attracted emigrants, canal builders, speculators, farmers and entrepreneurs which brought development to Illinois. It caused rapid growth of Chicago, and eventually northern Illinois and the Midwest. People came from New England, Ireland and Germany. It brought manufactured goods from the east and grain to the new Board of Trade in Chicago, carried 49ers part way to their destination, and transported men and materials for the Civil War.

Of the original 96 miles of the canal, there is still access to 82 miles. The Illinois Department of Natural Resources controls the right of way of about 66 miles. This is a major opportunity to preserve and restore our historic canal and develop it as a recreational corridor. The remnant is a significant icon of pre-industrial America, a monument to the days when hard work was necessary to bring prosperity to the young nation.

The Ottawa Canal Association, lead by Arnie Bandstra, President was formed in 2008. The Association has furnished the toll collector's office, the only

Above – Arnie Bandstra, President of the Ottawa Canal Association, discusses the restoration project.

Below – The groundbreaking - pictured are, Left to right: Bob Eschbach-Mayor, Wayne Eichelkraut-Commissioner, Tom Ganier-Commissioner, Arnie Bandstra (White Shirt). The remaining four are officers of the Army Reserve, 317th Engineer Company from Homewood, Il. and Marine Reserve, 6th Engineer Support Battalion from Battle Creek, Mi. The digging was to exemplify the original digging of the canal with picks, shovels and wheelbarrows.

All photos courtesy of the Ottawa Canal Association

toll house on the I&M Canal of the original four that has been preserved. The members docent on Sundays from March through November.

Since 2009 the Association has been working with the Mayor of Ottawa, The Canal Corridor Association, the Illinois Department of Natural Resources, which owns the property , as well as a local consulting engineering firm to secure the necessary permits.

Groundbreaking for the construction work was held July 8 (see photos). The excavation work is being performed at no cost by the Army Reserve, the 317th Engineer Company from Homewood, Illinois and the Marine Reserve, Engineer Support Battalion from Battle Creek, Michigan. They are available for municipal and not-for-profit organizations through the Pentagon's Innovative Readiness Training program. The Program advertises projects that can provide appropriate training to all Reserve and National Guard units. The units may then respond to projects for which they have capabilities. Actual excavation started the day following groundbreaking as seen on the photos.

The City is contributing $400,000, the Mayor and the OCA are raising $200,000 and various individuals, groups and contractors are donating men and equipment for construction. The project will rewater a section of the I&M Canal that is 0.6 miles long through the center of Ottawa. It is expected that water will be filling the canal by November of this year.

Visit the Ottawa Visitors Center website, Visitusottawa.com and the Ottawa Canal Association Facebook pages for more information and progress updates on the project.

Upper right – A view of the groundbreaking

Center right – Initial progress of the excavation

Lower right – The crowd gathered for the groundbreaking

Canal Fulton Heritage Society

By Terry Woods

On May 6, 1968, papers were signed to incorporate the Canal Fulton Heritage Society as a 501c nonprofit organization. The distinctive name of this society – Heritage – rather than Historical – is purely intentional.

"Historical," the founders reasoned, deals with the occurrence of physical events. "Heritage" focuses on people interacting to the cause of, or in reaction to, those events. A historical approach to past events focuses on time-lines, data and physical happenings; while a heritage approach centers more upon the stories of the people concerned with the historical fact or occurrence – of how the people reacted or interacted to these historical happenings and events. In other words, the Canal Fulton Heritage Society was formed to "record, publicize, and enjoy the action and reaction of the residents of Canal Fulton's residents to certain historical facts and occurrences in their past." And in so doing, have themselves, formed 50 additional and memorable years of Canal Fulton "Heritage."

The principal historical occurrence in the past of the residents of Canal Fulton, at least as they prepared to celebrate their 1964 sesquicentennial, the 150th birthday of the founding of the first segment of their three villages that made up modern day Canal Fulton, Milan, on the west side of the Tuscarawas River in 1814, was undoubtedly the construction and financial success to the area of the Ohio Canal.

Burton P. Porter may have started the renewed interest in this facet of local history with his publishing, in 1940, of *Old Canal Days*, a stylized and slightly "gussied up" book of stories and tales of life in the old village of Canal Fulton during canal days.

Clyde Gainey, a man small of stature but big in ideas and vision, had wanted to be a canal boatman when he was young (either that or a coal miner like his dad and uncle with their old Willow Hill Mine along the railroad on the west bank of the river), but both coal mining and canal boating were dead by the time Clyde reached manhood. "So I had to settle to becoming an engineer" Clyde was often heard to say. Clyde didn't do too badly as an engineer. Among other tasks, he became the first operations manager of the Akron-Canton Airport.

But Clyde's main hobby during his early retirement years became one of collecting photos and tales of Canal Fulton's old canal days past. Clyde collected so much canal memorabilia that he turned a tiny two-story building at the rear of his property into what eventually became the "Smallest Canal Museum in the country." A historical cachet to this event is that the small building was, at one time, the stable/groom residence of Dr. Hiram Disencher, Canal Fulton's only doctor for more than 30 years during canal days, and "Dr. Keene" in Porter's stories.

The 60s brought renewed prosperity to the old canal town, and the stories of glory during canal days seemed to catch the fancy of many in the Stark County area.

Al Simpson, of the Canton Repository, wrote a story of how he and a local politician named Ralph Regula tramped the 26 or so miles of the canal within the county's borders and came up with the novel idea of acquiring those lands from the state and building a lengthy stretch of park land.

Much to the surprise of the paper's management, Al's regular Sunday column called *Along The Towpath* became quite popular. Stories of canal days flooded into his office along with many suggestions for future canal projects. One story, mentioned in one of Al's columns in 1965, was to build an authentic canal boat replica and run it in the watered section of canal that had been restored by the WPA, state and county in 1938-39 as a Depression Era project for getting more than 500 men back to work for nearly two years.

The rest, as they say, was history. The Louisville Sportsman's Club from the eastern part of the county, hoping they could 'earn" some recognition by local politicians for "hunting lands" in their part of the

St. Helena III – www.discovercanalfulton.com

county, offered to build the canal boat replica. That effort of theirs, and many other volunteers from throughout the county, is detailed in "Building the *St. Helena II"* by its designer, Carroll Gantz, then an industrial designer at the old Hoover Company in North Canton.

As a result, in May 1968, with the boat building project in full swing and "everybody" in the county knowing of and about Canal Fulton, the Canal Fulton Heritage Society was born to watch over"this wonderful outpouring of effort and enthusiasm.

The Heritage Society in the past 50 years has had its ups and downs. It took over the ownership of the *St. Helena II* from the Stark County Historical Society after the 1974 season and ran it effectively and conscientiously, until the city became a partner in 2007 and took over completely in 2015.

At one time the Societies members totaled more than 300. With historical, even heritage, interest waning in the county over the last decade or so, these numbers have narrow a bit. But the society has been active. They still assist in running the boat – a new concrete boat, the *St. Helena III* – which the Society built in 1988 and christened in 1992. They have saved and refurbished the *St. Helena II* which is now a static display behind the Old Canal Days Museum in St. Helena Heritage Park that, in part, contains Clyde Gainey's old museum building that he donated to the society in 1979. The other half of that museum is the "Heritage" house, a building brought from the Milan side of the river that at various times in it's existence was a private residence, a dance hall, the "Live & Let Live Saloon" and, most recently, a storage building for the Baltimore & Ohio Railroad.

The society's accomplishments have numbered many more than those mentioned above. Take a look at their website at cfheritage.org. www.discovercanalfulton.com. More importantly, visit Canal Fulton (www.discovercanalfulton.com) and tour the buildings and other heritage sites before or after you ride the boat.

Canal Fulton Canalway Center – www.discovercanalfulton.com

Wouter de Nie

By David Barber

I regret to report the passing of Wouter de Nie, a long time life member of ACS, on April 18. Wouter was born Nov. 21, 1946 in Amsterdam, Netherlands. He attended high school in London, England and college at Lehigh University in Bethlehem, Pa. He then obtained a graduate degree from the Wharton School at the University of Pennsylvania. He was employed for many years by Air Products in Allentown, Pa.

Wouter was a loyal son of Lehigh University and prided himself in attending 50 consecutive games of the Lehigh – Lafayette rivalry, the most played series in college football. Wouter also served as president of the Lehigh Club of Allentown.

Wouter de Nie at Lehigh Lock in 2009 – Photo courtesy of David Barber

I first met Wouter in the 1970s when he joined a hike along the Lehigh Canal west of Easton, PA that I led for the Appalachian Mountain Club. At the end of the hike, he handed me his personal business card. That doesn't usually happen on hikes. He continued to join our group of stalwarts as we explored the rest of the Lower Division of the Lehigh, then the Upper Division, then the Switchback Railroad and finally the Delaware and Hudson Canal. In all of these outings, Wouter was good company and happy to push the measuring wheel while I took notes.

In midmorning on these outings, Wouter had an uncanny ability to find a fresh cup of commercial coffee in the most remote locations. He also claimed that our hike along the Delaware River along the route of the Delaware and Hudson Canal at the base of Hawks Nest Cliff was the most difficult section of canal he ever explored. I particularly remember our exploration of the Upper Lehigh between Penn Haven Junction and Jim Thorpe where after the hike, we had to drive to Rockport and them down the railroad grade to Penn Haven and back to retrieve our car before the trip home. The Lehigh Gorge in the late afternoon in the late fall can be a very dark place. He frequently wore a sport coat in the woods and was often the person who approached land owners to ask permission to cross their property.

In addition to our outings, he explored many sites along the Schuylkill Navigation and shared his notes. He also befriended many older folks who had been associated with the Lehigh Coal and Navigation Company and is the reason that their oral histories are now in the archives of the National Canal Museum. He also attended several old boatmen's reunions and many canal society field trips. He was always a gentleman. I consider myself privileged to have known him and to have shared canaling with him.

Clinton and Kalamazoo Canal Location Listing

The Clinton and Kalamazoo Canal Society (Michigan) is attempting to put together a listing of locations that have information on this canal. If you know of such a location, please contact Deborah Remer (dremer5337@comcast.net) or the Rochester Hills Museum at Van Hoosen Farm (rhmuseum@rochesterhills.org) listing location, name/type of material, and if the content is accessible on-line.

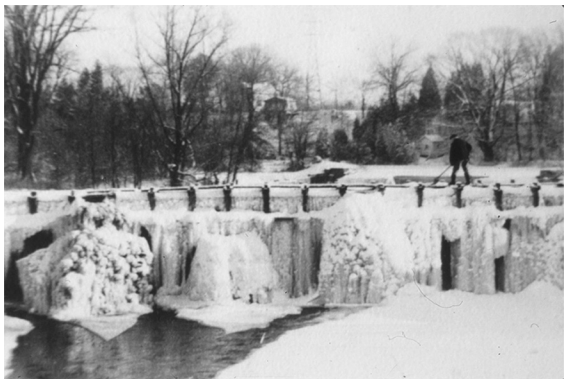


Photo – Clearing ice off aqueduct at Yate's Cider Mill, Rochester Hills, Mi. Ca 1945 – Courtesy of the Clinton and Kalamazoo Canal Society

Crystal Lake Watershed With Bathymetry of Crystal Lake, Benzie County, Michigan

By Dr. Stacy Leroy Daniels
Map compiled by Trevor Hobbs

Abstract

In 1873, an attempt was made to construct a system of canals from Crystal Lake (Benzie Co.) to Lake Michigan in Northwest Lower Michigan. This endeavor led fortuitously to the dramatic lowering of the level of a very large inland lake renowned for its clarity, and the creation of a wide expanse of new beach that insured its future development as a prime recreational area. The historic lowering of Crystal Lake is unique when compared to other inland lakes in Michigan. Its unintended consequences evolved serendipitously from a perceived "failure" of an "ill-advised project" by an apparent scapegoat, to an unqualified "success" by a visionary celebrated as a local hero. Rediscovery of an historic map of the ambitious project, and creation of a modern high-resolution topographic/bathymetric map, allowed quantitative comparisons of size and shape parameters, and reconstruction of the true magnitude of this epochal event.

History

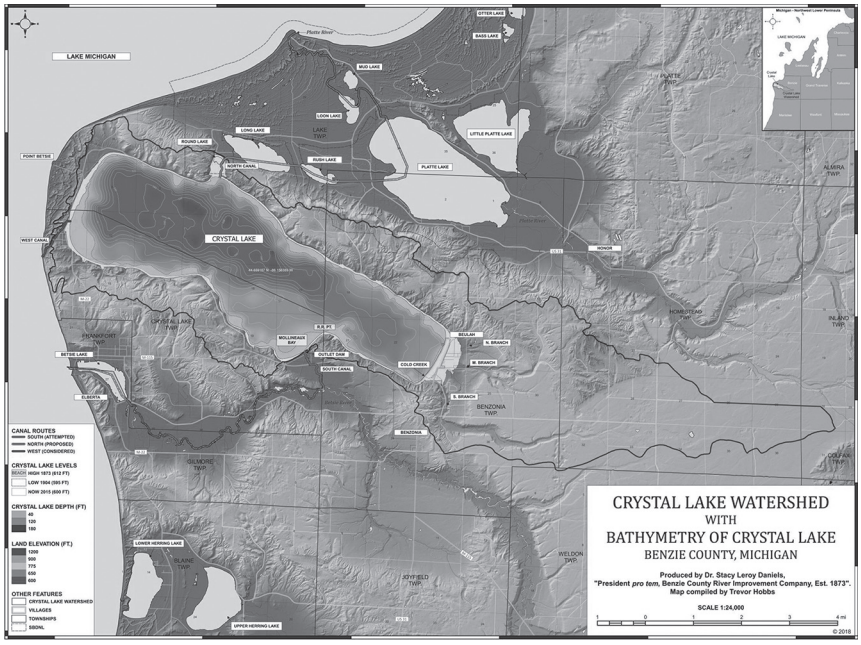
Crystal Lake is forever associated with the dream of building a system of canals to interconnect it with nearby Lake Michigan. As the levels of glacial Lakes Algonquin and Nippissing, precursors to Lake Michigan, fell over the millennia, prevailing winds and waves closed off the Crystal Lake embayment with high-ridged sand dunes containing the lake like a "big bathtub" high upon a hill. As settlements grew in the early 19th century, needs developed to improve rivers, lakes and harbors for navigation; to build dams to provide water power for grist and saw mills; to drain farm lands; to build canals for transportation, and other structures to control floods, irrigate land and supply drinking water. Unlike other large inland lakes, Crystal Lake was left separated from Lake Michigan by a narrow isthmus and uniquely perched high above the "big lake" with an abundant water source and a sufficient hydraulic drop – the future makings of a fine canal! Over geological time, a series of sandy terraces, i.e., "stair-step" landforms of gently sloping surfaces (treads) and steeper ascending slopes (risers), had been formed, extending from the bases of the surrounding high moraines to the water's edge, together with other terraces submerged as shallow areas (shoals) lying beneath the lake surface.

The level of Crystal Lake, established by natural forces during glacial times, was subsequently affected by an epochal man-made event when Archibald Jones[1] , President ad vitam aut culpam, of the Benzie Co. River Improvement Co. (BCRIC), filed Articles of Association on Aug. 16 1873 intending to connect Crystal Lake with a system of canals – one of the first such filings in Michigan (MI Act 169 of 1869) - an ambitious scheme to connect Crystal Lake to nearby Lake Michigan with a system of navigable canals. This attempt was thwarted Aug. 23, 1873, when the whitecaps of 'Cap Lake breached a temporary dam at its Outlet leaving the proposed canal "high-and dry," the sad beginning (the "Tragedy") but exposing a new sandy beach "low and wet," the happy ending (the "Comedy").

The level of Crystal Lake dropped precipitously by 17 ft (12 ft net) over a three-week period as its waters, pent-up for centuries, were released. Some 56,000,000,000 gallons flushed downstream into the Betsie River almost washing the port city of Frankfort into Lake Michigan. The lake dropped from a "high" level (612 ft) to a low level (595 ft) and rebounded 5 ft to its present level (600 ft). During the lumbering era, several temporary dams were haphazardly built, and removed or washed away and lake levels fluctuated wildly.

A unique map was drawn for the BCRIC by Buel C. Hubbell in 1873. It was "rediscovered" in the Benzie Area Historical Museum (BAHM) in late 2011, where it had resided uncatalogued and forgotten for 30 years. It had been found hidden within a wall during the 1980 renovation of an 1870s farmhouse built by John Bailey, a Benzonia pioneer, and vice president of the BCRIC! He was also the surveyor who latter platted the "Beulah View and Crystal City Resort," which emerged from the swamp to become the future County seat. He may have retained this map in hopes that the canal might be reconsidered! The map shows outlines of the lakes; sources and courses of the rivers; proposed canals; wagon roads; township, county and section lines; town corners; obstructions to navigation - logs, rocks, snags, etc.; and rocks and rapids.

The Hubbell map (1873) outline was patterned after the original government survey map by Albert and Alvin Burt (1838-1839), and later replicated by Alexander Winchell (1860), the State geologist of Michigan, who conducted field work for the second state geological survey. After restoration, the map was formally unveiled at the third Annual Archibald Jones Day, Aug. 25, 2012. A handsome two-sided bronze marker was dedicated at the Crystal Lake Outlet to commemorate the historic event Aug. 22, 2015. This map is considered to be a very accurate portrayal of Crystal Lake before it was lowered.



In 1873, an attempt was made to construct a system of canals from Crystal Lake to Lake Michigan in Northwest Lower Michigan. This endeavor led fortuitously to the dramatic lowering of the level of Crystal Lake, a very large inland lake reknown for its clarity, and the creation of a wide expanse of new beach that insured its future development as a prime recreational area. The historic lowering of Crystal Lake is unique when compared to other inland lakes in Michigan. Its unintended consequences evolved serendipitously from a perceived "failure" of an "ill-advised project" by an apparent scapegoat, to an unqualified "success" by a visionary celebrated as a local hero. Rediscovery of an historic map of the ambitious project, and creation of a modern high-resolution topographic/bathymetric map, allowed quantitative comparisons of size and shape parameters, and reconstruction of the true magnitude of this epochal event. Produced by Dr. Stacy Leroy Daniels. Map compiled by Trevor Hobbs. Location: 44.659167 N Lat. x -86.156389 W Long Contact: Dr. Stacy Leroy Daniels, "President pro tem Benzie County River Improvement Company, Est. 1873"

The Modern Map

A high-resolution map combining topographic and bathymetric features was compiled in early 2018, to: (1) assess morphological features; (2) develop dynamic 3-D models of the watershed and surrounding area; (3) reconstruct the magnitude of the original event, and (4) calculate the "depth" of new beach (Water lost = Beach gained). Values of parameters based on a QL2 LiDAR dataset (MiSAIL, 2015) agree surprisingly well with estimates from 1873, when the Lake was "8 or 10 feet higher" and "covered an area of some two thousand acres[2] more of surface than at present and during severe storm(s), the waves were noticeably much higher."

In late 1911, Crystal Lake was one of the first lakes in MI to establish a "natural level" (600.48 ft) and to build a permanent control dam (MI Act 1202, 1911). A growing population of cottage owners were being affected by low summer water levels insufficient to float boats, and by high winter levels causing wind and ice erosion of beaches. In 1980, revised levels of 600 ± 0.25 ft (summer high, winter low, resp.) were established. In July 2014, a continuous lake level gauge was installed at the Outlet Dam to provide data at intervals year-round that are telemetered, recorded, and evaluated to define seasonal changes, wind and wave surges, precipitation events, freeze-thaw events

and seiches (tides) - the intent being to provide data for better control of lake level and reducing effects of extreme events.

Watershed parameters describing Crystal Lake in the historic map and the modern map have been determined (see notes). Three canal routes were considered, proposed, and/or attempted from Crystal Lake to Lake Michigan[3] :

1) "South" Canal (proposed, surveyed, and attempted in 1873 by the BCRIC) from the Outlet of Crystal Lake into the Betsey River and Lake Michigan at Frankfort;

2) "North" Canal (proposed and surveyed in 1873, but never attempted by the BCRIC) from Platte Lake through Rush Lake, Long Lake, and Round Lake into Crystal Lake; and

3) "West" Canal (considered sometime before 1873, but independent of the BCRIC) to run directly from Crystal Lake across the isthmus of Point Betsey into Lake Michigan.

The "Tragedy"/ "Comedy" of Crystal Lake led to the development of a modern recreational community: founding of the Village of Beulah, the coming of the railroad, installation of telegraph and telephone lines, lakeside resorts and cottages, all connected by an infrastructure of perimeter roads and trails. The beach supports 1,100 plus cottages, numerous resorts, several church camps, a yacht club, a State boating access site, and the Village of Beulah. The former railroad bed has become a popular trail for walking/biking to and from the nearby port City of Frankfort. The "Crystal Lake Canal" remains an unfulfilled dream.

A series of slowly evolving physical rearrangements of the landscape occurred along the new shoreline, within the depths of the lake, and in surrounding wetlands. Submerged lake terraces became sandy beach and peripheral marshes (interdunal swales) became valuable lakefront property. Resuspension and redistribution of lake sediments (sand) that had lain dormant since the last glacial period continues to this day. Even after 145 years (as of 2018) underwater sandbars are still being reformed within the Lake. Former hydric soils in nearby wetlands are still subsiding as bogs of organic peat oxidize and disperse into the atmosphere.

Canals may have outlived their useful lifetimes, but they have also left a legacy of past transportation across North America. Some canals have involved natural and man-made events causing past changes in lake levels. The challenge now lies in evaluating present lake levels and determining how to properly control them in the future. As lake levels rise and fall, they affect water quality and quantity; animal and plant life; recreational uses; property values; and environmental conditions. We cannot "turn back the tide" of progress, but we can "mind" our lakes by observing and assessing their levels for protection of water quality and watershed management.

Dr. Stacy Leroy Daniels is President pro tem, Benzie County River Improvement Co., Est. 1873 © 2018

Notes:

1. Archibald Jones (1811-1890) was an entrepreneur and "bootstrap" engineer, who once toiled on "Clinton's Ditch," the Erie Canal

2. Recent GIS analysis yielded a value of 2001 (!) acres – a most remarkably agreement with the former "rough" estimate!

3. All three canal routes were assumed to run all the way from Crystal Lake to Lake Michigan for purposes of direct comparison.

References:

Stacy Leroy Daniels, *The Comedy of Crystal Lake, I. The Lowering of Crystal Lake; II. The Biography of Archibald Jones*, Flushed With Pride Press, © 2015, 496pp. ISBN 978-0-692-21715-3. www.CrystalLakeComedy.com

William L. Case, *The Tragedy of Crystal Lake, With Some Sidelights, By a Survivor*, J.W. Saunders, Beulah, MI, 1922, 17pp.

Stacy Leroy Daniels, Archibald Jones & The Benzie Co. River Improvement Co., Dedication of Historical Site Marker, Crystal Lake Outlet, Benzie Co., MI, Saturday, 22 Aug 2015, 16pp. www.CrystalLakeComedy.com

Stacy Leroy Daniels and Trevor Hobbs, *The Comedy of Crystal Lake: Geomorphic Analysis and 3D Modelling of an Historical Anthropogenic Event*, Michigan Acad. Sciences, Arts, & Letters, Central Michigan University, Mt. Pleasant, MI, 09 Mar 2018.

Stacy Leroy Daniels, and Trevor Hobbs, *The Comedy of Crystal Lake: Re-Creation of an Historic Canal that Became a Beach*, IMAGIN, 27th Annual Conference, Traverse City, MI, 19 Jun 2018.

"CRYSTALANA" *A Journal of Historical Reflections and Current Perspectives of Crystal Lake, Its Watershed, & Benzie County, M*I. A New website, May 2018. www.CRYSTALANA.com

CANALENDER

Aug. 25 & 26: Abraham Lincoln and the I&M Canal Exhibit and the Edward Ranney Exhibit, I&M Canal Visitor Center, 754 First Street, LaSalle, Il: For more information visit www.enjoyillinois.com or call (815)220-1848x1838

Sept. 10-12, 2018: World Canals Conference 2018, Athlone, Ireland. Journey to Athlone Co. Westmeath in the heart of Ireland and at the heart of the Irish Inland Waterways network. See article and schedule on page 5 of this newsletter. For further event information visit www.wccireland2018.com/

Oct. 5-7, 2018: Canal Society of Indiana 2018 Fall Tour, Piqua, Ohio. Miami & Erie Canal. For further event information visit indcanal.org/canalander/.

Oct. 14-16, 2018: New York State Canal Conference: Hilton Garden Inn, Staten Island, N.Y. Visit newyorkcanals.org for more information.

Oct. 19, 2018: American Canal Society Annual Directors Meeting, Akron, Ohio 3 – 5 p.m. Additional information is listed below.

Oct. 19-21, 2018: Joint Fall Tour 2018 hosted by the Canal Society of Ohio and the Pennsylvania Canal Society: Portage Lakes area. For further event information visit www.canalsocietyohio.org/october-joint-fall-tour.html

Oct. 27, 2018: A Tour of the Clinton – Kalamazoo Canal, Rochester Hills, Mich. 9 a.m. – 4 p.m. Registration is through the Rochester Hills Museum by Wed. Oct. 24. $12 for museum members; $18 nonmembers which includes a boxed lunch. Individuals will carpool. Dress for walking and the weather. Specific starting locations when you register. 1005 Van Hoosen Road, Rochester Hills, Mich. 48306. Visit www.rochesterhills.org/musprograms or 248.656.4663 for info.

Sept., 2019: World Canals Conference 2019, Yangzhou, China: Dates and details to be determined.

Sept. 2020: World Canals Conference 2020, Leipzig, Germany: Dates and details to be determined.

American Canal Society Annual Directors Meeting

The ACS directors meeting will be held 3 – 5 p.m. on Friday, October 19th in Akron, Ohio. This will be in conjunction with joint fall tour weekend on October 19-21 hosted by the Canal Society of Ohio and the Pennsylvania Canal Society. The meeting hotel is the Holiday Inn Express Akron South, 898 Arlington Ridge East, Akron, Ohio 44312. Phone 330-644-5600. For individual rooms for Friday and Saturday night the CSO rate is $101.00 per night. Be sure to mention the Canal Society of Ohio when making reservations. Further info on the weekend will be forthcoming later.

David Barber has served as the ACS President for the past sixteen years. He has decided to step down as the president effective with the October meeting. He will continue as a director, the ACS webmaster, and chair of the Canal Index Committee. ACS officers are elected by the Directors at the annual meeting. Please email any thoughts or nominations for the next president to Bob Schmidt at indcanal@aol.com