



AmericanCanals

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Dedicated to Historic Canal Research, Preservation, and Parks

Summer 2008

From the President

by David G. Barber

Recently I attended a tour by the Pennsylvania Canal Society of the lower end of the Delaware Division Canal. This sixty-mile long, tow-path-era canal runs south to north along the west side of the Delaware River from tidewater at Bristol, PA, to the Lehigh River at South Easton, PA. In its operating era, it connected the Lehigh Canal to the Philadelphia area and carried many tons of anthracite coal to market. On closing, it was transferred in two separate periods to the state as a park. Unfortunately, attitudes in the 1930s and 1950s resulted in several compromises of the canal, particularly at the lower end.

A few years ago, I began to systematically explore the canal after having seen some isolated points in earlier visits. At that time, the canal had recently been rewatered throughout its length except for the southernmost mile and was the second most visited state park in Pennsylvania. Those explorations were interrupted when the canal was hit by three "100-year floods" in a three year period. Plans for more improvements were frozen as the damage was surveyed three times, procedures gone through, and plans made.

On the tour we got to see the filled in lower mile, for which there is much pressure to dig it out. There are many who believe that doing so would help the viability of the Bristol business district which is adjacent. We also got to see Bristol's Snyder Elementary School, which is the only building



CSNJ Director Bob Angland studies the tunnel portal, 2005.

Photo by Linda J. Barth

now built across the line of the canal. This school was built in the early 1950s and is now obsolete. The interesting sight there was the new school that is being built next door and off of the canal line to replace the 1950s building. Soon, there will be no buildings compromising the canal line.

Of major interest were the reports of contracts being let and bid for repair of the flood damage to the northern end of the canal. The repairs include measures to reduce the damage of future floods. Also, other measures are being considered to replace some stop gates and provide other measures to allow flood waters to leave the canal without damaging it. There is even one project underway to

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

(Part 6 of a series)

by Bruce J. Russell

Following our visit to the Anderton Boat Lift, which has been fully restored and able to raise vessels from the Weaver River to the Trent & Mersey Canal, we continued to the town of Ashton. Here we would have the opportunity to visit the Huddersfield Narrow Canal, a 19-mile-long waterway that crosses the Pennine Mountains using seventy-four locks, all of seven-foot width.

It's called the Huddersfield Narrow Canal to distinguish it from the Huddersfield Broad

(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,
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and to provide an exchange of canal
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The Huddersfield Narrow Canal at Stalybridge.

Photo by Linda J. Barth

Canal, with which it connects in Huddersfield. This inland waterway has locks of fourteen-foot width, capable of handling two seven-foot vessels together, or one larger one. When we arrived at Ashton, the western terminus of the Huddersfield Narrow Canal, we were met by representatives of the Huddersfield Canal Society. These knowledgeable guides gave us a background on this unique canal that only returned to active usage in 2002, after years of reconstruction. The year 2000 map of the British canal system

shows this canal as still closed, but it certainly appears as open and navigable on more recent ones. (As stated previously, more and more of Britain's canals are being brought back into active usage, an effort spearheaded by the Waterways Recovery Group. The ultimate goal is to get as much canal mileage into service as possible, allowing for more and longer journeys for those on canal holidays.)

We began our exploration of this mountain climbing waterway at Ashton, where it connects

with the Peak Forest Canal. We saw places where, until restoration work began over twenty years ago, the canal was nothing but a dry ditch, filled with garbage, junked cars, and other debris. But now it's watered and used by narrow boats.

Clearing out abandoned canal beds is a monumental task, but can be accomplished by those who consider it a labor of love. While in the United States certain short segments of canals are sometimes restored and rewatered, in Britain this simply won't do. Instead, the objective is to get the *entire* canal back in service. Funding for this comes from the Inland Waterways Association, local government, and private donations. Most of the physical labor is done by volunteers who simply love their canals.

The Huddersfield Narrow Canal was constructed about 1805 during the great era of canal building. It's situated in the area between Manchester and Sheffield, two industrial cities, separated by the Pennine Mountains, which, compared to the mountains of Europe, are very low, almost hills. Manchester and Sheffield were, at the time, becoming highly industrialized, and a means of transport was needed to carry goods from one to the other. Railroads hadn't yet been invented, but canal technology had been perfected.

Getting a canal up and over the Pennines constituted a real challenge for the early 19th-century engineers, but they eventually came up with this mountain-climbing waterway with a mile-long tunnel at the summit level. No wonder it later acquired the name, "Everest of the Canals"!

One reason that canal building was considered vital

during these years was that England was at war with France, then ruled by Napoleon. Maritime battles sometimes made the coastal shipment of goods impractical; hence, being able to move goods inland by means of artificial waterways was viewed as an essential component of national defense, with canals filling much the same role our interstate highways do today.

The Huddersfield Narrow Canal carried large quantities of coal, iron, lumber, building stone, etc., until the 1850s when a parallel railway was completed. Slowly the railway began to capture the business of the canal, and by the 1920s it was a candidate for closure. But like many obsolete things in Britain, its death was a lingering one, and total closure only took place after the Second World War. I suspect that a few canalside industries, perhaps coal yards, kept it going. It's also possible that by then only a portion of it was in usage. (This was similar to the situation of the Delaware & Hudson Canal in New York State. The main part was shut down in 1898, but a nine-mile section from Rondout, the port of Kingston, to High Falls, remained functional until 1906, primarily to serve the cement industry.

Our bus made a number of stops where we observed points of interest. In one place, the canal passed beneath the business district of a town in a short tunnel. During restoration, the dirt and rubble that had been used to seal it shut had to be removed, using picks and shovels as well as modern machinery. Furthermore, the canal's approach to the tunnel was in a walled passageway, that had to be extensively stabilized, using transverse supporting beams.

All of the towns served by the canal were once textile manufacturing centers, and old mill buildings similar to those in the historic district of Lowell, Massachusetts, abound. (In Clifton, NJ, the Doherty Silk Mill can be seen from the Garden State Parkway. In Passaic, the old Botany Mills buildings stand next to the Dundee Canal.) During the mid-1800s these mills hummed with activity, and contributed to Britain's wealth.

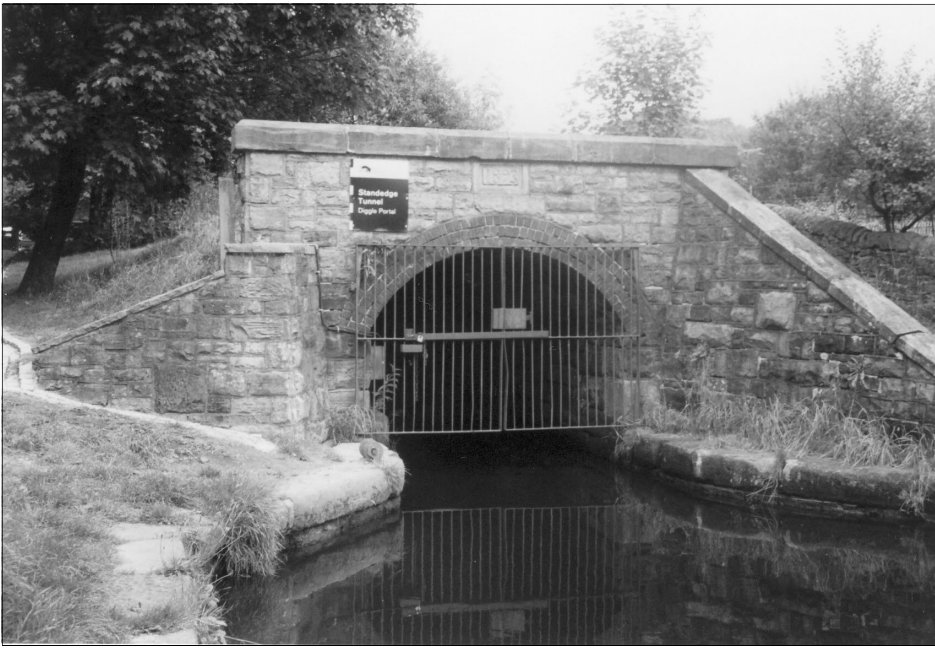
Until the supply from the American South was disrupted by the Civil War, much of the cotton used by the mills of Ashton and Huddersfield arrived by sailing ships from the U.S. After being unloaded at various ports, the cotton worked its way inland on canal boats. British cotton brokers regularly traveled to South Carolina, Georgia, Florida, Alabama, Mississippi, and Texas to make deals with plantation owners. After 1861, the US Navy blockaded southern ports such as Charleston and New Orleans, and this trade ceased. Egypt and India then became the primary cotton

sources. The densest network of canals in England was in the industrial Midlands, and not in the London region, although canals existed there. The "early bird" portion of the tour, in which I did not participate, visited the Black Country Museum near Birmingham; this museum provides an excellent overview of Britain's industrialization, starting in the late 1700s. The role of canals as forerunners to railways is emphasized.

The most awe-inspiring feature of the Huddersfield Narrow Canal is its summit level tunnel at Standedge. Over a mile in length, it was a genuine triumph of early 19th-century engineering. Black powder was used to blast through solid rock, with the rate of progress about 50 feet per day. Many of the laborers were Irish immigrants, and some lost their lives in accidents. Due to the tunnel's seven-foot width, boats could not pass inside; for one hour, vessels were permitted to travel in one direction; then traffic flowed in the opposite direction for the next hour. Signalmen at both portals coordinated the



A portion of the Huddersfield Narrow Canal, in Huddersfield, required these support beams to prevent the stone retaining walls from caving in. Photo by Bruce Russell



Entrance to the Standedge Tunnel, the highest in Britain. Photo by Bruce Russell.

movement, possibly using lighted torches. During the 1830s a steady progression of narrow boats, all horse drawn, traveled over this waterway.

The Standedge Tunnel did not have a towpath for the horses, a feature incorporated in later canal tunnels. Instead, the animals were walked over the top of the tunnel, using a special path. To get the vessels through, men would lie on their backs on the tops of the boats and push them through, using their legs and feet to “walk” along the upper arch of the tunnel. This operation was known as “legging,” and there were actually professional leggers who could move a boat at five miles per hour through a tunnel. This was done entirely in darkness, with the men’s feet feeling their way along the arch, that, like the rest of the bore, was lined with brick.

Our group stopped at one end of this 200-year-old canal tunnel to admire it. We were told that a railway tunnel, built in the 1860s, passes beneath the Standedge at a point near this western portal. A metal gate was in place to prevent

unauthorized access.

The Huddersfield Canal Society remains very active and boasts hundreds of members. They publish a quarterly magazine called *Pennine Link*, which gives historical and other useful information about the incredible “Everest of the Canals.” Because this canal contains seventy-four locks over its nineteen miles, a journey from Ashton to Huddersfield takes a minimum of five days. Nevertheless, as there are railway “mileage freaks” whose ambition is to ride on every stretch of high iron in the nation, so there are “canal freaks,” who want to get their narrowboat over every segment of the network. When the Huddersfield Canal was restored in 2002, several boaters were already lined up, waiting to make the full transit. Perhaps some day I will return, rent a boat, and do the trip.

Upon completion of the tour, we walked along the restored canal through Huddersfield. Adjacent to it at one point was a Tesco Supermarket, and boats

were moored while their occupants went shopping. Perhaps some were provisioning for a five-day trip down to Ashton. I spotted one guy, or bloke, as the Brits say, returning with several cases of beer. Obviously, his voyage would be a boozy one. Believe me, canalling can be great fun when you’re among friends, and simply watching the passing scene.

TO BE CONTINUED

ELEVEN-CANAL ADVENTURE IN UPSTATE NEW YORK

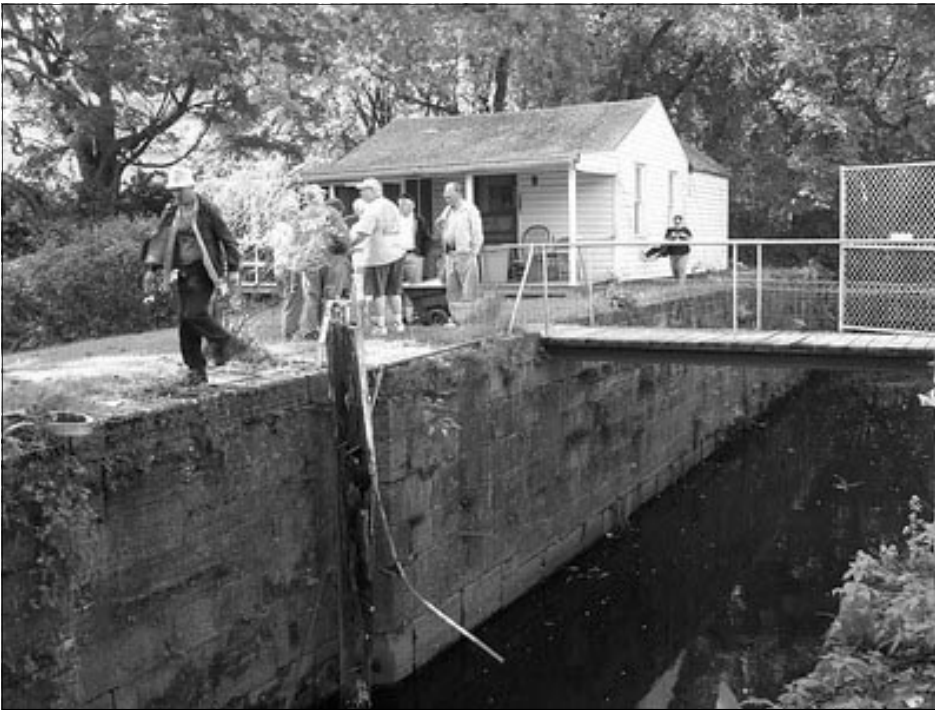
by S. David Phraner

(This is the first in a series about this Canal Society of New Jersey trip.)

Last fall my wife and I took part in a Canal Society of New Jersey (CSNJ)-sponsored motor coach and canal boat excursion in eastern upstate NY. I counted no fewer than eleven canals that we covered, including:

- 1790s Mohawk River navigation improvements (rafts & Durham boats)
- “Clinton’s Ditch,” the first Erie Canal, completed in 1825
- Improved/Enlarged Erie Canal of the mid/early-mid 1800s
- 1917-era NY State Barge Canal
- Original Champlain Canal (early 1820s)
- Improved Champlain Barge Canal (1917-era)
- Glen Falls Feeder Canal navigation (to Champlain Canal)
- Black River (towpath) Canal
- Forestport Feeder Canal (to Black River Canal)
- Chenango Canal
- Delaware & Hudson Canal

This area of travel is roughly defined on the northeast by Glens



Lock #1, Delaware & Hudson Canal, Rondout, New York. Photo by Jakob Franke

Falls, on the northwest by Boonville, on the southwest by Greene and the southeast by Kingston. Note that the above named canals were originally 19th-century, early towpath (boats hauled by mules) or later 20th-century-canals or inland navigations (tow or tugboats hauling barges). Each of the above canals had separate alignments and terminal points. For example, near Little Falls, NY, one can see the original Clinton's Ditch, the Improved Erie, and even remnants of the 1895 canal bypassing the falls of the Mohawk. All of this presents a mystifying and impressive array of canal works active and abandoned, scattered along parallel alignments and spread over four centuries. The complex railroad overlay in this area adds to the fascination. Of course there are other feeders that we did not visit during our four-day excursion, including the active Oswego, the Cayuga-Seneca, and the abandoned Genesee.

The trip ran from Friday,

October 5 to Monday, Oct. 8, 2007, and the weather was unseasonably warm, with intermittent rain and clouds. A prolonged drought was causing concerns in the North Country and the Mohawk Valley. This dry spell necessitated releasing water from the reservoir system into the canals and feeders to keep the navigation flowing on the main line canal. It was thought that navigation on the canal might be curtailed early this year (2007) as a result. Because of the drought, Hinckley Reservoir was down almost 30 feet and Delta Lake appeared to be down 12-15 feet. Some of these reservoirs are also water supply for urban areas. This troubles some of the lake dwellers as they sacrifice "their" lake for the sake of the canal navigation. One must consider that the building of the canal justified the lake in the first instance. I came away with a renewed and intensified appreciation for the scope and

functions of the New York State Canal System as navigation, water supply, and a source of recreation and economic development. TR, "by Jove," had it right in aggressively supporting the conversions of the canal system from a 19th-century mule-propelled, obsolete waterway into a modern inland navigation system.

Our journey began at Ramapo College in northern New Jersey. Our tour leaders, CSNJ members Jakob and Gely Franke, had led us on a tour of New England canals about three years ago. That was their first tour leadership experience, and they executed tour guide roles exceptionally then and now as well. They are both Dutch (Friesian), naturalized Americans, so they understand travel, the importance of detail, dry runs (three for this trip), and they exhibit consistently good humor and patience. Our participants are also much better than average senior travelers, since they are mostly experienced, very fit, knowledgeable, historians and intellectuals.

We motored north on the Thruway to Kingston and wound our way via Route 32 down to Eddyville at the head of navigation on the Rondout Creek. Lock #1 on the D&H was a guard lock into the tidal creek as well as a lift lock into a large basin. The basin led into the canal prism (or what's left of it), heading southwest and also provided access to a weigh lock. A house has been built on the foundation of the weigh lock. In its original state, the weigh lock was covered by a large barn-like building. The lock, in remarkably good shape for its age, is constructed of limestone blocks. The timber

gates are gone and the site is not restored, but is relatively undisturbed. A contemporary seasonal c.1940 cottage is located on the site of the original lock tender's house. An earlier lock, replaced when the canal was enlarged in the 1850s, is almost entirely obliterated. A large three-story brick (remember Kingston was a brick industry town) building (now housing "The Anchorage" restaurant) once served as an administration building for the D&H Canal. One other dwelling has survived what was once a cluster of buildings in the vicinity of the lock. Recreational boating and camping facilities occupy the immediate downstream north bank area from the lock. While the D&H Canal was abandoned in 1898, the lower few miles of the canal between Rosendale and Eddyville were purchased and operated by the Cornell steamboat interests. The cement producers at Rosendale were not yet ready to give up on the canal as a means of delivering their product to market.

Our next stop was on the active Champlain Canal, Lock #C(hamplain)5 at Schuylerville. We approached the town along the river through Mechanicville, a route that provided us with views of the old original Champlain Canal towpath.

Arriving at Lock #5 just north and west of downtown Schuylerville, we lunched on board the stern-wheeler *MV Caldwell Belle a. Camden Queen* official #585901, (62'x12.4'x2.8). Her homeport is Saratoga, though she operates from Schuylerville's Lock 5. Initially, I dismissed this craft and its operator, Champlain Canal Tour Boats, as yet another misguided attempt to recreate the Mississippi River steamboat era in Upper New York State. I was

wrong on several counts. First, this is a genuine stern-wheel propelled boat (chain and sprocket diesel reduction [58:1] direct drive). No prop propelled draggin' wheel here. Second, a glance at the certificate indicated that the boat was built in West Bend, Wisconsin, in 1974, for service on the Mississippi River. Her later history includes service on the Ohio (OH), the Kanawha (WV), and the Archafalaya (LA) rivers. Third, in hull form, scale, profile, and proportions, the *Belle* approximates a small 19th century-style workboat on the western rivers. She draws only three feet loaded, as the captain later demonstrated by leaving the channel and coming upstream behind an island where we could observe the bottom of the Hudson River (at this point the barge canal and the river are one) passing below us. Even her name is authentic. She was renamed *Caldwell Belle* in Louisiana after a southern notable. Since there was a local historical figure in the Schuylerville area by the name of

Caldwell, the current owners decided to keep the name *Caldwell Belle*. Finally, the management purchased a very attractive steam launch reproduction (fiberglass hull with diesel propulsion). Everything else on this pretty little boat is authentic in appearance of a late 19th-century steam launch, including decorative canopy with awning, hourglass stern, and peripheral leather-like seating.

Two school groups on the boat's previous voyage were late and threw off our schedule. They were just locking through upstream as we arrived. This fortuitous delay gave us an opportunity to inspect the canal works at Lock 5 in detail. I observed that the condition of this and other NYS Canal Corporation locks and grounds are considerably improved from the last time we traversed the canal some years back on Mid-Lakes Navigation's *Emita II*. The canal corporation is still affiliated with its reluctant host, the Thruway Authority (NYTA). I was reminded of that old army adage, "If it moves,



Guests enjoyed lunch aboard the Caldwell Belle, a stern-wheeler on the Champlain Canal

salute it. If it remains still, paint it OD or white.” In this case, substitute yellow and blue paint as the traditional NY State Canal colors. Lock 5 must take the prize for the most polished and best maintained of the fifty-seven locks on the 524-mile NYS Canal System. All of the paint looks glossy fresh. All the brass on the switchboards and nameplates on the generators are highly polished (the lock auxiliary heaters are DC). All of the locks are electrically operated, except Lock #6 on the main line, which is hydraulic. We were later to inspect Lock 6 and observe its operation’s impressive 37’ rise and 3.5 million gallon release.

We had a delightful buffet lunch on board as we headed south through the lock downstream, before rounding the second island and departing from the channel, as I described above. The narration was plentifully detailed and informative, and not the usual tourist claptrap. The *Caldwell Belle* is well maintained. I was impressed with its appearance, even after a long operating season. Our tour first went south through the lock and then returned through the lock heading upstream past the Schuylerville dam (and the reason for the lock). The barge canal departs from the Hudson for a short distance to bypass the dam, a series of mild eddies, and two abandoned rail bridges.

After completing the first of two voyages on the canal and inspecting a large model canal packet boat built for local display, we departed Lock 5, heading north along Route 4, paralleling the route that we had just taken via the *Caldwell Belle*. It provided us with another view of the dam and the railroad piers in midstream.

EXPLORE, ENJOY THE MANY FACETS OF “BUILD IT!”

*National Canal Museum
exhibit opened March 1, 2008*

“Build It!” is a major new exhibit that opened on March 1 at the National Canal Museum. “Build It!” occupies the Engineering America gallery on the fourth floor of Two Rivers Landing. It provides a new attraction for repeat visitors and more hands-on fun and learning for children and their families.

Sponsored by Sovereign Bank, “Build It!” features interactive stations that enable children and adults to experiment with building methods and materials while erecting their own structures. Visitors can construct a house with Lincoln Logs; create a steel structure with straws and connectors; build a wall with giant plastic bricks; and construct stone arches with Kappla Blocks.

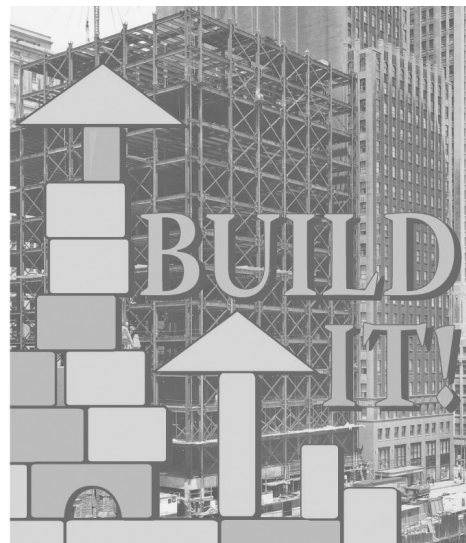
Museum Executive Director Rob Rudd said, “We hope people throughout the region will take advantage of this wonderful opportunity to be inspired and enriched by the materials and techniques Americans have used to build the infrastructure of our country.”

Historic structures highlighted in the exhibit include: Chicago’s Home Insurance Building, New York’s Empire State Building, San Francisco’s Golden Gate Bridge, Philadelphia’s City Hall, and the Hoover Dam.

“Build It!” adds to the museum’s current \$1.5 million National Science Foundation exhibits that include a 90-foot water-filled model canal system and hands-on activities through-

out four galleries on the third and fourth floors of Two Rivers Landing.

Two Rivers Landing is home to the National Canal Museum and The Crayola Factory. Regular admission is \$9.50 for adults and children, and \$9 for senior citizens. Children under two are admitted free. Admission includes both attractions.



The Canal Fulton Heritage Society operates the *St. Helena III* canal boat rides in May, weekends only; June through September; departs daily, Tuesday – Sundays, 1, 2, & 3 pm, weather permitting. School & group charters also available. Adults, \$7; seniors, \$6, children 5-12, \$5; children 4 & under, free. Old Canal Days Museum tour also available for a small additional fee. For more information, please call 330-854-3808 or 1-800-Helena3, or visit our website, www.DiscoverCanalFulton.com.



The First of Many Canal Trailside Exhibits at the Wabash & Erie Canal Park at Delphi

Earlier this year, the first of many unique trailside exhibit items arrived at the Wabash & Erie Canal Park for the Delphi Historic Trails program. Volunteers moved an old Wabash Railroad baggage building that originally was used at Burrows Station. This small 'typically railroad looking' building represents the Wabash Line when it was built through here in 1856.

This structure, with its crossbuck doors, has been on a farm north of Rockfield for many years after it was no longer needed for the railroad. Dr. Tom Anderson donated it to the canal association. This will become one of a lengthy list of interactive interpretive exhibits. The trails will be adorned with ten commemorative sites highlighting the canal period.

Railroads quickly took over the lucrative shipping business for which the canals were



developed. The quicker pace and year round shipping offered by rail was favored, and the use of waterways diminished. By 1874 Delphi saw the final run of the Wabash & Erie Canal boats. Boats always moved too slowly, and in winter they were unable to operate at all. The favored transit was pulled by steam locomotives.

This interpretive site, with its baggage building and section of

narrow gauge/standard gauge rail, will be located at the back of the canal park. At this site, the two great historic transportation systems crossed. The canal has been dredged for a mile and is also accessed by the canal association's pontoon boat in the summer.

The intersecting live railroad is owned by US Aggregates and is used to haul crushed stone products from its Delphi plant. Since the rail spur line is still operating, a tunnel was installed two years ago for the convenience of trail hikers accessing the ever popular Underhill Towpath Trail.

The site will be developed by canal volunteers to look like the above drawing. It will be a rest stop along the towpath at the tunnel beneath the railroad. Design for all ten special historic sites along the trail has been developed by Len Mysliwiec.

To his credit are the dozen galleries that he designed inside the Canal Interpretive Center.



Photo and drawing, courtesy of Dan McCain

LEARN THE ARCHAIC SKILL OF LOCK TENDING

Just mention in a conversation that you have experience working as a locktender and watch jaws drop as you explain the job. List on your resume your experience in raising boats as much as ten feet, and you will induce much curiosity and wonderment at the personnel office.

Locktending is a very rare position in the United States, seen only in a few state parks and at the C&O Canal National Historical Park in Maryland and Washington, D.C. Few people ever get a chance to do or even see this activity, yet, if the Lowell canals are in your backyard, here is your chance.

If you are physically able to move a heavy canal gate arm mounted on a pivot, use your back properly, follow safety procedures, and work four-five hours per week in the summer and early fall, you, too, could learn the skills of being a locktender.

This job is available on a daily basis from late June through early September and on weekends through Columbus Day.

Reflect on what your career may have been if you were working in 18th-, 19th-, and early 20th-century America. Call the Lowell Volunteer Office at 978-275-1740 and talk to them about this almost bygone position that once employed many individuals and families living in special lock houses along America's thousands of miles of canal ways.

NEWS FROM THE CANAL SOCIETY OF OHIO

Frank Trevorrow, one of the original CSO founding fathers, died September 18, 2007, in Oberlin, Ohio, at the age of 106. Frank had remained active in the CSO

affairs well past the age of 100. He authored many articles and maps in the CSO quarterly, "Towpaths," and his 1973 book, *Ohio Canals*, a collection of many of those articles and maps, is one of the standard texts on Ohio canals. Anyone who has studied the Ohio canals has certainly encountered some of his work. He will be missed.

The Ohio Historical Society has announced the receipt of a \$2.4 million grant from the Ohio DOT for the reconstruction of the "Big Lock" (number 1 south) at Lockington on the Miami and Erie Canal. An article by the late Bob Mueller, concerning the situation in Lockington, appeared in *American Canals* in the early 1990s. Many CSNJ members also viewed this lock on their field trip to Ohio in 1997. This project is anticipated to be the first part of three phases to stabilize and restore the Lockington site. Work will begin in the summer of 2008.

The wooden support frame inside the lock will be removed. The fill behind the walls will be removed, the walls straightened, and gates installed. A new drainage system will eliminate the settling and the leaning of the walls. For those who have seen the site, Lock 1 is the fifteen-foot lift lock at the top of the hill next to the canal keeper's house (formerly a fire station).

Lockington Locks is part of the Piqua Historical Area State Memorial. Site Manager and CSO Trustee Andy Hite was instrumental in obtaining the funds for this project. The Piqua park is the home to the new aluminum-keeled replica canal boat *General Harrison of Piqua*, which has been most successful since its launching in 2002.

SHARING THE SHOVELS RESTORATION BEGINS

On the misty morning of March 14th, the Friends of the Delaware Canal welcomed stakeholders and supporters to Lock 24/Fish Ladder in Easton, Pennsylvania, to celebrate the long-awaited start of the major flood repair work on the Delaware Canal. State Representative Robert Freeman, Easton Mayor Salvatore Panto, Williams Township Supervisor Fred Mebus, Pennsylvania State Park officials, Delaware and Lehigh National Heritage Corridor staff, Delaware Canal State Park Advisory Committee members, a representative from the Canal Society of New Jersey, Popple Construction, BiState Construction, and members of the Friends gathered in front of Popple's fully-extended long-arm track excavator. The crowd stretched from one end of the excavator to the other!

All in attendance expressed their hopes for the Delaware Canal's new beginning and wishes that the construction project will flow smoothly and quickly. David Kemmerer, Assistant Director of the PA Bureau of State Parks, and Terry Purcell, Delaware Canal State Park Maintenance Manager, both quipped that they hoped that the work would be completed before their rapidly approaching retirement dates.

The highlight of the celebration was a "sharing of shovels," during which Tom Williams, President of the Friends' Board of Directors, and his three-year-old granddaughter, Cora Anderson, presented beribboned shovels to the representatives of the two construction companies. (Cora, dressed in a bright pink vest that perfectly matched the bow on her little shovel was more

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than ready to convey the hopes of future generations.)

The “sharing of shovels” demonstrated that the Friends of the Delaware Canal and the PA Department of Conservation and Natural Resources, which have been undertaking comparatively small flood repair projects, are happy to have new help with the “big” job.

Since the first river flood of 2004, the Friends have been dealing with the consequences. Special clean-ups were waged after each of the inundations and significant, innovative repairs were completed.

The rushing waters from the flood of September 2004 caused the canal bank to break and the towpath to severely erode in the vicinity of the David Library of the American Revolution in Washington Crossing. This damage was tackled by the Friends. A contractor was hired to line the canal prism with geosynthetic material and re-establish the towpath surface using a potentially more flood-resistant method called “stabilized turf.” This project allowed the PA Bureau of State Parks to test stabilized turf to determine its suitability for other sections of the canal. The completion of the repair, which cost \$102,000, allowed the southern twenty-five miles of the Delaware Canal, from New Hope to Bristol, to be rewatered.

The towpath in this same location was again damaged by the flood of April 2005. The erosion was less severe thanks to the positive performance of the geosynthetic liner and the stabilized turf. This \$47,000 repair was again funded by the Friends, and water was restored to the southern end of the canal.

Canal structures also take beatings during floods. The structural crossbars of the Thompson-Neely camelback bridge, located in the midst of the northern section of the Washington Crossing Historic Park, were dislodged by high water. With Department of Community and Economic Development grants secured by then State Senator Joe Conti and private contributions, the Friends funded emergency stabilization and later funded restoration of this bridge, one of only six authentic camelback bridges that remain along the canal.

The Friends intend to keep on tackling flood-related projects as does the state park. So along with the “big” job contractors, we’ll surely bring the Delaware Canal back to its old self and make it even better.

The Goal – A More Stable Towpath Core and Surface

If you’ve had the opportunity to examine any of the towpath bank blowouts along the Delaware Canal, you will have seen that the canal bank was built simply of earth and stone. To try to make the canal more flood resistant, the engineers

from DCNR’s Bureau of Facility Design and Construction have devised a reconstruction plan that involves installing a stable core material within the bank, providing a liner that is more reliably impervious than clay, and laying down a trail surface that will be less prone to erosion.

In areas where the towpath bank has been totally washed away, the construction specifications call for the installation of stacked gabion baskets that will serve as a core. A gabion is a wire mesh basket, about 3 feet high by 3 feet wide by 6 feet long, that is filled with stone. Gabions act like building blocks.

To repair a blowout, a layer of large stone is laid as a base. Then gabions are placed side by side along the length of the blowout. Another layer can be added if needed to fill the void. Several feet of dirt covers the baskets; then a layer of bentomat, geotextile material, is put down. The bentomat, which functions more reliably than clay, extends from the bottom of the canal prism up and over the towpath area to the far side. Another layer of dirt is placed on top of the bentomat.

The towpath trail surface will be “stabilized turf,” consisting of

(continued on page fourteen)

Standing in front of the excavator are Terry Pursell, Delaware Canal State Park Maintenance Supervisor; Rick Dalton, Delaware Canal State Park Manager; Tom Williams, President, Friends of the Delaware Canal; Armand Cencetti, Popple Construction; Greg DiNardo, Bi-State Construction; Fred Mebus, Williams Twp. Supervisor; and Susan Taylor, Executive Director, Friends of the Delaware Canal.



Ship Lifts in Germany **by Eckhard Schinkel**

(Hg.). English Translation by Roy Kift. Essen and Dortmund, Germany.: Klartext-Verlag and Westphalia-Lippe (LWL) Industrial Museum, 2007. 129pp. 140 color and b&w illust., 2 maps, 8 Data and Facts Tables, bibliography, table of contents. € 10.95 sb (ISBN 978-3-89861-752-9).

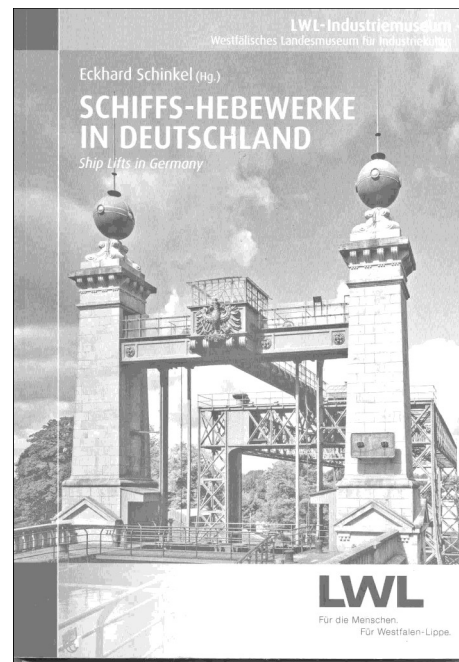
Eckhard Schinkel has written a riveting and intriguing journey into the world of ship lift technology in general and German ship lifts in particular. His detailed account in *German Ship Lifts* is not only very well-illustrated, but also contains a highly readable text of the historical origin of ship lifts, their German descendants, and how they operated, all presented in a lively and enthusiastic manner. Make no mistake that it takes both knowledge and the ability to tell the story well that results in a book of this quality.

The book is divided into four parts. The first introduces us to "The Fascinating World of Ship Lifts." This is primarily a historical treatment covering the period from the earliest slipways in Greece and Egypt to move boats overland before the time of Christ to the present high lifts (113 and 114 meters, 373 and 376 feet respectively) being constructed at the Three Gorges Dam and on the Jinsha River in China. It has just the proper technical detail to whet our appetites for more. Between these temporal bookends, Dr. Schinkel touches on Western civilization's first attempt to unite the Rhine and Danube River basins by Charlemagne in 793 at the Fossa Carolina in southern

Germany and the development of inclines and vertical mechanical lifts that led to Johann Friedrich Mende building the first lift in Germany in 1789.

The narrative continues with a brief discussion of the English model of inclines and the technology transfer to Prussia including the American model through the contribution of Georg Jacop Steenke on the Oberland Kanal of eastern Prussia (now the Elblag in Poland) who in 1850 was influenced by the inclines on the Morris Canal in New Jersey. The chronicle then leads us to the later 19th century and earliest 20th century vertical ship lifts in Europe and Germany: the Anderton Lift in England, the hydraulic lift at Les Fontinettes in northern France, Belgium's vertical lifts at La Louvière on the Canal du Centre and the Henrichenburg Ship Lift north of Dortmund. Ship lifts from around the world are discussed, including both visions never built, such as the Eads 1880 plan for a ship railway instead of a canal across Panama, and those built, such as the 2002 highest lift (73 meters, 240 feet) in all of Europe at Strépy Thieu on the new rerouted segment of the Canal du Centre. This epic journey back through the arch of time is enhanced by many relevant images of paintings, drawings, diagrams and museum models that wonderfully clarify the text.

The first part of Dr. Schinkel's book is not a mere recitation of facts, figures, dates, and mechanisms of lift operation; all the lifts are explained within a context of major historical events and social outlooks of the



times. Linkages are made not only to the technological past but also to contemporary realities and culture at the time of their construction.

The technological development in the first part of the book gives way in the second to a discussion of the individual ship lifts in Germany from 1789 to 2011. Again Eckhard interweaves human history, architecture, and technology, thereby coupling places and structures with the need to built them and the people who planned and brought them to fruition. Major political themes and historical events such as the unification of Germany by Bismarck, the two World Wars, and the Cold war are fleshed out and form the contextual framework upon which the narratives of each lift unfolds.

Chapter two is a chronology of boat elevator construction in Germany and begins with Euromapping's splendid map of mainland Europe, showing the location, names, and dates of the ship lifts of Germany and neighboring countries (excluding the two water slopes in the south

of France - one on the Canal du Midi and the other on the Canal Latéral à la Garonne). The text begins with a section on the Halsbrücke Barge-Lift near Freiburg Saxony (south of Dresden) completed in 1789 by J.F. Mende, a vertically rising dry boat lift; that is followed sequentially by segments devoted to each lift in Germany as follows: **1899-1970**—The Old Henrichenburg Ship Lift in Waltrop, a five-float lift; **1934**—The Old Niederfinow Ship Lift, a counterweight ship lift; **1938**—The Rothensee Two Float Ship Lift and the Hohenwarthe Twin Ship Lift, planned but never built; **1962**—The New Henrichenburg Ship Lift, a twin float lift; **1975**—The Lüneburg Twin Ship Lift near Scharnebeck, counterweighted double caissons; and **2011**—The New Niederfinow Ship Lift, now under construction; counterweights. Sadly we discover that the world's two unique float ship lifts operating in 2005-2006 have since been closed.

Each ship lift portion describes the history of the project played out against the historical events of the time and the personalities involved, the construction phase, technology, operation, architecture, and its status or condition today. The informative text is enhanced by many illustrations, including some wonderful engineering drawings and aerial photographs. Also included are focus tables (fact sheets) for each lift containing the necessary engineering details of the site, type of lift, lifting height, trough dimensions, weight of the caissons, drive mechanisms and horsepower, construction firm, opening date, and so forth. A wealth of information is succinctly presented.

Chapter three is a brief one, focusing on the Chinese-German joint venture constructing the vertical ship lift at the Three Gorges dam, and again it is wonderfully illustrated and well written. I was greatly intrigued to learn that there may be as many as fifty inclined planes and vertical lifts in China, but very little information has reached the general public. But what is known is that the majority of the ship lifts in the world are in China.

The final chapter is for the reader who is not well acquainted with ship lifts. Here Schinkel presents some basic principles of ship lift operation, and it deserves merit for simplicity and, therefore, its potential appeal to the general public.

One slightly negative point from my perspective is, although the English translation *in italics* appears adjacent to or beneath the German I would have preferred it also to have a different font size or thickness from the German so that it would be more readily apparent especially in “close quarters” such as the fact/data focus boxes and figure captions.

Eckhard Schinkel's *Ship Lifts in Germany* is a must read for any one interested in canals, the history of technology, or history in general. But it also should have great appeal to a broad audience. Beginners, specialists, serious students of the field, and casual bystanders alike will find this work to be of great benefit. It is well researched, well written, beautifully illustrated, and factually correct, in short a superb treatment.

Thomas X. Grasso

TO GET YOUR COPY:

Ship Lifts in Germany can be purchased by contacting the museum at the Henrichenburg Shiplift in Dortmund/Waltrop—the LWL (Westphalian-Lippe) Industrial Museum. The museum's website is:

www.schiffshebewerk-henrichenburg.de; you may send an email to the museum at schiffshebewerk@lwl.org.

You may also contact Eckhard Schinkel directly at e.schinkel@lwl.org or eckhard.schinkel@lwl.org.

THE SCHUYLKILL RIVER TRAIL EXPANSION IS OPEN!

The Schuylkill River Trail expansion to the Longford Road/Port Providence trailhead was opened on April 14, 2008, by the Montgomery County commissioners. Trail users can now bike, hike, run, or roller blade from Port Providence to Philadelphia.



FROM THE PRESIDENT (continued from page one)

improve the canal around Lock 5, which was planned just before the flooding and then put on hold.

Once these projects are completed, probably in 2009, the supporters of the canal can return to the long range task of making the canal more accurately reflect its claim of being the “only intact towpath era canal.” With hard work, one day, we may even be able to navigate this canal in real boats.

CANALENDER

July 12—Canal and Rail Fest, Cumberland, MD; www.candocanal.org

July 20—Locktender's Open House, canoe and kayak float; Lock 60, Schuylkill Canal Park; Mont Clare, PA; 610-917-0021; www.schuylkillcanal.com.

August 17—Locktender's Open House, canoe and kayak float; Lock 60, Schuylkill Canal Park; Mont Clare, PA; 610-917-0021; www.schuylkillcanal.com.

September 14 – 17, 2008—World Canals Conference, Rideau Canal, Kingston, Ontario, Canada. For more details, visit www.canals2008.com.

September 21—Locktender's Open House, canoe and kayak float; Lock 60, Schuylkill Canal Park; Mont Clare, PA; 610-917-0021; www.schuylkillcanal.com

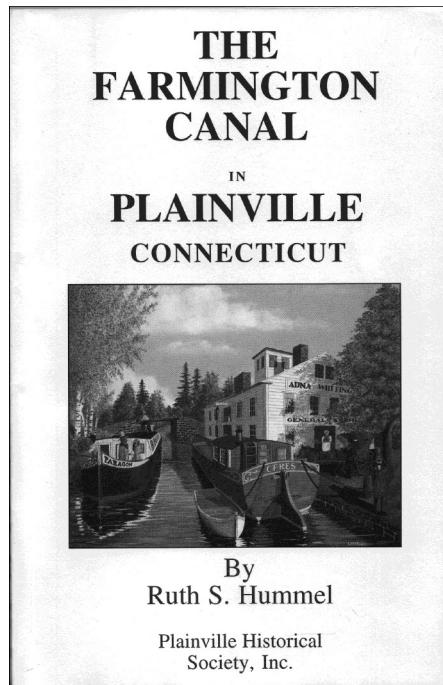
October 10-12—Canal Society of Indiana Fall Field Trip to the Cross-Cut Canal & Greene County, Indiana. Contact Bob and Carolyn Schmidt, 5909 Chase Creek Court, Fort Wayne, IN 46804; 260-432-0279; indcanal@aol.

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

Oct 17 - 19—Pennsylvania Canal Society Field Trip to Lower Chesapeake & Ohio Canal, with stops at the Monocacy Aqueduct, Whites Ferry, Edwards Ferry, Lock 25, Seneca Aqueduct, Lock 24 Violettes Lock, and Pennyfield Lock. A tour of the refurbished Great Falls Tavern Visitors Center

and a ride on the mule drawn canal boat will be included in the trip. For information, contact Dave Johnson at 301-530-7473.

October, date not set yet. Canal Society of Ohio tour in the Akron/Portage Lakes portion of the Ohio and Erie Canal. Larry Turner is the tour chair. He can be reached at (330) 658-8344, towpathturner@aol.com.



The Farmington Canal in Plainville, Connecticut, by Ruth S. Hummel, was published last year by the Plainville Historical Society.

Ruth Hummel has been president of the PHS for many years. She has been an aficionado of the Farmington (aka New Haven - North Hampton) Canal for, by her admission, thirty-seven years. In that time, and successively with partners Mel Schneidmeyer and Dr. Carl Walter, she has taken a strong hand in restoring a segment of the canal in Plainville; publishing a map of the entire Farmington Canal; collecting and studying photos,

diaries, artifacts and stories about it; and leading tours groups to key sites along the canal. She has written over 900 articles on local history for newspapers and over ninety shows for public access TV (locally Nutmeg, Channel 5). Ruth has spoken to the American Canal Society and, with Carl Walter, led a tour for the Canal Society of New Jersey. Now, at age 77, she has written a book to make the stories she has learned more widely available.

Clearly, the book is a wonderful compilation of Ruth's stories. It is an easy read, with 27 short chapters and illustrations about the planning and construction of the canal, the boats, the people, the critters, the cargos hauled and other uses, and finally its demise; in short, just about every conceivable aspect of the Farmington Canal. And, of course, more than a few of her observations pertain to many of our other historic canals as well.

The book, a "must-have" for anyone interested in the history of the canal era in the US, is available from the PHS, 29 Pierce Street, Plainville CT 06062; \$15 mail order, plus \$2.50 S&H, or call 860-747-6577 for price and ordering.

TOWPATH SURFACE (cont'd)

85% stone aggregate mixed with 15% topsoil seeded with a special non-clumping grass. The stabilized turf will not be as smooth as the argillite gravel trail, but will hold together better in a flooding situation.

Bentomat and stabilized turf were used for towpath bank repairs in 2004 and 2005, and the gabion/bentomat/stabilized turf solution was used for the repair of a 100-foot blowout south of Easton in 2006. The materials and methods seem to be working.