

AmericanCanals

Bulletin of the American Canal Society
www.AmericanCanals.org

Vol. XXXVII, No. 1

Dedicated to Historic Canal Research, Preservation, and Parks

Winter 2008

From the President

by David G. Barber

As I mentioned in the last *American Canals*, I've been reading through some of the histories published by the Corps of Engineers Districts. These have been leading me to locks that are not in our ACS listings and proposals that weren't built. It's always interesting to find new sites in areas that would seem to be well documented. I urge everyone to keep looking and documenting.

I'll use Illinois and Indiana as examples. From information I've recently come across, not only was the Wabash and Erie Canal an important artery in Indiana, but the Wabash River on the border between Indiana and Illinois and the tributary White River to Indianapolis were also heavily used by steamboats. This resulted in private and federal efforts to improve those rivers. The greatest obstacle to navigation of the Wabash was the Grand Rapids, located just upriver of Mount Carmel, IL, and the mouth of the White River. In 1847, the Wabash Navigation Company built a wood crib dam and lock just below the rapids, submerging them. The dam apparently gave way in 1879. In 1885, Congress funded a new stone masonry lock with white oak gates and a wood crib dam built by the Louisville District, Corps of Engineers. The new lock opened in 1894. With help by Bob and Carolyn Schmidt, I found the site of the lock on Google Earth. Guess what? The tree-filled lock is still there on the Indiana shore next to a local dirt road. You can see the ae-



Locktender's wait shack at Hogga Lock, Telemark Canal, Norway

Photo by Dave Johnson

rial view on our web site.

In the twentieth century, there was a proposal to build the Cross Wabash Waterway. This would have been a locked, barge canal up the Wabash River from the Ohio to a junction in northern Indiana where branches would have run to both Lake Michigan and Lake Erie. Of course, the railroads and the environmentalists were opposed. This never built project sounds like an interesting paper or book.

As part of a long program of improvements on the upper Mississippi River, the Rock Island District made improvements to the river bed at the Rock Island Rapids. Because the channel was on the west side of the river, it was difficult for steamboats to cross the current to Moline, IL, on the other bank. So, in December of 1907, the Corps of Engineers' contractor

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NORWAY'S TELEMARK CANAL

by Dave Johnson

Telemark, in southern Norway, is a land of wild mountains, roaring waterfalls, and silent lakes. This varying and magnificent scenery is transected by the Telemarkskanal, a 105-kilometer waterway between the tidewater city of Skien and the village of Dalen at the foot of the Hardanger highlands.

Excavation of the Skien-Norsjø Canal and the first two locks, at Skien and Løveid, were completed in 1861, opening a direction connection between the interior of Norway and Europe. The extension of the canal began in 1886, and the Norsjø-Bandak Canal was completed in 1892. Today, the name "Telemark Canal" is used to include the entire canal route. The canal is

(continued on page three)

American Canals

BULLETIN OF THE
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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
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An annual subscription to *American
Canals* is automatic with ACS member-
ship. Annual dues: \$20. Single copies,
\$3. Four issues per year. Copyright
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States of America. ISSN 0740-588X.

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

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owned by the Telemark County Council. While passenger and private boats regularly ply the canal, it continues to be used for moving rafts of logs, the only watercourse in Europe that still floats timber in this way.

Two passenger boats operate on the canal between Skien and Dalen: M/S *Victoria* and M/S *Henrik Ibsen*, both owned by Skien Dalen Skipsselskap a/s. *Victoria* was built in Oslo in 1882 and was converted from steam to motor in 1953. It has a passenger capacity of 180. *Henrik Ibsen*, built in Goteborg in 1907 as *Styrsø*, worked in Sweden for eighty-five years. It came to the Telemark Canal in 1992, when it was renamed after one of the old steamships that formerly operated on the canal. (Henrik Ibsen was born in Skien.) The Ibsen can carry 220 passengers.

There are eight lock stations on the Telemark Canal, with a total of eighteen chambers. The longest flight contains five steps. The overall change in elevation in seventy-two meters, or four meters per chamber, although that is just the average; some are higher; some less. The locks will accommodate boats up to 31 meters in length, 6.6 meters wide, drawing up to 2.4 meters.

On Monday, August 15, 2005, I checked out of my hotel in Skien at about 7:30 a.m. and walked down to the quay. Both *Victoria* and *Henrik Ibsen* were moored, and I learned that today we would be traveling on the latter. I watched a small workboat shunting rafts of logs into the lock at Skien before departure. The boat was not crowded when we cast off at 8:30 a.m. sharp. The morning was foggy, but it soon cleared into a bright, sunny day. The flight of locks at Løveid, with a total lift of ten meters through

three chambers, was built through a deep cut in the rocks. Modernized in the 1970s, the Løveid lock is now concrete-lined, and the gates are opened electrically.

All of the locks beyond Løveid are manually operated. The wickets are raised and lowered by the lockkeeper, who pulls a lever through a semi-circle on the top of the gate. The gates are opened and closed by a rod attached to a ratchet mechanism that is pumped like an automobile jack laid on its side. Although a team of lockkeepers is stationed at each lock during the busy summer season, in the fall the canal was closed to all traffic except for the *Henrik Ibsen* and the *Victoria*; therefore, a single pair of lock tenders was employed. They preceded the boat in a car and had each lock set when we arrived.

We entered a long, wide lake called Norsjø. It was cold and windy on deck, and most passengers retreated to the *kafe* for *kaffe*. The land bordering Lake Norsjø is forested, with occasional farms. The surround-

ing area is mountainous, not too high but very rugged, with rocky, steep cliffs. We arrived at Ulefoss, an industrial town with a three-chambered lock of cut stone and hand-cranked wooden gates; here we took on more passengers. At Eidfoss lock (two chambers), many passengers, including me, got off and walked along the canal to the next lock station at Vrangfoss. The walk through the woods took about twenty minutes, while the boat continued up the canal. We got to Vrangfoss as the boat was entering the first of five chambers that make it the highest lock on the canal, twenty-three meters. We climbed to the top of the flight and reboarded when the boat reached the uppermost chamber. There is no village here, only the locks, and the walk through the woods was very pleasant.

We passed through another small lake to the town of Lunde, where many of the passengers left the boat. As we proceeded through a narrow valley to the lock at Kjeldal, the water was so clear that you could see the bottom. At 2 p.m. we reach



Lockkeeper lifting a paddle at the top of the Vrangfoss flight, Telemark Canal
Photo by Dave Johnson



Dalen Hotel. Courtesy of the hotel

Hogga, the last lock station on the canal. Hogga sports a really picturesque wait-house next to the upper gates. We were not seventy-two meters above sea level, forty-one kilometers from Skien, with sixty-four kilometers to go to Dalen. The remainder of the trip was at this elevation, through a series of glacial lakes.

Lake Flåvatnet is in wild, mountainous country with thick forests, high barren cliffs, and few farms or even camps. A narrow, fjord-like arm of the lake between steep mountains led to the village of Kviteseid, where several passengers got off. Returning to the main channel, we entered Lake Bandak for the final run to Dalen. The country here was even wilder. The mountains, higher and steeper, fell directly into the water, with no shoreline where one could land a boat or even walk. The deepest parts of Lake Bandak were said to be more than 325 meters. The wind was blowing hard down the lake and, as we were sailing directly into it, all passengers abandoned the foredeck to seek the seclusion that the cabin grants. The lake became very choppy, but the boat handled it well, and we docked at Dalen about 7 p.m.

The Dalen wharf is at the very head of the lake. The village lies about a kilometer beyond in the narrow valley. The hotel is reached by a ten-minute walk on a

footpath through the woods. Built in 1894, the Dalen Hotel was, in its early years, patronized by kings and princes. Oscar II, Haakon and Maud, Leopold II of Belgium, Kaiser Bill, and the King of Siam all stayed there.

Other famous guests included the polar explorers Nansen and Amundsen. It apparently failed in the 1960s and was dormant for about thirty years, but was restored and reopened in 1992. It is still basically the same as when it was built, rustic but elegant, with many porches and dragons at the peaks of the roof. The public rooms are splendidly Victorian, with fireplaces and comfortable chairs in which one can enjoy a drink before dinner.

The dining room is very grand, and I had an excellent dinner. There are only thirty-eight bedrooms, with a capacity of seventy-five or so guests. There are no televisions in the rooms; the only set in the hotel picks up one channel. My

bedroom was not fancy, but the bed was fine.

On Tuesday, I was up early and walked to the lake before breakfast. I had a light Norwegian breakfast of bread, fish, and cheese, checked out, went down to the boat, and settled into a chair at the front of the upper deck, a real box seat for the trip down the canal. I rode there all the way back to Skien. The weather was perfect. The sky cleared, the sun was warm, and there was much less wind than the afternoon before. Since we were going downwind, it was very pleasant. We started out with a light passenger load, but the boat filled up at Lunde and was crowded the rest of the way to Skien. We arrived on schedule at 6 p.m. I went up to the hotel, had a good dinner with tasty *fiskesuppe*, and slept well.

It was a thoroughly enjoyable and relaxing journey, one that should not be missed if you visit Norway.



M/S *Henrik Ibsen* at Eidfoss lock, Telemark Canal

Photo by Dave Johnson

CONSTRUCTION TO BEGIN ON LASALLE CANAL BOAT AND LOCK 16 VISITOR CENTER

October 2007—LaSalle, IL – In a vintage building that was once home to a horse buggy maker, officials gathered to celebrate another historic form of transportation: the canal boat. The non-profit Canal Corridor Association and the City of LaSalle announced that construction is set to begin on a full-size replica 19th-century canal boat that will give horse-pulled tours of the 159-year-old Illinois & Michigan Canal.

Joining the Canal Corridor Association (CCA) and LaSalle Mayor Art Washkowiak for the announcement were Reed Wilson, district director for U.S. Congressman Jerry Weller (R-Ill), State Senator Gary Dahl, and State Representative Frank Mautino.

With approval by the Illinois Department of Transportation, CCA has signed a \$993,840 construction contract with Scarano Boat Building Inc., of Albany, New York, a 25-year-old boat builder that counts the U.S. Navy and the National Park Service among its customers.

Scarano will build the 76-foot-long, 15-foot-wide boat to accurately depict the canal boats that traveled the I&M Canal in 1848, while incorporating modern technology and amenities. The boat will have an aluminum hull for durability and a restroom and backup electric motors. It will seat 107 passengers on its open-air upper deck and covered main deck.

The Rides

Beginning in spring 2008,

guests will board the boat in downtown LaSalle, only five miles from Starved Rock State Park, for one-hour, roundtrip rides on the historic canal and be transported back in time to an era before planes, trains and automobiles.

Two horses, led by a tender dressed in period clothing walking along the canal towpath, will pull the boat on the canal for scenic and leisurely tours of the historic waterway.

Aboard the boat, tour guides dressed as canal-era boat captains, crew, and guests will bring history to life as they engage visitors with first-person stories of the early days on the canal and the Illinois prairie.

Onshore, visitors can enjoy an exhibit of thirteen life-sized steel silhouettes of I&M Canal pioneers awaiting arrival of a canal boat. Among the travelers depicted: Abe Lincoln and his family, who traveled the canal in 1848 from Chicago to LaSalle on their way to Springfield.

In addition to four daily one-hour tours, the boat can be

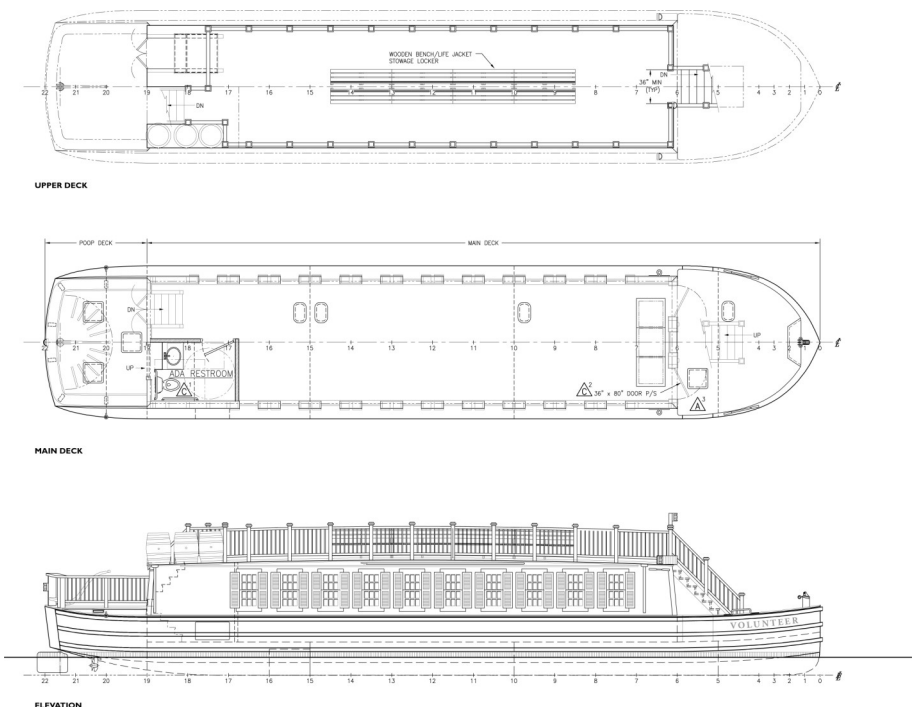
chartered for two-hour sunset cruises and corporate events. It will run May through October.

CCA will operate and maintain the LaSalle canal boat, and the City of LaSalle will maintain the site. The boat will be docked November through April, with bubblers in the water to prevent freezing.

New Visitor Center

CCA also unveiled plans for a new visitor center in downtown LaSalle. Called the Lock 16 Visitor Center, the facility will be operated by CCA and will be part of the LaSalle canal boat attraction, providing ticket sales and visitor services. It will also house a gift shop, café, bike rentals, canal exhibits, an education center, and warming kitchen for special events.

“Here at the western end of the I&M Canal National Heritage Corridor, the Lock 16 Visitor Center and the LaSalle canal boat will be a gateway to the national heritage area, while serving as a new and fun place to socialize and learn,” said CCA’s chairman



Andy Connor.

CCA has leased more than 5,000 square feet for the visitor center in a vintage building at 754 First Street. Renovation of the 97-year-old structure began this fall and is being done by Mrowicki Builders, of LaSalle. Once complete, build-out of the visitor center will begin.

The Lock 16 Visitor Center and the LaSalle canal boat will create a heritage tourist destination in downtown LaSalle that is projected to contribute more than \$5 million to the local economy in its first three years of operation.

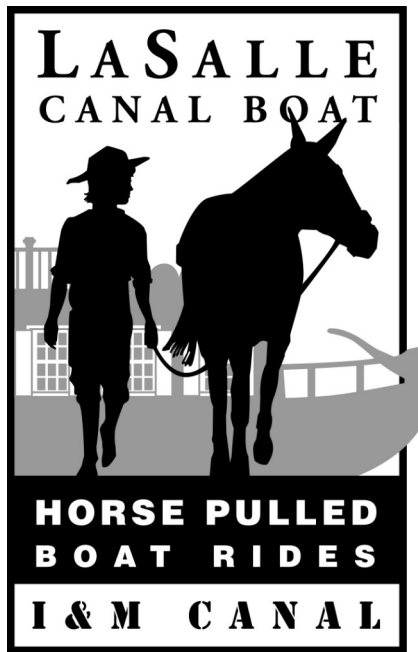
“If you don’t feel it now, you’ll feel it soon,” said Ana Koval, president and CEO of Canal Corridor Association. “The excitement in the air. The buzz over a new heritage tourist attraction coming to LaSalle County. Before you know it, spring will be here – as will horse-pulled boat rides on the I&M Canal.”

Funding for the LaSalle canal boat and Lock 16 Visitors Center comes from a combination of state and federal funds, private foundation grants and donations.

I&M Canal

The Illinois & Michigan Canal is a 96-mile, hand-dug waterway that forever changed the nation when it opened in 1848. The final link in America’s great water highway system of the 19th century, the I&M Canal connects the Illinois River and Lake Michigan (prompting its name). Thanks to the canal, travel by inland waterway from New York to New Orleans became possible.

The I&M Canal National Heritage Corridor is a 450-square-mile region whose centerpiece is the I&M Canal. It offers unique historic sites, natural areas,



cultural destinations, and recreational opportunities. Established by Congress in 1984, it was the first heritage area in the nation. Today, there are 36 other heritage areas nationwide and more under way abroad.

The Canal Corridor Association (www.canalcor.org) is a nonprofit membership organization that preserves history, protects nature and open space, and creates destinations for learning and fun along the I&M Canal, from Chicago to LaSalle/Peru. It enhances, raises awareness of, and expands the parks, trails, landscape, and historic sites that make the I&M Canal region a special place. CCA is the local coordinating agency of the I&M Canal National Heritage Corridor.

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BY CANAL BOAT, CABLE TRAM, AND STEAM TRAIN THROUGH ENGLAND AND NORTHERN WALES

(Part 4 of a series)

by Bruce J. Russell

On the following day the *Swift* departed from Chester headed for Ellesmere Port, the end of the Shropshire Union Canal. Originally the twenty-two mile stretch from Chester to Ellesmere Port was known as the Chester Canal, and dated from about 1810. When it opened, it offered packet boats pulled by three horses from Chester to Ellesmere. Here passengers boarded ferries that took them across and down the Mersey River to Liverpool. This service lasted barely twenty years until supplanted by railroads. The canal, however, continued handling freight and was finally purchased by the Shropshire Union.

Our trip north to Ellesmere Port took about four hours and was one of the few stretches of canal with no locks, making it an easy passage. But what we did encounter was a green, algae-like slime called duckweed. This covered the final three miles into Ellesmere Port, and personnel from the British Waterways Board were trying to suction it out using a vacuum rig. I must say that their efforts were most unsuccessful, actually quite ludicrous. Furthermore, prior to entering the port we had to wait an hour for them to get out of our way.

At Ellesmere Port the Shropshire Union Canal interchanged cargo with ocean going ships, and was a very important place during the 19th century. Large sailing vessels from Canada arrived with their holds full of wheat. This commodity

was then unloaded and placed in gigantic warehouses and silos. Subsequently, it was reloaded onto narrow boats for shipment throughout England and Wales. Most of these boats were company owned, but some belonged to individual operators. (A similar situation prevailed on American inland waterways.) Until the railroad network really began to grow, this is how distribution of commodities like grain was handled in Britain. I imagine that circa 1850 the canal company earned a considerable profit from the business at Ellesmere. Although some of the huge warehouses were destroyed by fire in the 1970s, others remain to serve as a reminder of that era before the railway and ultimately the truck became predominant.

Many kinds of boats that once operated on the British canals are on exhibit at Ellesmere Port, including freight-hauling types once run by Fellows, Morton, & Clayton and its contemporaries. Some are well restored and painted in historic colors. A few were adorned with painted scenes depicting flowers and castles. Inside one building were many types of engines used to power narrow boats. While horse power was utilized into the 1950s, by the early 1900s steam propulsion had been adopted by some owners. The problem was that these reciprocating engines with their boilers and fireboxes took up too much space which was lost to revenue cargo. Also the coal for the boilers was too bulky. About 1925 a primitive, compact diesel called a Bolinder was invented and fitted into many canal boats; one of these was on exhibit at Ellesmere. By the 1950s marine diesels manufactured by Lister and other companies had become the standard power plant for narrow boats. Also there was a



As we proceeded along the canal toward Ellesmere, we encountered a green slime called duckweed. The entire surface of the canal was green! Fortunately, duckweed is harmless, unless it's sucked into the engine water intake. Photo by Bruce Russell

warehouse in which canal boats entered the lowest level and were subsequently unloaded and their cargo taken upstairs using primitive elevators. It was most fascinating to see all of this labor intensive technology which could never exist today. But in days of yore, both in Britain and in the United States, millions of people toiled for a pittance, at the mercy of profit hungry owners. Many of the photos in the Ellesmere Port complex show life on the canals as it once was, long before today's recreational boating. A curious fact I learned was that until 1958 oil was taken at Ellesmere Port from ocean-going vessels and pumped into narrow boats for transport to Chester where it was then sold by a fuel distributor. Of course, by 1960 canal haulage had been replaced by trucks. In the time it took for a narrow boat to make one round trip, a truck could do four or five.

TO BE CONTINUED

“ADOPT A STONE” PROJECT

Have a lasting impact on the C&O's Catoctin Aqueduct by adopting a stone that will be used in the aqueduct's restoration.

Due to cost escalations in the aqueduct restoration project, the C&O Canal Association, the C&O National Historical Park, and the Catoctin Aqueduct Restoration Fund are teaming up to implement an “Adopt a Stone” fundraising campaign.

Donors may adopt specific stones, such as the coping, key, ring, and water table stones. Other stones, like the parapet and spandrel wall stones, will initially be adopted by category and, once placement is finalized, assigned to donors. Donors will receive a certificate and location map to enable them to locate their specific stone.

Imagine visiting the restored structure and being able to touch or point out the stone you adopted. For more information, contact George Lewis, 301-834-4044 or lewisdvm@aol.com.

ADVERTISE YOUR BOAT RIDE IN AMERICAN CANALS!

The Canal Boat Committee of the American Canal Society (ACS) invites you to place a free advertisement to appear in both the spring and summer issues of 2008.

Your ad will encourage visitors to visit your site and experience a canal boat ride. The ad may include a photo of your boat and should identify the location, season of operation, ride schedules, length of time for ride, fees, and contact information, as illustrated in the example below.

SAMPLE AD:



Ben Franklin III in the historic canal village at Whitewater State Historical Site, **Metamora, Indiana**. Rides May 1-Oct 31, Tues-Sun, 12:00 to 4:00 pm. Boats leave every hour. Closed Mon. except holidays. 1-mile ride takes 25 min. with docent lecture. Adults, \$2.50; stud/srs, \$2.00; under 3 or over 90, free. School groups: \$1.50 per person. 765-647-6512; www.metamoraindiana.com.

The ad will be limited to approximately 2½ column inches with a word count dependent on the height of the photo. For example, the sample ad above contains 57 words. If the photo were shorter, there could be 60-75 words. If there is no photo, the word count could be increased to about 100 words.

Just send the text you want,

plus a photo, if desired, to Linda Barth, American Canals, 214 N. Bridge Street, Somerville, NJ, 08876; 908-722-7428; barths@att.net **before March 15, 2008**. (The editor reserves the right to edit copy.)

CERTIFY YOUR BOAT!

As a reminder, you may also apply for an ACS Certification of a Canal Boat Replica. At no cost, you can receive a 9" x 12" engraved weatherproof plaque to place prominently on your boat, certifying that it is an authentic replica of a canal boat typical of the historical era of your particular canal. This will enhance your boat's historical purpose and recognize those who labored tirelessly to achieve it. Applications are available on the ACS website, www.AmericanCanals.org, in the 2006 Winter/Spring issue of *American Canals*, or from the ACS Canal Boat Committee Chair, Carroll Gantz, at carrgantz@bellsouth.net.

ACS is pleased to help you promote your canal boat.

PRESIDENT'S LETTER

(continued from page one)

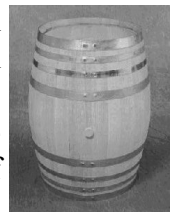
completed a 325 foot by 80 foot concrete lock with associated dikes and channels to correct the situation. Concrete was used after the experience gained on the nearby Hennepin Canal. That lock was later made redundant by the nine-foot channel Lock and Dam 15 at Rock Island just downstream. But Google Earth shows the lock remains visible at the upstream end of Arsenal Island.

Galena, IL, is named for a mineral form of lead that was

mined there from early times. At one point, Galena was the busiest port on the upper Mississippi, surpassing St. Paul. But the city and port are seven miles inland from the Mississippi on the Galena River. By the end of the Civil War, the river had become silted. In an act of September 18, 1890, Congress authorized the City of Galena to improve the Galena River from its mouth to a point 800 feet below the Custom House at Galena. Included in the authorization was a dam not more than twelve feet above low water and a lock not less than 280 by 52 feet. The Rock Island District assumed control of the Galena Lock and Dam on March 12, 1894. But railroads acquired the city's traffic and the River and Harbor Act of March 3, 1925, directed removal of the dams in the Galena River. Google Earth does not show a lock and I have yet to learn if any walls remain.

My point is that on the edges of one state, Illinois, are three steamboat locks that we have not documented and stories that have not been told. I wonder what can be found elsewhere. There is great opportunity for further research.

Canal boats often carried products in barrels known as hogsheads. A hogshead is a unit of measurement, usually of alcoholic beverages, such as ale, mead, or beer.



One hogshead is equal to about 63 gallons. Traditionally, tobacco was shipped in hogsheads and crop payment was based on the amount of hogsheads filled.

(Courtesy of *The Tiller*, the publication of the Virginia Canals and Navigations Society)

York County Site of Pennsylvania's First Lift-Lock Canal

The small-town appearance of York Haven today belies its importance in the evolution of transportation in America. On a cold November 22, 1797, Governor Thomas Mifflin and a packed boatload of dignitaries traveled upstream through the ice-chunked locks of the Conewago Canal to officially open one of the first canals with locks in America.

Pennsylvania was a fertile land, but the surplus wheat and flour had to be transported to ports such as Baltimore and Philadelphia to be sold and transshipped. Good roads were scarce, so water transport was a feasible alternative. Although wide, the Susquehanna River presented some impediments to navigation, the primary obstacle being the falls in the river at the mouth of the Conewago Creek in Newberry Township.

On July 3, 1792 a group of Philadelphia businessmen, headed by financier Robert Morris, signed an agreement with Governor Mifflin, agreeing that "at the Conewago Falls they will cut, establish and maintain a Canal...." The newly-formed Conewago Canal Company agreed to do so for the sum of £5,000 (\$13,350). They must have known this would not be nearly enough to pay for a canal with at least two locks, which was specified in the agreement. The figure was originally calculated to pay for a sluice passageway with no locks. The drop of the river, however, was twice the gradient to allow a safe descent and practical ascent around the falls on a simple sluice canal.

The Philadelphia canal financiers had to be looking at benefits in the long run, planning to divert the Susquehanna commerce to Philadelphia by connecting with the new Lancaster to Philadelphia turnpike by off-loading at Wright's Ferry (Columbia). In conjunction with the Schuylkill and Susquehanna Navigation, which joined with the Delaware and Schuylkill Canal to form the Union Canal, consequently stretching from Middletown in Dauphin County to Philadelphia, much of the commerce of Pennsylvania would thus be directed to Philadelphia instead of its rival port of Baltimore.

The project turned out to be much more expensive than anticipated, with a final cost of nearly \$120,000, not including any maintenance or the wages of a lockkeeper (about \$200 a year). Smaller riverboats did use the canal for some years, but larger boats, capable of running the falls themselves, were soon built.

Canals were also a relatively short-lived mode of transportation, being widely replaced by the mid-nineteenth century by the railroad. They were, nevertheless, an important stage in the history of commerce and economics in Pennsylvania.

More about the Conewago Canal and other modes of early Pennsylvania transportation and commerce can be found in books and manuscript files at the York County Heritage Trust Library/Archives. The 2004 journal of Canal History and Technology Proceedings, a recent addition to the collection, contains the article, "Conewago Canal: First

Canal of Pennsylvania," by Robert J. Kapsch. Dr. Kapsch drew on the Trust manuscript collections, among others, to research this well-written article.

Submitted by June Lloyd, Librarian Emerita, York County Heritage Trust; jlloyd@yorkheritage.org

Canal History and Technology Symposium

The annual Canal History and Technology Symposium will be held on March 15, 2008 at the William E. Simon Center at Lafayette College.

Topics include: "The Wiconisco Canal Revisited: An Examination of the 1879 Wiconisco Canal Survey Map Book" by Paul Marr and Jonathan Burchett

- "Forgotten Lock No. 28 on the Wabash & Erie Canal" by Thomas E. Castaldi

- "I Have Dreamed of It Often: Trying to Prevent the 1902 Anthracite Strike, John Mitchell and the National Civic Federation" by Michael Knies

- "Remarks on the Avondale Disaster of 1869" by Bob Wolensky

- "A Gazetteer of Finely Patent Bridges" by Donald Sayenga

- "James Finley and the Modern Suspension Bridge" by Emory L. Kemp

- "The Search for the First Chain Bridge in Bucks County" by Virginia Geyer

- "White's Ferry and Other Historic Ferry Crossings on the Potomac River" by Elizabeth Perry Kapsch

After Feb. 1, contact the National Canal Museum, 610-559-6616 or membership@canals.org.

QUESTION OF THE DAY

For this column, we invite readers to submit questions in the hope that some of our distinguished readers will respond with answers to be shared in the next issue.

Also, please send in your answers to the Question of the Day.

In the last issue, our first question (a two-parter) was submitted by Director Bill Gerber:

What were the reasons that canal builders switched their towpaths from one side of the canal to the other? Other than the use of a "bridge and cloverleaf," what other means did they use to accomplish this task?

I've found that the builders of the Middlesex Canal switched sides three times, and I am trying to figure why they did so. It appears that they did so on bridges, but none are shown in a canal survey I have. What other means, if any, might they have used? (I'm aware of the use of cantilevered bridges at some places in England, but feel these were beyond the means of this canal, both technologically and financially.) Are any of you aware of a simple diagram of the "bridge and cloverleaf" and/or any other means for switching the towpath, preferably available for use in an article for publication? If so, where can I obtain a copy of the diagram? All input is appreciated. Thanks. Bill Gerber

Here are some of the answers we received:

Hi Bill:

The most heard-of answer for changing the side of a towpath is

that, since the towpath was, by engineering design, a bit higher and wider than the heelpath (berm bank), it was placed on the river side of the canal to act as a bit of a dike. When the canal changed river sides, the towpath would change too, though in Ohio at least, not always immediately. When the Ohio Canal changed river sides at Peninsula, the change bridge was at the lower end of the lock just below the aqueduct. The Ohio Canal crossed from the right to left bank of the Tuscarawas River a short distance above Clinton in present Summit County. The towpath crossed to the left bank of the canal a short quarter of a mile above the dam on a change bridge across the lower end of Lock No. 3 (Lower Clinton).

At the Bolivar aqueduct, there was a change bridge about a quarter of a mile above the aqueduct. Another reason why the towpath was river side, may have been that the berm bank, due to economies of construction, was often allowed to extend "into the hills" (up to 150 feet on the Ohio Canal), thus saving the cost of a berm bank. Since the canal had to have a towpath erected, it made sense to construct it on the other side from the "cheaply built side."

Then, again, the Ohio Canal at times in Tuscarawas County was three or more miles from the river, and the towpath was always on the "river side" there, too.

Most change bridges on the northern division of the Ohio Canal were just bridges with little of the clover leaf. The team was unhooked for most

locking through operations on the Ohio Canal, and those few change bridges where the tow line was a problem, would probably have earned an "unhooking," too.

Tom Hahn had a nice photo of a change bridge, with sort of a cloverleaf, on page 22 of his glossary.

It seems to me that there was a nice sketch or photo someplace of a rather elaborate change bridge and cloverleaf at Defiance on the Miami & Erie Canal. Perhaps Mike Morthorst or Larry Turner will remember where I saw it.

Terry Woods

Bill,

The towpath is usually on the river side of a canal. This is the built-up side of the canal and provides a smooth pathway. Having the towpath on this side allows the berm side to conform to the terrain. It also allows port facilities and basins to be built on the berm side, away from the river. In addition, with this location, level walkers have easy access to the vulnerable side of the canal to inspect for leakage and other problems.

When a canal crosses a river valley (on an aqueduct) and proceeds along the opposite side, it is necessary to have the towpath change sides. Of course, this is done at the most convenient point, such as a lock, if available.

Changing sides is also necessary if the canal enters a river and proceeds as a slackwater. If the canal stayed on the same side of the river, it would be necessary to cross the canal at the guard lock on entering the slackwater going upstream and again where the canal left the slackwater (probably at a lock).

Another reason to change sides would be due to a prior structure

on the river side. The Blackstone Canal had to do this at Quinville in RI to pass the Kelly Mill which existed before the canal.

A further reason would be on entering a port area, topography might dictate it easier to build the port on the opposite side of the canal line making a towpath switch necessary.

Dave Barber

Greetings all.

Time for my two cents worth, which, for we Canadians, is approaching parity.

Why was the towpath predominantly on the river side? I think that a major factor is economy of effort and most cost effective. You already have to build the embankment, and make it strong and waterproof. Having already spent time and money to build this compacted structure, how much more work is it to add the towpath on the top? Some gravel on the top for drainage and a slight camber to give the mules better purchase.

Cheers,
Bob Sears

The next **Question of the Day** is:

Was the towline normally detached from the object under tow when approaching a lock?

Please submit answers to:

American Canals, c/o Linda Barth, 214 North Bridge Street, Somerville, NJ 08876, barths@att.net

CANALENDER

March 1—Annual meeting of the Chesapeake and Ohio Canal Association will be held in Williamsport, Maryland, 2 pm. In the morning, enjoy a hike or visit the Williamsport Museum.

Contact: Dorothea Malsbary at programs@candocanal.org.

March 15—Canal History and Technology Symposium, Easton, PA. (See page nine.)

April 4-6—Annual Meeting, Virginia Canals & Navigations Society. Wakefield, Va. 434-577-2427.

April 12—Annual Douglas Memorial Hike, the Seneca to White's Ferry section of the C&O Canal. Please contact Dorothea Malsbary, programs@candocanal.org.

April 18-20—Spring Field Trip to the Miami & Erie Canal, Waverly to Portsmouth, Ohio. Sponsored by the Canal Society of Indiana. For more information, contact Carolyn and Bob Schmidt, 5909 Chase Creek Court, Fort Wayne, IN 46804; 260-432-0279; indcanal@aol.com.

April 18-20—Spring Field Trip to the Lower Delaware Canal, Bucks County, Pennsylvania. Co-sponsored by the Pennsylvania Canal Society and the Friends of the Delaware Canal. For more information, contact Joe Sazfran, Executive Director, FODC, FODC Office, 145 South Main St., New Hope, PA 18938; 215-862-2021; fodc@erols.com.

June 14-15—Transportation Festival, Wabash & Erie Canal Park, Delphi, Indiana; 765-564-2870.

June 28-29—Heritage Tour Days at the Monacacy Aqueduct.

July 12—Canal and Rail Fest at Cumberland, Maryland.

September 15 – 17, 2008—World Canals Conference, Rideau Canal, Kingston, Ontario, Canada. For more details, visit www.canals2008.com.

October 10-12—Fall Field Trip to the Cross-Cut Canal & Greene County, Indiana. Contact Carolyn and Bob Schmidt, 5909 Chase Creek Court, Fort Wayne, IN 46804; 260-432-0279; indcanal@aol.com

October 13-18—C&O Canal through bike ride, Cumberland to Georgetown. Contact Tom Perry at 301-223-7010.

FROM THE BOOKSHELF

History of the C&O Canal, by Harlan D. Unrau, was published this fall by the Government Printing Office. The 850-page volume should be available in visitor centers in the spring of 2008.

The book contains twelve of the sixteen monographs written by Mr. Unrau, a National Park Service historian, during his years with the C&O Canal in the mid-1970s.

During the past two years, a number of volunteers have worked on transcribing the handwritten and typed pages, making its publication possible for the first time. The twelve monographs included are the ones specific to the C&O Canal. The others, currently being transcribed, provide more general background.

Editor's note: We encourage our readers to check out the beautiful website of the C&O Canal Association: www.candocanal.org.

Some of the articles feature information from Harlan Unrau.

In the October, 2007 issue of The Hoosier Packet, the monthly newsletter of the Canal Society of Indiana, is a table by Richard F. Brown, Jr. listing thirteen “Tunnels Under Navigation Canals in the United States & Canada.” That article has generated much emailing with modifications and additional entries. The modified and expanded table is below and on the ACS web site. The first thirteen entries are the originals.

NAME (Other Names)	LOCATION		CANAL	LENGTH (feet)	YEAR BUILT/(CLOSED)	PRESENT STATUS
	TOWN	STATE/ PROV				
Thorold	Thorold	Ontario	Welland (4 th)	2756	1967	In Use
Townline (a)	Welland	Ontario	Welland (4 th)	1,080	1972	In Use
East Main Street	Welland	Ontario	Welland (4 th)	1,000 +/-	1972	In Use
Wellington	Montreal	Quebec	Lachine	919	1932/(1994)	Closed
Henry Kinney (New River/US 1)	Fort Lauderdale	Florida	New River (f)	864	1960	In Use
Melocheville (Beauharnois)	Melocheville	Quebec	Beauharnois	747	1957	In Use
Atwater	Welland	Ontario	Lachine	728/591	1929	In Use
Great Western Railway (b)	Merritton (c)	Ontario	Welland (3 rd)	713	1876/(1915)	Closed
Saint Remi	Montreal	Quebec	Lachine	486	1954	In Use
Belle Chasse (LA 23)	Belle Chasse	Louisiana	Intracoastal	unknown	unknown	In Use
Harvey (US 90 Service Drive)	Harvey	Louisiana	Harvey	unknown	1950's	In Use
Houma (LA 3040)	Houma	Louisiana	Intracoastal	unknown	unknown	In Use
Medina (Culvert Road) (e)	Medina	New York	Erie (e)	unknown	1823	In Use
Eisenhower Lock	Massena	New York	Wiley-Dondero	unknown	1950's	In Use
St. Davids Road (i)	Merritton (c)	Ontario	Welland (3 rd)	unknown	unknown	Closed
Railway tunnel at Lock 47	Syracuse	New York	Enlarged Erie	unknown	unknown	Closed
Road tunnel at lift lock (j)	Peterborough	Ontario	Trent Severn	unknown	unknown	In Use
Wagon tunnel (g)	near Sidney	Ohio	Sidney Feeder	unknown	unknown	Bypassed
Wagon tunnel (h)	?	Ohio	Miami & Erie	unknown	unknown	Unknown

(a) Combined road and railway tunnel

(b) Also known as The Grand Trunk Railway Tunnel, The Merritton Tunnel, & The Blue Ghost Tunnel. Passes under canal between Locks 18 & 19.

(c) Now part of St. Catharines, ON

(d) Tunnel lengths separated by a "/" indicate the length for each tube if there are multiple tubes

(e) A road culvert, the only one ever on the Erie Canal, has existed here since Clinton's Ditch. The original road culvert, on a slightly different, but overlapping alignment, was removed about 1854-1855 as part of the Erie's enlargement. The 1823 cornerstone to the Ditch culvert, listing William E. Perine, Samuel B. Collins, and John Drake, Jr. as its contractors, now makes up part of the foundation of the Vernon Toussaint home at 3704 Culvert Road. The 1854/1855 Enlarged Erie culvert was substantially rebuilt or replaced as part of the Nine Million Dollar Improvement of 1895. The current road culvert represents an attempt during the Barge Canal's construction to preserve, if unknowingly, the historic significance of the structure. The facade of the south end was dismantled and the stones numbered. It was then repositioned to allow for the wider Barge Canal channel.

(f) Passes under the river portion of the New River waterway, which includes the New River Canal

(g) This tunnel reportedly carried a wagon road with Mill Branch below through the high fill of the Sidney Feeder. Most of it is gone except for an arch. It is paralleled by Kuther Road which crosses the fill in a deep cut.

(h) This wagon tunnel is rumored to pass under the Miami & Erie Canal between Lockington and Newport. Exact location is unknown.

(i) Passes under the third Welland Canal south of Lock 16.

(j) Part of the lift lock abutment.

Since the printing of this table in The Hoosier Packet has generated nearly a 50% increase in listings, the question is, are there any more? Or can anyone fill in some of the unknowns? Information to dgbarber@cs.com.