ACS Honors Canal Artist

As the American Canal Society enters its 21st year we owe a special round of appreciation to our Publisher, Bill Shank; our Editor, Denver Walton; our Secretary-Treasurer, Charlie Derr; and our Sales Officer, Keith Knoo. We also have some active committees, but these are the folks who do the essential work which keeps ACS alive and well. Special thanks go to Charlie Derr, who, by the time you read this, should be back home after heart by-pass surgery.

As a special bonus treat for 1993 we are proud to bring to all our members in good standing, a book of the best of Phil Hoffman’s remarkable canal drawings, edited by Bill Shank. Picture-Journey Along the Pennsylvania Main Line Canal is a memoir to Mr. Hoffman (1891-1972), an engineer/artist who knew his canal history and engineering and had the talent to bring it all to life through his brilliantly colored sketches. Over the years Bill Shank obtained color-slides of the sketches as they were made. This book, in full color, is one of Bill’s long-time dreams, now fulfilled, which we hope you will enjoy.

This book will, I hope, encourage more artists to bring their own canals back to life. It usually takes a very patient and understanding artist, working with a local canal buff, to get the technical details right. Without such drawings it is impossible for others, even long-time canal buffs, to visualize the site the way the local experts can. And for canal preservation, each picture has more value and impact than thousands of words.

This is probably the only time in the history of our society that we will be able to offer a membership bonus which sells for more than a year’s membership. So tell your friends to join the American Canal Society now (before October, 1993) for $14 and get a free $16.50 book, plus a year’s supply of American Canals! Act now, this offer will not last!

Did you know that artist Paul Gauguin helped dig the Panama Canal? During his search for a romantic tropical island, he worked as a laborer on the French canal for several weeks in 1880 until he was laid off. As he wrote to his wife, “I have to dig . . . from five-thirty in the morning to six in the evening under tropical rain and sun. At night I am devoured by mosquitoes.”

This information is from an article by Roxanna Cain in the July 17th Panama Canal Spillway which was passed on to me by Cliff Brown, who once worked on the Panama Railroad. Also of interest, in the July 31st issue, is an article on the towboat CAPT BILLY SLATTEN, still working on the Mississippi River. It was built in Philadelphia in 1865—105 years ago—and began life as the canal tug BOLIVAR working on the French canal in Panama. Several years ago on the Tombigbee River I saw a work boat which had been retrieved from the canal. Are there other Panama Canal craft in U.S. museums or still working on our inland waterways?

John Droese has been working hard on an ACS glossary of canal terms, but one we probably don’t absolutely need is: Luchwignordan,kanadampf-cilfahrgesellachsenkapitainswienereite. In a letter to the December 1962 National Geographic, F.E. Trinklaus says it is one of the longest words in the German language, and means “Pension of the widows of the society of steamship captains of the Ludwig-Main-Danube Canal.” In BEST II, p. 83, you’ll find Mr. Cheaophrayaratwongsaithai’s assessment of Thai canal art, but this beats him by at least an inch! 

Bill Trout

PRESIDENT’S MESSAGE

CANAL CALENDAR

March 20, 1993 — Canal History and Technology Symposium, William Simon Business Center, Lafayette College, Easton, PA. Contact: Hugh Moore Park, P.O. Box 877, Easton, PA 18041, (215) 250-6700


April 16-17, 1993 — Spring Field Trip, Pennsylvania Canal Society, Easton, PA. Contact: Albright “Zip” Zimmerman, 1361 River Road, Yardley, PA 19067.


April 23-25, 1993 — Spring Field Trip, Canal Society of New Jersey, Tour of Delaware Canal, New Hope, PA. Contact: Linda House, 214 North Bridge Street, Somerville, NJ 08876.

April 24, 1993 — Lockington Locks Site work session, noon to 4:00 PM. Bring your own tools to trim small trees and vegetation. Contact: Bob Mueller, Jr. (513) 733-3454.


June 12, 1993 — Miami and Erie Canal Corridor Coalition Meeting, Defiance, Ohio, details later. Contact: Bob Mueller, Jr., 1640 Trillium Court, Reading, OH 45215 (513) 733-3454.
LETTERS TO THE EDITOR

There are several mistakes in the November issue of AMERICAN CANALS that should be corrected. Once a mistake gets into print it is hard to correct. If not corrected, it may cause confusion.

The picture at the top of page three is not of Locks 45 and 46 but of Guard Lock No. 5, adjacent to Dam No. 5. Locks 45 and 46 DO NOT bypass Dam 5 but are located at the upper end of Little Schuylkill, one half mile upstream from Dam 5.

The picture of the old barge at the middle-left of page 10 is taken above the Monocacy Aqueduct, not below. Note the B&O Railroad Bridge in the upper part of the picture. That bridge is located upstream about one quarter mile above the aqueduct. Also, if that sunken boat was bringing grain, it would have unloaded above the aqueduct so that the grain would not have to be carried across the canal to the grainer, which was located on the upper side of the canal (beam side). Please note that the text in the last paragraph of the article is correct.

John Frye

Erie Canal Board Game

By William Dzonbak

On winter overnights, when the canal is frozen solid, both young and old game board players will enjoy learning how to carry a freight boat from Albany to Buffalo and back, and make a profit, in spite of the many hazards, regulations, and accidents that a boat captain must know how to deal with.

The game board is a map of the Erie Canal, painted on stiff paper, that is 5x6 inches. The map needs to be glued or taped to a rigid backing (cardboard). The pieces or tokens that move on the game board are two boats (folded paper cutouts), one boat westbound (from Albany) and one eastbound (from Buffalo). Movement of boats is determined by the spin of an arrow mounted on a numbered cardboard circle. Each player starts the trip with a stack of paper money used to pay fines (as for speeding, or running a boat that is overweight). Profit made on a trip is calculated by subtracting expenses paid out (tolls, fines) from income realized by selling (auctioning) the cargo at the end of the trip. The cargo carried on each boat is determined at the start of the game, by drawing “cargo cards” from a stack of face-down cards; the auction price of each item of cargo is found by spinning the arrow pointer.

The game is sold by Chatham Hill Games, P.O. Box 253, Chatham, NY, 12037. The price is six dollars, which is a lot to pay for a large sheet of paper and a plastic spinner, but students of canals are known to attach unusual value to the subject that interests us all. The game could be resold as a money-maker for a canal organization or historical society.

BOOK REVIEW

Ray Spangenberg and Diane K. Moser "The Story of America's Canals" (Facts on File, New York, NY, 1992)

Reviewed by Denver L. Walton

As interest in canals increases over the years, more and more publications become available to improve our knowledge. Barely twenty-five years ago all we had was "Old Towpaths". Now we have before us "The Story of America's Canals" by Ray Spangenberg and Diane K. Moser. This recent effort to present the history of American waterways traces canals and canal building from the earliest ditches through the Panama Canal and the Tenn-Tom Waterway.

The latest in a series on American transportation, this volume is well illustrated with maps and photographs, many from the files of the American Canal and Transportation Center. In the pages of this book we learn such important facts as why the bridges were low and what canal workers were paid.

The Erie Canal is well portrayed as the successful predecessor of the many major canals that followed. The chapter on the Panama Canal covers all the important phases of construction, false starts included, and doesn't neglect the story of the canal of the yellow fever mosquito.

This book is available from the publisher, Facts On File, New York, for $18.95 plus shipping costs.
THE OHIO AND ERIE CANAL CORRIDOR COALITION

Northeastern Ohio is blessed with many remnants of a once prosperous canal system, which was started in 1825 and continued Cleveland on Lake Erie, with Portsmouth, on the Ohio River. Many structures remain due to a State effort to rebuild, as New York had done, in 1907, but this effort was cut short by the devastating flood of 1913. The Ohio and Erie Canal Corridor Coalition is a grassroots, local effort to preserve and promote usage of these remnants, extending from Cleveland to Zoor, and eventually down to the Ohio River.

The OECCC began with a public meeting on September 21, 1979 and has been expanding ever since. Immediately, a steering committee was set up of nine local volunteers who were supported by liaison with the National Park Service. A quarterly newsletter was created and was appropriately named "THE SILVER RIBBON" after an epic ballad by Captain Pat Ralph Nye, a legendary, real Ohio Canan Engineer whose saga is known throughout the state. An inventory and public hike was held from Cleveland to Zoor and over 100 citizens attended who compiled local information to be used in the future; the canal was rediscovered.

Our Corridor is unique in that it stretches over 85 miles, and consists of two river systems, separated by the 41st Parallel. Cleveland is situated at the mouth of the Cuyahoga River and Lake Erie, from which it grew, and is followed by 22 miles of the blossoming Cuyahoga Valley National Recreation Area and its Valley Rail Line. The North Cuyahoga Valley Inc. is a citizen's group of volunteers who have been working together for over 10 years to show the resources of Cleveland; it is a diverse area consisting of interstate highways, international airports, the seaport of Cleveland, and many major manufacturing facilities, and yet was built along historic Indian trails and ancient transportation networks whose presence can still be found.

The Cuyahoga Valley National Recreation Area is just South of Cleveland and is connected by its newly constructed Towpath Trail Project, John Debo, City Park Superintendent, spearheaded this effort by getting cooperation from many local leaders, Cleveland and Akron Metro-Park Systems, and numerous individual communities affected by the Park. The trail is presently under construction and will span roughly twenty miles of continuous all-purpose surface, over aqueducts, boardwalks, and many other canal improvements, through tunnels and under railroads, and includes two beautiful visitor's centers and the newly reconstructed Lock 38 North, an operating lock, with ranger and audio visual, high tech assistance. The Towpath Trail connects to the Buckeye Trail, the State of Ohio system of over 1,000 miles, and to the North Country Trail, a national system that will cover over 12,000 miles of hiking networks.

The canal from Akron to Zoor was supplied by the Tuscarawas River through the Portage Lakes Feeder System. This is represented by the Cuyahoga Locks Association, an effort to preserve a staircase of 8 Locks in the heart of downtown, as well as the Mustic's Store, a canal era grocery, and its lock tender's house. Progress Through Preservation is another local group leading the way, which is concentrated on preserving the buildings, engineered structures, and other historic artifacts dear to the "Rubber City." City management has earmarked over $100,000 to the start of construction of the Cascade Trail, almost in the central business district. Summit County is cooperating with the extension of this effort, outside the city—it has utilized canal lands with a beautiful park system that goes back to the 1920's, and is finally being re-discovered.

There are over nine miles of navigable canal water reaching from Akron's Summit Lake to Barberton, Ohio. The "Magic City" is represented by the Wolf Creek Association and other local groups. Barberton has Lake Anna, in the heart of town, the Yoder brother's restored barn (now classy office buildings), remnants of 4 more O.C. Barber structures, Wolf Creek Lock, (buried), miles of beautiful towpath, and of course, the Wolf Creek Aqueduct, the only known structure of its kind in the entire state. The canal is surrounded by industry, both past and present, and yet the solitude of the canal lands is undescrbebable.

Clinton was once destined to be the terminus of two canal systems, and it still retains much of its historic beauty. Many structures have not changed since canal days, and Clinton still has two beautiful locks as well as a guard lock, protecting the City, and many of its homes appear as they did over 100 years ago.

Cana Fulton has never given up its heritage, as can be seen from the St. Helena III, a modern concrete Canal boat which is operated each summer by the Canal Fulton Heritage Society, and their oldest boat the St. Helena II which carries thousands of passengers for over 15 years which they hope to turn into a museum, and use again. Canal Fulton has recently done much to revitalize its downtown area. It maintains the McLaughlin Drydock facility, has miles of walkable towpath, and Lock 4 Park has been refurbished again by Stark County, with a door, a locktender's house, and an abandoned mill site.

Massillon grew due to the canal and the city is full of old stone buildings and churches. The river is beautiful as it runs past steel mills and under rail lines, and their many museums reflect the town's glorious past. Its close neighboring city, Canton, was the home of past President McKinley, and the recently refurbished McKinley Memorial is a stone structure comparable to any memorial in the World. Canton also has the Football Hall of Fame and many other modern attractions.

Navarre is a collection of three canal towns: Bethlehem, Rochester, and Navarre, all of which were unique. It has established the Navarre-Bethlehem Township Canal Corridor Group of volunteers, and they are in the process of making a modern park around the canal. Stark County, always a canal supporter, has done its best to acquire most rights within its borders.

Tuscarawas County has Locks 7, 8, 9, and 10 within its boundaries, all of which are in good shape, and are being considered for restoration. The Canal town of Bolivar was located near two aqueducts, and is at the junction of the Sandy and Beaver Canal. It has many Canal era structures and is located near Fort Laurens, the only revolutionary fort in Ohio. Zoor Village was instrumental in Canal construction, and many of its buildings are still as they were in Canal Days. The feeder dam is located here, as well as their guard Lock that still shows the 1830 date on its cornerstone. Zoorville and nearby Camp Tuscazoar also exhibit much history, as well as the Muskingum Water Conservation District of the 1930's.

Presently, a feasibility study supported by Congressman Ralph Regula, a long-time friend of canal preservation, is being conducted by the National Park Service, and is expected to be submitted shortly. OECCC volunteers have developed a slide show, and have sponsored hikes, bike ventures, canoe races, river clean ups and area tours, and the Second International Conference on Historic Canals was recently held in Akron's Quaker Square. Canal videos have been made of the area, classes are held at the local universities on canal subjects, the Akron McDonald's is built along the Canal theme, and the "BIG" canoe labralation commemorating the opening of the system was recently held with coordinated activities from Cleveland to Zoor.

The Ohio and Erie Canal links 85 miles of green space, connecting culture, history, and architecture, through common interests. The Ohio and Erie Canal Corridor Coalition is working steadily at becoming the fourth National Heritage Corridor. Much progress has occurred, cooperation has been excellent, and our future looks bright. Larry Turner, 11619 Fraze Road, Doylestown, OH 44230.

American Canals, No. 84 - February 1993
NEW BOOK ON ALEXANDRIA CANAL

During the Civil War, boat traffic on the Alexandria Canal stopped and a bridge was built across the Tide Lock (left). This famous Brady photograph was our only view of the lock until it was excavated in 1979 and 1985. (U.S. Signal Corps photo, National Archives)


Reviewed by Bill Trout

Canal buffs will be delighted to know that the very first monograph published by West Virginia University's Institute for the History of Technology & Industrial Archaeology, is on a canal. And as a Virginian, I am especially pleased that this a Virginian canal—it branched off the Chesapeake & Ohio Canal but it was built by a separate company in 1843 to take coal freighters from Georgetown, now part of Washington, D.C., down to Alexandria's deepwater port on the Potomac.

The Alexandria Canal was only seven miles long but it had all of the engineering features a notable canal requires, including a flight of four locks, a stone-arch aqueduct over Four-Mile Run, and a 1100-foot aqueduct across the Potomac. Unfortunately for the canal, the same progress which was responsible for its construction, has been responsible for eliminating nearly all traces of it in this solidly developed area surrounding the nation's capital. In fact, there is some debate about the exact route of the canal in relation to modern buildings. Could one of the secret rooms under the Pentagon be in the old canal bed?

The canal's most famous structure, the Alexandria Canal Aqueduct, was almost completely demolished in 1962, the victim of a foolish law in our land requiring that old bridge piers be removed because they "obstruct navigation," even when there is no longer any navigation to be obstructed. Therefore it takes a campaign to save a historic bridge or an aqueduct, and it took the Arlington Historical Society a lot of work to save one pier on the Virginia side.

The flight of locks, too, was almost lost forever. Over the years the locks became completely buried and lost to view. Even the ownership of the lowest lock in the flight, the Tide Lock, was in dispute because the federal government claimed all the land up to the high tide mark in 1776. Two centuries later when developers wanted to use the site, the federal claim was part of the leverage which led to a compromise—the development of the site, but the uncovering and preservation of the lock as a waterfront feature, and the establishment of the Alexandria Waterfront Museum beside it.

The first excavation at the lock was by Vivienne Mitchell and Pamela Gressy in 1979, to prove that the lock was still there to preserve and to place on the National Register of Historic Places. Then in 1982 and 1985 Tom Hahn and Emory Kemp systematically excavated the lock for interpretation and restoration. It should be pointed out that their restoration recommendations were not entirely accepted by the developers. The lock is a static display today, without working gates, to avoid the "dirty Potomac water." Someday we hope to see the lock brought back to life so historic small craft can be berthed on display in front of the Waterfront Museum.

The Alexandria Canal is a 76-page, well-illustrated account beginning with the history of the Alexandria Canal (with a good introductory chapter on its place in canal development in Virginia and the world) and ending with the authors' archaeological study of the Tide Lock. It even has a glossary of canal terms, and extracts from the notebooks of the canal's engineer, Master C. Ewing. There are precious few books available on canal archaeology in this country so this important book is a must for every canalier's shelf. It is also a welcome change from useless contract archeology reports made by investigators who may be good archeologists, but who don't know a breast wall from a stop gate slot. As anyone reading American Canals knows, Dr. Tom Hahn is a world-class canal archaeologist, one of the founders of the American Canal Society twenty years ago. And Dr. Kemp, who started the new Institute for the History of Technology and Industrial Archaeology, in 1989, is also a member of ACS and knows his canals. It ought to be a law that contract archaeologists doing a canal should be required to include a recognized canal archaeologist or a canal expert as an integral part of their team. Canal archaeology is a specialty, and it takes special knowledge to pose the relevant questions of use to canal historians. Fortunately, Tom Hahn and Emory Kemp know what they are talking about. Let this book be a good example for future work in the field of canal archaeology.

(Concluded on Page Ten)
ROMANCE ON AN ENGLISH CUT

(OFFICE'S NOTE: A Knacker Nayligh (otherwise known as Pat Saunders of Larch Post Cottage, Blackheath, Guildford, Surrey, GU4 8RB) has provided this little story to help Americans brush up on their conversational canal English. For those who are a bit rusty, he has included a glossary.)

Veronica stood gong-wanging her buffalo as it winded in the hole. 39

"Shall I scrump my cratch?" she pondered, or should she try to catch a bigger one? Her motor was being blacked and reduced to Charily. 39

She desperately wanted to impress Harry, the ex-knockabout Number One who was on her tail. She showed him how to catch a boat -  39

She'd shown him her back-end 27 once on the Moritsa 24 and caught him on the Jacko 18 when he'd had to loose her by. He'd even commented on the spring of her loopy 21 when she was laying on the top of Johnson's bottom during a stoppage. 39

So she knew he was quite impressed, but she half suspected he wanted to get his hands on her and her money. 39

Willie had found a brand new Riviera for a few bob on the thirteenth 29 near the center of Brum, 39 the BCN being the Joey boat standing strong. She'd wheeled 21 for him on the hoss-path. 54

Her father's family had been boating for many generations but her mother had not been. 39

She reflected that she often heard tales of his old days when they'd sometimes loose off 24 and peg to 24 before sparrowhawk, 24 or even work fly 24 to beat a stoppage. 24

As she'd been down the junction 20 working juicers 51 Veronica hardly knew Harry, but she'd heard tales of his feats, including shaeling 22 all night when his Bolinder 20 conked. 54

In a way she regretted the passage of the old boats. "I know a motor makes life easier," she reflected. "But it's a lot better," 55 and you get your back-end well down, though its harder on the oller. 59

You had to have a good screw, though, and some boatsmen would lodge on 2 a sill and hammer the blades 2 to get better fan hold. 56

But all the old ways were more pleasant, she thought, with pairs of animals, the occasional mule or pony 55 61 but most of the time stinky little cobs. Too many hands 24 and the haines 55 would clout the bridge 'ole. 56 The gears 24 with the bobbins 51 and painted spreaders 51 looked good too, better than the leathers 24 and swine 24 of the least cost content. 55

"Through," she went on, "I wouldn't fancy legging through Blisworth 24 on narrow cut wings, 24 even with a good swimmer. 55 And what about Kit Crowshaw's?" 50

Her reverie was broken by a wheeler 20 on an old Herc 23 tearing up to set. 40

"Steam this keenly?" she shouted, dropping while she drew. 42

"Back three bridge lengths," he yelled back, "and look out." 41 The broad post 24 gaped and she put her back into the beam. 24

To cut a longer story short, when Harry came up with his new one they were up to 59 and made off full chat 24 into the sunset. The Sally Ann 20 major 24 spilt them 20 at Sutons 28 over the August Stoppage 28 and they lived happily ever after.

GLOSSARY

1. Canal or artificial section.
2. Gezing idly.
3. Unpowered "narrow boat," 70 ft. by 7, loading about 5 tons.
4. Turned, using the wind to blow it round.
5. Winding hole - turning basin.
6. Apply dark varnish.
7. A pyramid-type structure at the front of the hold.
8. Painted roses and castle were traditional designs.
9. An artificial projection of canvas, largely decorative.
10. Powered "narrow boat." Usually a powered and unpowered boat (bitty) worked in pairs.
11. Repainted with bituminous paint.
12. Compound of tar and stable manure used to waterproof wooden hulls.
14. Boats and boaters from the English pottery towns round Stoke on Trent.
15. A boatman who owns his own boat.
16. Travelling close behind.
17. Stern, i.e., left him behind.
18. The Ashby de la Zouch Canal.
20. Allow to overtake.
21. Spring loaded towing hook at the top of the towing mast.
22. Moor on the bottom lock of Johnson's Hilllock flight.
23. Canal closure for repairs.
25. Short and long tow ropes.
27. Equipment.
29. Boats carrying tar from coal burning gas-works, Pre-North Sea gas.
31. Steer away from towpath side.
32. 900-foot long boats in the Wolverhampton area, which had to pass no locks (locks 70 feet long).
33. A flight of 3 locks at Tipton, 8 miles from Birmingham, 5 miles from Wolverhampton.
34. Three Claytons boatyard at Oldbury.
35. A man with a horse who assists unpowered boats.
36. Doing a Rodney = assisting in the passage of a flight of locks.
37. A few shillings.
38. A flight of 25 locks with a short break in the middle, Farmer's Bridge, Birmingham.
39. Birmingham. Also "Birmingham."
40. Birmingham Canal Navigations.
41. Used a bicycle to catch locks ahead of the boat.
42. Towpath. Elsewhere "hurling" way or "hurling" way.
43. Lived in a house.
44. Could read and write.
45. Ute mooring ropes.
46. Connect horse to tow line.
47. Daybreak. The term "sparrowhawk" is used here to spare American sensibilities. The term in actual usage is "sparrow-fart," a metaphor based upon ornithological indigence.
48. Go non-stop.
49. Maintenance closure.
50. The southern end of the Grand Union Canal.
51. Boats carrying barrels of concentrated lime juice.
52. Pushing with a pole or shaft.
53. Early simple diesel engines.
54. Ceased to work.
55. Works well under load.

60. Stern.
61. Rudder.
63. Push the stern of the craft on the sill of a half-empty lock to improve a dry-dock.
64. Hit the individual propeller blades to increase the pitch. Very pragmatic.
65. Grip on the water.
66. Donkeys.
67. Mule: A hybrid with donkey daddy and a horse as mummy. Jenny: A hybrid with role reversal (or vice versa) - who cares? Not even another mule (or Jenny).
68. Too tall - a hand - 4", at the shoulder.
69. Haines: Part of harness, also known as harness, ayens, whums.
70. Clout hit (not "clart," which is horse manure in the NW). Bridge 'ole: A low narrow bridge over the canal.
71. Harness.
72. Painted wooden rollers with rope traces running through.
73. Wooden bar at stern of gorse to attach towropes via a spliced rope.
74. Leather traces.
75. Similar to 68 but with a hook to slip an eye splice on the tow rope over.
76. Barges working west from London (Not in Devon and Cornwall).
77. Propelling boat through tunnels with no towpath by lying on one's back and "walking" along the walls.
78. Canal tunnel 1-1/2 miles long.
79. Narrow cut wings placed across bows of boats for leggers to lie on.
80. Moves easily through the water.
81. Fabled ghost who haunted a tunnel.
82. See 41.
83. "Hercules'" brand of bike.
84. Get lock ready.
85. Lowering "paddles" to close water flow through top gate.
86. Open paddles to drain lock.
87. A canal boatman's unit of distance. Three bridges lengths may mean 100 yards or two miles.
88. Similar to American measurement in "blocks." Do I walk three bridges or get a cab?
89. Hurrying.
90. The mitered vertical beams where two locks meet at a point.
91. Pushed hard with her shoulder blades and braced legs.
92. Motor boat with no dirty.
93. Lashed side by side.
94. Very fast.
95. Salvation Army mission worker to boat population.
96. Married them.
97. Sutton stop lock. This has a few inches rise at the junction of the Oxford and Conventry canals.
98. See 49.

About the author: A Knacker Nayligh was named after Ench and Ei! Two mythical Birmingham and Blackcountry (BCN) characters, the Abbot and Costello of hornley wit, e.g.: Ench (who has bought a mongrel dog): "Cop this, Ei!"

He throws a stick across the cut. The dog walks across the surface of the water and retrieves it. Ei: "You paid a quid for 'im? You bin don'! Ech: "Why 'im I bin don'! Ei: "Booger can't swim!"

This article written for us by Pat Saunders who was one of his last, for shortly after his return to England he died of a stroke at age 66. Pat was one of the pioneers of the canal restoration movement in Britain. We'll all miss him.
CRUISING THE CANADIAN CANALS

Robert Akers poses for his picture at the bow of the "Kawartha Voyager." Note the pilot house above the second deck.

By Robert Akers

The canal systems of Canada offer idyllic scenes, lots of locks, friendly people and a chance to see 1832 living in 1992 comfort. My wife and I took the Quinte Summer cruise offered by Ontario Waterway Cruises in September.

The company operates three five day segments. We took the center portion which started at Kingston on Lake Ontario and ended at Peterborough on the Trent-Severn Waterway. It was five informal days of excellent meals, delightful harbors and ever-changing views through 19 locks. The passengers were well-traveled and quite entertaining.

Our boat was the Kawartha Voyager operated by the Lloyd Ackert family. The second generation, Marc and John handled piloting, maintenance, social activities, commentary and general management. Their land support, supply and booking arrangements are handled by their respective spouses, Heather and Joy. The crew consisted of Sharon, the cook (and a good one she was), deckhands Kelly and Barb, and servers Helena and Peggy.

John's son Ryan joined us for three days of the trip and then much to his distress he had to return to school. At age nine, he is determined to follow his father and grandfather and work in the family business.

The boat accommodates 24 passengers in 12 cabins on the lower deck. The cabins are snug but adequate with passengers responsible for their tidiness during the voyage. While usually full, our trip carried just 13. The lounge and dining room are on the upper deck with a sun deck above for viewing the birds, flowers, resort homes and other boats passing by.

Our voyage started at Kingston on Lake Ontario with scheduled overnight stops at Picton, Trenton, Percy Reach and Hastings. Normally the first night is spent at Kingston, but Marc elected to leave at 8 p.m. to avoid an anticipated storm in Lake Onta- rio. We sailed in the darkness until about midnight which was unusual and enjoyable and tied up at Priwys's cove. We cruised the Bay of Quinte to Trenton and then traveled on the Trent River passing through 19 locks en route to Peterborough.

It was a pleasant voyage with pleasant passengers and a competent and friendly crew. We are looking forward to taking other segments offered from Peterborough to Big Chutes off of Georgian Bay and from Kingston to Ottawa on the Rideau Canal.

The Trent-Severn Waterway and the Rideau Canal are operated and maintained by the Park Service of Canada. The canals and dams were built originally in the 1800's to insure adequate water for log drives and milling. They are now used to manage water levels for navigation, flood abatement, water supply, hydro generation and recreation. We saw many private boats cruising as well as many in the harbors along the way.

Our previous inland waterway tours have been on the English canals and on the "Mississippi Queen" and the "Delta Queen." The Canadian canals provide an opportunity to see a pretty part of Canada from a water point of view.

Information on the canal cruises can be obtained from:
Ontario Waterway Cruises
Box 6, Orillia
Ontario, Canada L3V 6H9
Phone (705) 327-6767

The "Kawarta Voyager" enters a double lock near Healy Falls on the lower Trent-Severn Waterway.
SLOPED LEVELS IN CANALS

By William Dzontak

In previous issues of American Canals, readers will find discussions of the question of whether the bottom of a canal was or was not sloped, to cause a current of water to flow down the canal and so to deliver water where it was needed throughout the length of a canal. The following statement, made by canal engineer D.B. Douglass, should suffice to settle the question: "It is generally true that on a canal which was held by a teacher of civil engineering who was then on the staff of the military academy at West Point, which at that time was the seat of civil engineering expertise in America. Major Douglass, on leave from teaching duties so that he might assist with canal projects in Pennsylvania, was engaged in the design of the "French Creek feeder", a canal that was to be used for navigation and also to deliver water to a canal that was to be built to link Lake Erie with the Ohio River at the mouth of the Beaver River. After considering the remarks made by Major Douglass on the subject of canal bottom slopes, it will be possible to resolve the question into a set of clarifications that may suffice to put the matter to rest, to the satisfaction of all participants in the inquiry.

Major Douglass speaks:

"Having thus exhibited a general view of the ground on which the feeder must, in any event, be located, as well down the valley of the Conneaut outlet, as on both shores of French Creek, it remains before we proceed to the particulars of its location, to determine the important question of its declivity.

"It is frequently imagined that the declivity at the bottom of a canal regulates the velocity and discharge of its water; but a very little attention to the subject will show that this idea is founded upon a false analogy, which the mind is apt to imagine between the channel of a canal and that of a river. If the guard gates, for instance, at the extremities of a long reach of canal were kept carefully closed, there could evidently be no discharge; and whatever might be the declivity of the bottom, the water in such a canal must remain perfectly quiescent. If now, a sluice be opened at one extremity of the canal, and the water being kept at uniform height at the other), a discharge, corresponding to the capacity of the sluice, is immediately produced; the water in the canal also acquires a velocity in some proportion to the discharge, and the surface assumes a declivity to which that velocity is practically due; and here also, as before, the whole operation is independent, except in a very remote sense, of the declivity at bottom. The principal object of solving the problem (and a very important one in the adjustment of a feeder, where the discharge is great) is, that, for the convenience of navigation and the safety of the works, the declivity of the grade uniform. The proper course of inquiry, therefore, in conformity with these views, is as follows:

1st To ascertain the actual demand at the point where the feed water is to be delivered;
2nd Knowing the transverse section of the feeder, to determine the velocity answering to the required discharge;
3rd To ascertain the superficial declivity to which that velocity is practically due; and
4th To apply the result in graduating the declivity at the bottom.

Because the French Creek "navigable feeder" was to serve also as a water-supply channel, it was necessary to maintain a positive flow of water through the canal from the summit level. Major Douglass explains that the required flowrate of feedwater would be secured by maintaining a different level of the surface of the water between the level of the surface in the reservoir and the level of the water surface at the downstream end of the canal, where there would be a discharge sluice or "tumble dam" that would permit water to overflow out of the navigable feeder canal and flow into the French Creek feeder section. That elevation of level is referred to, by Major Douglass, as "the superficial declivity" of the water surface in the feeder canal. That "superficial declivity" is the slope of the water surface that enables water to flow, by gravity, from a higher level to lower levels [at one end of a feeder canal] to lower levels [at the other end of a feeder canal], and we now come to the crucial part of the discussion of "sloped levels".

In a canal devoted exclusively to navigation, the surface of the water is horizontal or level, not sloped, even for the lock, and the first water weir downstream canal from that lock. That level surface is, of course, curved, parallel to the curved surface of the earth, but the curvature of the surface of the water is negligibly small over a distance of a few miles of a "canal level". In such a water-filled channel, the water is either motionless, or, as was more usually the case, moving slowly, to deliver water needed for lock operations and compensate for losses of water further down the canal. A canal current of that kind could be maintained by simple displacement: one cubic foot of water dumped into one end of the canal would push aside one cubic foot of water already in the canal, much as a long line of railroad cars is displaced when one more railroad car pulls up and collides with one end of the string of cars. In the case of the canal, one cubic foot of water is displaced over the spillway at the far end of the canal for every cubic foot of water dumped into the canal at the water-supply end of the canal. That movement of water down the canal can occur even if the bottom of the canal is not sloped, but level, as it usually was, according to Major Douglass.

Furthermore, it should be noted that the displacement of water from one end of the canal to the other does not involve a slope (or "superficial declivity") on the surface of the water, either. Dumping one cubic foot of water (in the form of an "ice cube", for example) into one end of a canal may cause a momentary mound on the surface of the water there, but gravity instantly reduces that mound of water to a superficial slope, or gradient, that is negligibly small and in no way can account for the large flowrates that can be achieved through canals, by simple displacement currents flowing below a level surface and above a level bottom.

In the case of a feeder canal, however, the situation is different, because a feeder canal is built to pass a large volume of water, and so there must be a measurable slope, or "superficial declivity", on the surface of the water flowing through a feeder canal, whether or not the canal was built to pass water for navigation, also. That declivity, or surface slope, can be maintained by a suitable setting of the elevation of the spillway at the discharge end of the canal while water is dumped into the inflow end of the canal at a rate sufficient to maintain the required overflow rate at the discharge end of the canal. Suppose, for the sake of discussion, that the water surface must slope 12 inches, over a distance of one mile, to produce the desired rate of delivery of water at the outflow end of the feeder canal. The bottom of a feeder canal can be level and the canal will still be able to pass high flowrates, provided the surface slope is maintained sufficiently high. Note, though, that if the surface of the water is one foot lower at the discharge end of the canal than it is at the inflow end of the canal, then the depth of water will not be the same at the two ends of the canal. That difference in depth is a consequence if the canal is to be used only as a leader, but if the feeder canal is to be used also as a navigation channel, then it is necessary to maintain the water depth constant, at 4 feet, from end to end of the navigable channel. That constant depth can be maintained only by sloping the bottom of the canal so that the canal bottom is everywhere parallel with the sloped surface of the water in the canal.

To summarize, the following points need to be remembered:

1. There are three kinds of canal associated with transportation — navigation canals, feeder canals, and navigable feeder canals.
2. The surface of the water in a navigation canal is level, but the water surface is sloped in a feeder canal or in a navigable feeder canal.
3. The bottom of the canal is level in most canals (because of the form simplified construction), except in navigable feeder canals, where the canal bottom had to be sloped to parallel the sloped water surface, in that way to maintain the fixed depth of water required for navigation.


ARCHAEOLOGICAL SITES

The National Register of Historic Places expects to publish in October of this year National Register Bulletin 39: Evaluating and Registering Historic Archaeological Sites and Districts. Coauthored by staff archaeologist Jan Townsend and Dr. John Knoel, the director of the Cultural Resources Geographic Information Systems Facility, the pamphlet deals specifically with the challenges of registering historic sites, as opposed to prehistoric, archaeological resources.

Although it does not deal explicitly with canal sites, the bulletin provides sufficient guidance on identifying, describing, and evaluating historic archaeological properties in general to assist people concerned with historic canal preservation. It also explains the use of National Register criteria, and provides a guide to the completion of relevant sections of the registration form. In this latter role, it should be used in conjunction with bulletin 16A or 16B, the guides for completing nomination forms for, respectively, individual properties or groups of properties. These are available from the Superintendent of Documents, Government Printing Office, Washington DC 20402-9325. 16A is document #024-005-01096-3, priced at $8.50; 16B is #024-005-01092-1, $2.00.

The National Register would be interested in hearing from a canal expert willing to prepare, as a public service, a guidebook detailing specifically with the registration of canal sites. Volunteers should call Toni Lee at (202) 343-9520.
Here we see George Johnston at work laying bricks on a weir of the Chesterfield Canal in England. Restoration work is in progress on this 1777 canal, part of which has been re-opened.

ACS life member George Johnston had a busy summer in 1992. First, he spent a week in England with the Waterway Recovery Group. Working on the Chesterfield Canal near Workop, Second, he biked the C&O Canal towpath from Harpers Ferry to Georgetown. Finally, he cruised the Tennessee-Tombigbee Waterway on a trip from Huntington, WV to Pensacola, FL in his own 22’ sailboat.

In England he joined a group of 22 volunteers doing towpath clearing and repair of brickwork at the Renishaw narrows. In the accompanying photograph, Johnston is shown laying brick on the weir below the narrows. The Chesterfield Canal was completed in 1777, running 45 miles from Chesterfield to the River Trent. It is now navigable for 26 miles from Workop to West Stockwith on the Trent. A short section is open near Chesterfield, where the canal society operates a trip boat. A trip boat also operates from the Hop Pole pub near Retford. The Chesterfield Canal Society has maps, guides and a video which may be obtained from Mick Giles, 15 St. John St., Brampton, Chesterfield, Derbyshire, S40 1DF, England. For information on canal camps, contact Neil Edwards, Waterway Recovery Group, 24 A Avenue Road, Witham, Essex, CM8 2DT, England.

The 60 mile C&O Canal ride was made on a three-speed Dahon Folder with 16 inch wheels. This was his longest single-day journey on this bicycle. It has been used primarily for running errands and sightseeing on extended boating trips. A full size off-road bicycle would have made the trip a bit easier.

On September 13, Johnston began a trip down the Ohio River on his 22-foot O’Day sailboat, Euphria II. In two weeks he reached Kentucky Lake, site of TVA’s “Land Between the Lakes” where he visited the 1850’s style-working farm museum and saw a herd of over 200 bison.

After three weeks he entered the Tennessee-Tombigbee Waterway from beautiful Pickwick Lake. The excellent marina and facilities at Pickwick State Park were the best value of the trip.

All that remains of the southern outlet of the Ohio and Erie Canal at Portsmouth, Ohio. George Johnston snappes this view from his sailboat on the Ohio River.

Bay Springs Lock and Dam on the Tennessee-Tombigbee Waterway in Northeast Mississippi. Note the Tugboat and its barges entering the lock.

George Johnson and his folding, three-speed Dahon Bicycle on which he rode the C&O Towpath from Harpers Ferry to Washington in one day. In the background is the canal boat and basin at Georgetown.

He found interesting visitors’ centers at Pickwick, Bay Springs and Tom Bevill dam’s. Particularly noteworthy were the Tom Bevill visitors center, (Aliceville) constructed to resemble an antebellum mansion and the “Snagboat Montgomery,” open for tours at the site. At the end of the waterway at Demopolis, AL, he took a side trip to Tuscaloosa on the Warrior River. Heavy towboat traffic in coal and wood products and the tight bends in the river made that portion particularly exciting.

He completed the journey by continuing to
Mobile and along the intercoastal waterway to Pensacola, Florida. The 50-day journey covered 1666 miles and 25 lockages. Sails alone provided 327 miles with the majority of the power provided by a 7.5 horsepower outboard. For information contact the Tennessee-Tombigbee Development Authority, P.O. Drawer 671, Columbus, MS 36703 or U.S. Army Corps of Engineers, Mobile District, P.O. Box 2288, Mobile, AL 36628.

For further details of these interesting summer activities, contact George B. Johnston, Jr., 804 Gracelyn Court, Blacksburg, VA 24060, 1-703-552-2976.

**TOUR THE ERIE CANAL BY BICYCLE**

*Classic Adventures of Hamlin, New York,* is offering a one week tour of the Erie Canal by bicycle. The tour starts in Lockport, NY where participants will go by boat through the famous Lockport Locks. They will continue by bicycle along the towpath to Brockport, Rochester, Syracuse & Rome. This tour is appropriate for all levels of cyclists and children are welcome. A tour guide and assistant will accompany the riders along with a support van to carry luggage and/or tired cyclists. Daily cycling distance will be approximately 35 miles per day. Lodging will include inns, hotels, and bed & breakfasts. Top quality rental bicycles are available. Upon completion of the tour, participants are transported back to Lockport or they have the option to fly out of Syracuse, NY. The trip includes visits to the Erie Canal Museum in Syracuse & the Erie Canal village in Rome. Canal boat rides will take place in Lockport and Rome. For further information call 1-800-777-8090 or write Classic Adventures, P.O. Box 153, Hamlin, New York, 14464-0153.

**YES MA’AM, CAPTAIN!**

The presence of women in the workplace is nothing new, but to find a woman in a position of top management, a role long dominated by men, seems to have been an unusual phenomenon worth noting, especially in the age before women’s liberation.

The Commandress of a Canal Boat

"There was a woman," it is stated, in the Cincinnati Commercial, "upon the Miami Canal, a boat going run under the direct command of a lady. Her name is Mrs. Leonard, and she hails from the neighborhood of St. Mary’s. She is represented as being a very agreeable, pleasant, and intelligent German woman. She writes a neat, legible hand, possessing much of the delicacy and beauty that characterizes ladies’ writing. In the capacity of commandress of the craft on the ‘raging Canal,’ she discharges all the duties incident to the office she fills, among which are engaging the cargo, taking out the clearance, paying tolls, overseeing the discharge of freight, and supervising the whole business of the boat. Her husband is in California, laboring in that city to gather up the shining particles of wealth, while the business better half is employed here as above stated, adding to their store the profits of an arduous business."


Notice the importance attached to the quality of handwriting at a time when business was carried on without the aid of a typewriter. In those days, the ability to write legibly was a marketable skill. Submitted by A. Zimmerman and W. Dzombak.
JOURNEY ON THE DOURO RIVER OF PORTUGAL

by Roger W. Squares

The great rivers of Europe have been used as navigations since before Roman times. Some, however, had such steep gradients that they could only be used at certain times of the year for commercial navigation. Over the years, one by one, they have been improved by the construction of locks and dams. One of the most recent developments has been the upgrading of the Douro River in Northern Portugal.

The headwaters of the Douro rise at Pico de Urbion in north central Spain and in the border area the river flows through a 75 mile gorge which has always been virtually unnavigable. The head of regular navigation has usually been accepted as Barca d'Alva close to the Spanish border. The river valley became the focus of wine and port production in the 18th century and until the 19th and early 20th centuries the produce of the local vineyards was carried in high-steered river boats, the barcos rabelos, which negotiated the wild waters at great risk. These were guided by oarsmen downstream but generally assisted by horses for the upstream journey. Each craft was capable of taking about 60 tons to the seaport at Oporto. A railway line, which mirrored the river, took away the waterborne trade in the 20th century. Now only an annual regatta at Oporto provides an opportunity to see the barcos rabelos in action.

In the early 1960s planning began for a series of five hydro electric dams and locks, the latter being capable of passing 2000 ton barges to transport iron ore from the Moncorvo mines, in the border area, 130 miles downstream to Oporto for transshipment. The taming of the Douro River, which drops 426 ft. in 130 miles, first began in the 1970s with the construction of two locks and dams at Carrafeiro and Regua. The shaft lock at Carrafeiro having a lift of 114 ft. (34.5 m) with the Valeira lock, with a lift of 32.5 m, opening in 1976. Problems with funding delayed the completion of the remaining locks and barrages at Bagusie and Pocinho until the mid 1980s. The full navigation was not finally completed until 1988. A hotel boat, MV Pinto da Silva, named after the engineer who master minded the construction of the locks, was introduced in 1990. This accommodates some 60 travelers in twin cabins and provides the ideal way to tour the navigation works.

Our trip started in Oporto where the boat provided the facility of a base whilst we visited the town. Porto, as it is called locally, is of Roman origin. The original settlement being on the south bank in an area now named Vila Nova de Gaia where most of the port (wine) houses are to be found. Three bridges span the river at Oporto whilst the town itself has granite houses which seem to overlap each other on the hillside.

We cast off at lunch time on the second day, after a further mornings wine tasting, to sail upstream for about four hours, through the meandering valley with its lush pastures, pines, eucalyptus and almond groves to pass through the Doutuma lock and barrage lake to the town of Entre-on-Rios, where the Tamega River joins the Douro, to moor overnight. An evening excursion to the surrounding area was provided with a chance to try the local hospitality.

The next day saw an early morning start as we continued upstream with the pines and almonds on the valley sides intermixed with olive groves. The highlight of the trip was the passage through the Carrafeiro Shaft lock that raised our boat 114 ft. in under 20 minutes. We made a brief stopover to see the hot springs at Caldos de Aregos in Resende, before continuing upstream past the terraced vines, to Peso de Regua where we moored in the late afternoon. Regua proved to be a fascinating town and marks the official boundary of the port wine region. An excursion took us to Solar de Matusos where we saw the building pictures on the Mateus Rose wine bottle labels. The area abounded with old farm buildings and cottages with thatched or slate roofs.

The next morning we made an excursion to Lamega, south of the river and climbed the seemingly endless steps to the Sanctuary of our Lady of Remedios from which we gained a fantastic panorama of the whole area. At lunch time we reembarked to continue our voyage upstream to Pocinho, passing through the three locks of Bagusie, Valeira and Pocinho. This transit took some 7 hours in all.

The fifth day of our trip was spent exploring the region known as Tras-os-Montes (over the mountains), which nestles between the Tamega River and the Spanish border and is the area where most of the port wine grapes are grown. Enroute we saw the old bridge at Mirandela over the river Tua, and the Roman bridge at Chaves which is still in use today. In the late afternoon we reboarded the Pinto do Silva and set sail for Barca d’Alva, the head of the main navigation. Above the town the Douro narrows to pass through a long gorge.

The following morning our boat turned to head downstream to Pinhao. A journey that took about 6 hours. When we arrived we were first taken to the local railway station, where the azulejos depicted various aspects of life in the Douro valley, before visiting a local quinta (farm).

The next day we left early for our final cruise downstream through the remaining locks to Oporto where we moored in the evening light at the old river quay. Sadly, that was the end of our voyage.

We spent the final night on board before returning to the airport the next morning laden with our samples of port wine, after a journey through the magnificent scenery, picturesque riverine ports, quintas and wineries of the Douro River valley.

(Our trip was booked through Serenissima Travel, 21 Dorset Square, LONDON, W1 6GQ ENGLAND. Phone London 071 723 6556)

CUYAHOGA RECREATION AREA

The Towpath Trail from Rockside Road, in Independence, south to Peninsula is “almost” totally open. The new trail has already been used for hiking and biking by many during the year and served as the route for the Toet-Toow marathon held on the “Big 160” weekend. Benches and sites for wayside interpretive exhibits are being installed along the trail as are signs and wood posts at road intersections to control vehicle access. A bridge over the Cuyahoga River at the Peninsula Aqueduct site will be installed in the near future. Lock 39 has been rebuilt, and the gates operate perfectly. Landscaping around the Canal Visitor Center (Locktender’s House), including a dike to prevent flooding of the facility, has been completed. Thoughts of “possible” rebuilding Lock 37 at Wilson’s Mill are being considered as a future project. The historic Station Road Bridge was rehabilitated and re-dedicated as an important part of the CVNRA trail system.

Boardwalks in Stumpy Basin and at the beaver ponds north of Ira Road are finished. Planning and engineering for next year’s work are well under way, and construction of the Towpath is continuing south of Peninsula. The target for completing the entire trail is October, 1993 (The “Big 161” or the 161st year after the opening of the entire Ohio Erie system from Cleveland to Portmouth).

The weather, river, and mosquitoes were most unforgiving this year, and the summer rains made towpath building very difficult in many areas due to continued high water—in some areas the Towpath was inundated. “New” discoveries are still being found, however, and old mills, factories, and a large mill barn foundation have been rediscovered. More treasures are sure to be found, reminding us of our past and showing us a way to a brighter future.

Larry Turner

Alexandria Canal Book

(Concluded from Page Four)

The Alexandria Canal is available at $15 postpaid (plus 84¢ tax in WV) from the American Canal & Transportation Center, P.O. Box 310, Shepherdstown, WV 25443. If you’re a member of the C&O Canal Association or the Virginia Canals & Navigation Society, say so and you’ll get $2 off until May 1st. Copies can also be purchased over the counter at the Alexandria Waterfront Museum at the foot of King Street in Alexandria, beside the Alexandria Tide Lock.

Other canal-related monographs in the works which are tentatively to be published by the WVU Institute of Technology and Industrial Archaeology, and distributed by the American Canal and Transportation Center in WV, are Hahn and Kemm’s The NaturalCroton River Valley, the Upper Potomac River Valley, for Spring 1993; Hahn’s The Lock-houses and Lock-keepers of the Chesapeake and Ohio Canal; and A Glossary of North American and British Canal Terms, an American Canal Society project by John Drooge and his Glossary Committee.

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AMERICAN CANALS, NO. 84 - February 1993
MASSONRY LOCK FOUNDATIONS

By Resident Engineer Purcell, Chesapeake & Ohio Canal, July 26, 1835. (Contributed by the ACS Engineering Design Committee)

"...In reviewing the works that have been constructed in the United States since their origin down to the present day, the engineer will be struck with one remarkable fact, that while the numerous locks constructed on different works, at different periods and by a great number of engineers each eager to distinguish himself by the introduction of new plane and novel practices into the profession, have been altered in their shape and constructed of different material, yet in this solicitude for innovation or improvement, with few exceptions the artificial foundations of all the lock are planned and constructed alike. The usual mode of constructing them is to lay oak timbers one foot thick and the same distance apart extending entirely under the lock chamber and across the breadth of the walls; the spaces formed by these timbers are filled level with their upper surfaces with good water proof puddle, the whole surface thus formed by these timbers is then covered with three or four inch plank wall tree-nailed, and on this foundation the lock walls erected. Three, sometimes a great number, of rows of sheet piling pass across this foundation.

"This mode of constructing the foundations was practiced on the canals made by the State of New York, Ohio, Pennsylvania, & Virginia and by all the incorporated canal companies of whom works I have any knowledge ......... I propose to examine the elementary part of an entire lock foundation, the purpose served by each, & how far any one of them may be modified or entirely dispensed with, without injury to the whole.

"A lock foundation such as has been described above is composed of four parts: 1st The timbers placed across the lock; 2nd The puddling between these timbers; 3rd The sheet piling & 4th The planking on the top of the timbers and which form the flooring for the walls:

1st of the timber - The purpose to be served by these timbers, is manifestly to furnish an uniform, hard and even surface, which the great weight of stone and water in the lock, will be sustained, and its effective pressure uniformly diffused over the surface of the foundation. The consequence of this limitation is, that a solid rock cannot be generally obtained for a foundation, neither can we always procure the most firm and tenacious clay, but very frequently place a lock on a light clay, loamy, and sometimes even a sand foundation. It is a known property of earth that it will sustain a great weight without yielding while it is dry, but as soon as it becomes wet, loosen (sic) this quality to a great degree, becomes soft, slippery, and will yield under very slight pressure.

2nd Now one of the purposes of the puddle, between the timbers of a lock bottom, is to keep the earth on which the whole work, timber, stone and water, depends for support, in dry and firm state and thus enable it to resist the great pressure to which it is exposed. It is very easy to conceive a position in which if a lock were placed and the filtration of the water through the bottom permitted to saturate the earth below the foundation the whole work would slide down: this effect would take place if the lock was placed on a hillside in light sandy soil — Another purpose served by the puddle is to prevent the wear of the earth from under the bottom of the timbers; its office is more effectively to intercept any leaks which may happen in the foundation and force the water to pass over the top of the timbers and puddle.

4th We will now pass to the fourth and last component of a lock foundation, to wit, the "Planking on the timbers". The object of the planking is to diffuse with greater uniformity than could be done without it the pressure of the walls on the timbers. The advantage of this uniform diffusion of weight, is that it produces a uniformity of settlement if any takes place, and prevents those fractures in the walls, which would happen from irregular settling if this precaution was omitted.

"Engineer Purcell omits a description of the sheet piling and its use in his report - perhaps because its function was more commonly understood by the members of the Board of the Chesapeake & Ohio Canal Company (to whom his report was addressed). On the C & O Canal, sheet piling was a series of two and a half or three inch thick planks.

(Concluded on Page 12)
NEW SITES ON PENNA. MAIN LINE

A group in Apollo, Pennsylvania, known as the "Roaring Run Watershed Association," is in the process of raising money to buy property. This property is located along the Roaring Run trail which travels along the right of way of the Western Division of the old Pennsylvania Main Line Canal for a distance of one and one half miles from the mouth of Roaring Run to just outside of Apollo, Pennsylvania.

Remains of the canal can be seen at various points along the finished part of the trail and further up the river on the unfinished portion which is about two miles in length. Portions of the guard lock, dam, lock house and rap rap are still visible at Roaring Run, where the canal entered the Kiskiminetas River into a slack water pool created by Dam number two.

The trail is open to the public and the first mile and a half has been surfaced for wheel chair travel. Anyone interested in taking this hike should call Don Stevenson at 412-727-7360 after 9:00 P.M., or write him at 116 Orchard Street, Apollo, Pennsylvania 15613 for a free brochure.

HONORS TO INDIANA CANALERS

The General Electric Co. has announced that Robert F. Schmidt, President of the Canal Society of Indiana, is one of the recipients of its 1992 Gerald L. Philips Awards. The award is given to a GE employee who demonstrates extraordinary personal leadership, innovation and accomplishment for community service. Bob, who was nominated by state senator Tom Wyss and U.S. Senator Dan Coats, received this honor based on his leadership efforts to preserve the timber frame Grouse Run lock near New Haven, Indiana (American Canals August 1991). The award comes with a $1000 check for the Canal Society of Indiana.

Harry G. Black, author of several books on Indiana's canal history, was honored on May 18 with the Sagamore of the Wabash Award. He was presented a plaque from Indiana Governor Evan Bayh recognizing this achievement at the annual dinner of the Hammond Historical Society. Mr. Black's latest book entitled The Miami, Wabash, and Erie Canal Country deals with the canals from Toledo to Evansville. The Canal Society of Indiana salutes this fine accomplishment by one of its members.

BOOK REVIEW


Reviewed by Denver L. Walton

Pennsylvania's history reveals many unusual transportation devices, among them the Switchback Railroad and the system of inclined planes employed to move coal south from the upper Susquehanna valley. It was with pleasure, therefore, that I found these systems included in David Barber's new edition of the Guide to the Lehigh Canal.

The Guide, first published twelve years ago for the Lehigh's lower division, has also been expanded to include the upper division as well. In this very interesting account of canal and railroad history are facts such as the first railway dining car; on the first primitive gravity railroad in the Lehigh Valley; the rules which halted the empty coal cars back up the mountain road; special cars on the downfall run and were fed on the way!

In the Guide, the author gives a mile-by-mile account of canal and railroad features, and good advice on how to prepare for some difficult hiking, especially on the upper division.

Well illustrated with photos and maps, the Guide offers the canal or railroad buff the best way to see what remains of these early coal moving systems which are well documented in sections on the Ashley planes and the Penn Haven planes, of which we learn, in the case of the Ashley planes, that they were used until the 1950's for southerbound freight.

A necessity for every canalier's collection, this book is available, softbound, for $10.00 plus shipping and tax, from the Pennsylvania Canal Museum, P.O. Box 877, Easton, PA 18044.

MASONRY LOCK FOUNDATIONS

(Concluded from Page 11)

These planks had their edges routed for tongue and groove fitting. They were then driven three to five feet into the earth across the width of the lock chamber and fitted together so as to form a solid barrier to any stream of water before it could cut a channel under the lock foundation. Piling planks were driven against the upper edge of a foundation timber, cut off flush with the timber's top surface, and spiked directly to the upper edge of that timber. The ACS Engineer Design Committee wishes to thank Lee Struble, Staff Curator of the C & O National Historic Park, for making Mr. Purcell's very enlightening report available to us. Terry Woods.

ON THE RICHELIEU AND CHAMBLY CANALS

By Walter Messec

It was a very worthwhile trip and one that I would recommend to anyone especially those that may have some interest in canals. To me it had particular interest even though I have been over the route several times in power boats. In a way it is strange that we have to go to Canada to get in a canal trip other than Mid-Lakes on the Erie. The Canadians have the Rideau, the Trent and now a Canadian boat is doing their Chambly.

I did enjoy the trip. For the McBride group it is a new operation but I felt they did a good job of pulling it off. Since it was a sleep-and-eat ashore deal (lunch on board) the accommodations ashore ran from good to excellent to "super." The first night we stayed at a good motel right on the river in St. Jean. The second night it was in an excellent motel-hotel right on the St. Lawrence River in Sorel. Dinner and breakfast good and included. At Montreal it was the Queen Elizabeth. What more can you want? All transportation and baggage delivered to and picked up to and from your room.

After leaving Burlington we cruised through some of the islands in the upper part of Lake Champlain before entering the Richelieu River for a stop at Fort Lennox. The Canadians built this fort to keep those damned Yankees where they belonged. We built one too but we made the mistake of building it in Canadian territory, "Fort Nonsense!"

A good part of the afternoon is spent going down the Richelieu River through farm country, summer cottages and some very nice homes. Overnight at St. Jean. In the morning we go through the first lock at St. Jean and for most of the morning and early afternoon are going through the series of locks that will put us back in the Richelieu River at Chambly, thus by-passing the rapids in the river. Below Chambly it was a series of small towns, farms and homes with another overnight stop at Sorel. In the morning it was up the St. Lawrence River to Montreal. This part was of interest to me because of the commercial traffic. There was not as much as I would have liked, so things must be slow in the way of trade. We had the evening and next morning to ourselves before taking off in the bus for Burlington. We took the 3 hour Grey Line Bus tour of the city. I have been there before several times but never knew it had so much to offer.

For further information write McBride Group Tours, Inc., P.O. Box 188, South Hero, Vermont 05486, Phone: 1-802-372-4719.