

AMERICAN CANALS

BULLETIN OF
THE AMERICAN CANAL SOCIETY

BULLETIN NUMBER 57

Editorial Address — 809 Rathton Road, York, Pa. 17403

MAY 1986

PRESIDENT'S MESSAGE

Well, spring has finally arrived and the fields are alive with the sound of — spring field trips! The Canal Era is alive and healthy in America, and we even have an old friend back, the Canal Society of New York State and its periodical **BOTTOMING OUT**, which temporarily suspended publication 21 years ago, before most of the country's other canal societies were even born. Welcome back, CSNYS! To start yourself off with the April 1986 issue of **BOTTOMING OUT**, just send your ten bucks or more to their Secretary-Treasurer, Anita Cottrell, 311 Montgomery Street, Syracuse, NY 13202.

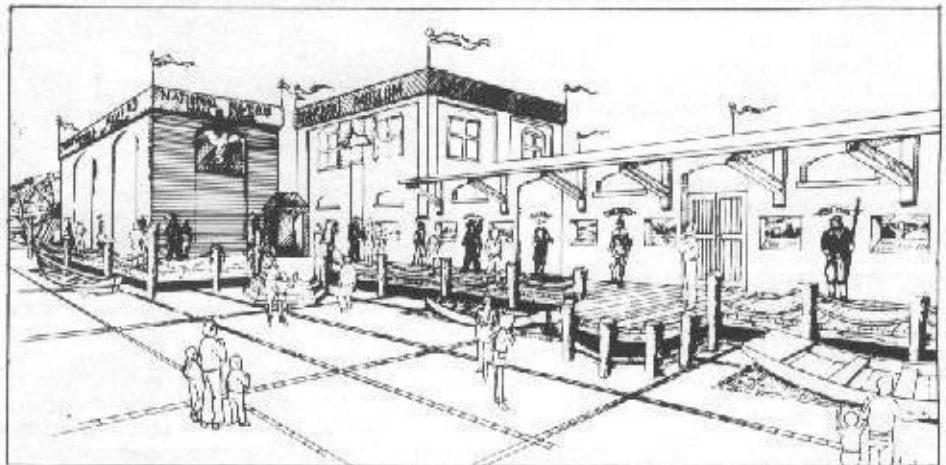
Down here in Virginia, the fields are also alive with the sound of hammers and saws as a dozen counties and towns along the James River build boats in an amazing renaissance of the batteau era. It was for such white-water craft that most of the canals in the south were built, so we hope the enthusiasm will spread to other states. The first voyage for most of the boats will be a 150-mile river trip during the First Annual James River Bateau Festival. We'll let you know in the next issue if they all made it.

I had an exciting hour in the local university library asking a computer for all the canal articles it listed in its "Info-Trac Database." This is the lazy man's way to save weeks going through dozens of business magazines for a few canal gems. The computer typed out some eight pages of canal titles, including a few on a French TV channel called "Canal Plus"! A surprising number of articles came from the **Journal of Commerce**, covering everything from the canal museum at Easton, to a history of the Suez. Is there worthwhile canal information on other computer databases, such as The Source? Is anyone interested in seeing that canals are properly represented?

Speaking of "databases," is there a bibliography on canal archaeology? We need to initiate archaeologists into the mysteries of our specialty if we want their canal work to make any sense, and we need to impress them with the need to work with local experts. A bibliography on canal archaeology, especially an annotated one, would be of great value to us all and might help establish canal

(Concluded on Page Twelve)

NATIONAL RIVERS HALL OF FAME



This artist's rendering depicts the proposed exhibit hall for the National Rivers Hall of Fame, adjacent to the existing Riverboat Museum in Dubuque, Iowa. The NRHOF will honor men and women of the inland waters, collect and preserve river artifacts and archives, and conduct seminars and educational programs.



John P. Bickel, ACS Member, National Founder and Chairman of the National Rivers Hall of Fame.

Dubuque, Iowa, — John P. Bickel, a river enthusiast of many years standing, now a member of the American Canal Society, supported by a team of inland water travel buffs, has announced the establishment of the National Rivers Hall of Fame. Bickel's plans call for the construction of a \$650,000 building adjacent to the present Woodward Riverboat Museum, as shown in the

accompanying artist's rendering. Location of the Museum and the new Hall of Fame is the Port of Dubuque Ice Harbor, present docking point for the "Spirit of Dubuque" and the "Mississippi Belle", which provide day-long cruises to 150,000 river buffs annually.

Primary purpose of the "Hall of Fame" is to honor and preserve the memory of men and women whose lives and activities on the inland waterways merit special recognition. It will also provide a repository for records, memorabilia and artifacts relating to these individuals and the events that had a role in the ongoing history of American Waterways.

Helping in the plans for the Rivers Hall of Fame have been such national organizations as the Steamship Historical Society of America, the American Sternwheeler Association, the Sons and Daughters of Pioneer Rivermen, the Missouri River Rats, the Midwest River Buffs, and the Nautical Research Guild. A founders board of over 70 river people including historians, river museum curators and state museum directors, have been part of the Hall of Fame since its initial planning.

May 2-4, 1986 saw the first official ceremonies of the new organization in the induction of its first "honorees," during an Inland Waters Maritime Preservation Seminar held in Dubuque.

(Concluded on Page Seven)

American Canals

BULLETIN OF THE AMERICAN CANAL SOCIETY

"DEDICATED TO HISTORIC CANAL RESEARCH, PRESERVATION AND PARKS"

AMERICAN CANALS is issued quarterly by the American Canal Society, Incorporated. Objectives of the Society are to encourage the preservation, restoration, interpretation and use of the historic navigational canals of the Americas; to save threatened canals; and to provide an exchange of canal information.

Annual subscription to "AMERICAN CANALS" is automatic with a minimum ACS dues payment of \$12.00. Individual copies may be purchased at \$3.00.

Dr. WILLIAM E. TROUT III — President; Editor and Publisher of "American Canal Guides"; Chairman, Canal Parks Committee — 35 Towana Road, Richmond, VA 23226

WILLIAM J. McKELVEY, Jr. — Vice President; Chairman, Canal Boat Committee — 103 Dogwood Lane, Berkeley Heights, NJ 07922

WILLIAM E. GERBER, Jr. — Vice President — 16 Princess Avenue, Chelmsford, MA 01863

CHARLES W. DERR — Secretary and Treasurer — 117 Main Street, Freemansburg, PA 18017

LOUIS J. CAHILL — Director for Canada — P.O. Box 745, 215 Ontario Street, St. Catharines, Ontario L2R 6Y3, Canada

Dr. ROGER W. SQUIRES — Director for the United Kingdom — 46 Elephant Lane, Rotherhithe, London SE 16-4JD, England

TERRY K. WOODS — Director; Chairman, Canal Index Committee — 6939 Eastham Circle, Canton, OH 44708

WILLIAM H. SHANK, P.E. — Editor and Publisher of "American Canals" — 809 Rathton Road, York, PA 17403

Roger Squires, our ACS Director in the United Kingdom, calls our attention to a newly-constructed traditional Narrow-Boat, "City of Birmingham" which will spend most of the summer of 1986 chugging around Vancouver harbors in British Columbia, as a part of the "Expo 86" World's Fair. Shipped by Manchester Liners from England, the owners, Brummagem Boats, are hopeful that the boat will be purchased locally and will remain in Canada.

DUDLEY TUNNEL NOW OPEN



In issue Number 55 (November 1985) we ran an article on the planning for the new Dudley Canal Tunnel in Great Britain. We have just received word from Hugh Potter, Editor of WATERWAYS WORLD, (monthly magazine for canal and river users in the U.K.) that the tunnel was completed and officially opened in April of 1985. He also sent us

the above photo of one of the three Dudley Canal Trust boats which provide daily service into Dudley Tunnel and the "Singing Cavern" in what had been an 18th century underground limestone mining operation. The boats leave from the Black Country Museum. When in England phone Nick Fazey at 021-520-5321 for full details.

CANAL ACTIVIST PASSES

The following item was extracted from the "Locktender's Log", official publication of the Old Freemansburg (PA) Association:

On Tuesday, April 22, Earl F. Snyder, 82, of 34 Cherry Street, Walnutport was called to the towpath in the sky while working at the Lock House in Walnutport. Snyder, a lifelong resident of Walnutport was born on October 29, 1903.

He was a member of Christ U.C.C. Church in Walnutport, secretary of the Blue Ridge Rod & Gun Club for 55 years, charter member of the Lehigh River Restoration Association, of which he was chairman of the Walnutport area.

He began restoration of the towpath in 1952, working unceasingly, soliciting funds and contributions for the canal areas. He was responsible for the planting of trees and flowers, the placement of park benches, and also responsible for obtaining recognition from the Pennsylvania Fish Commission as a Trout stock waterway. For his community service, the Walnutport Borough Council named the canal park in his honor.

Earl was a charter member and secretary of the Walnutport Canal Association, Inc. With the help of U.S. Senator Hugh Scott, he was able to place the lock house on National and State Historical Registers. The Lock House was recently purchased by the canal group and Earl was overseeing its restoration.

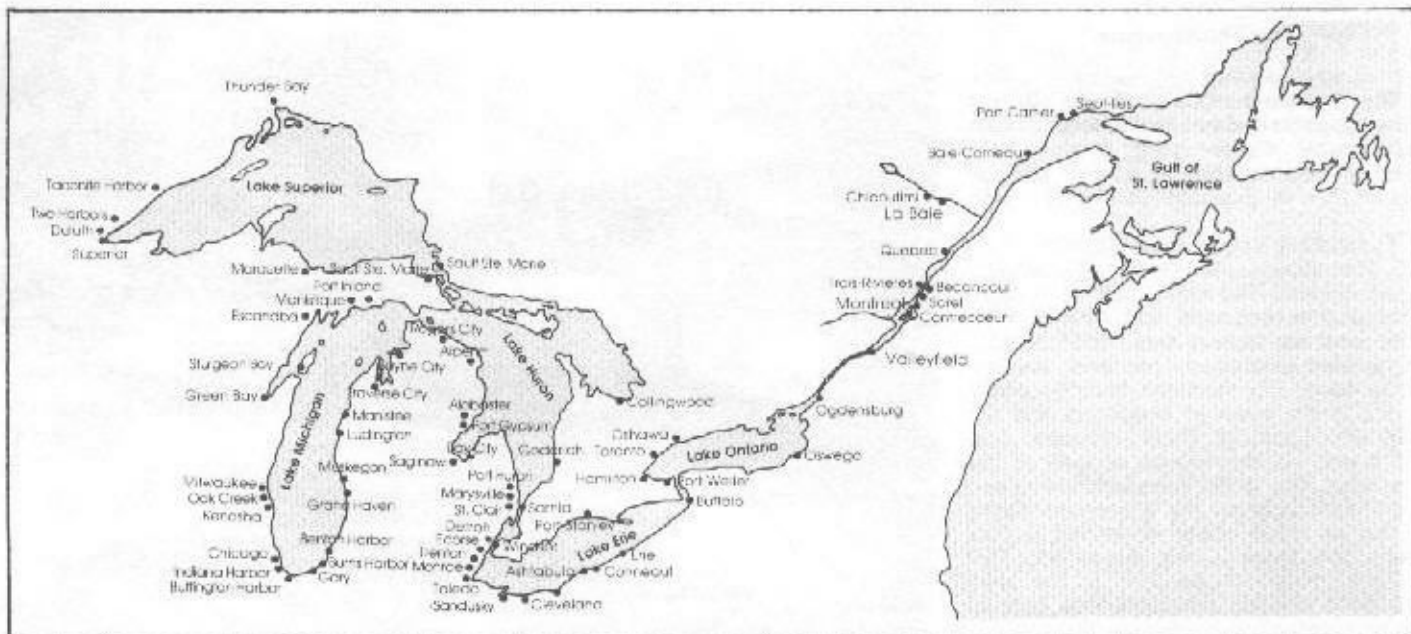
Referred to as a man you couldn't say 'no' to, he was recently honored with a testimonial dinner, sponsored by the Walnutport Canal Association for all his work and dedication. Following a slide presentation and meal, several local and state political figures honored him with citations.

NEW VISITOR CENTER ON THE TENN-TOM



A new Visitor Center was dedicated April 5th, 1986 at the Aliceville Lock and Dam near Pickensville, Alabama on the Tennessee-Tombigbee Waterway. The Aliceville Visitor Center was constructed by the Mobile District, U.S. Army Corps of Engineers, to house management offices for Aliceville and Gainesville Lakes and to receive visitors. An artist's sketch of the new building is shown above.

ST. LAWRENCE SEAWAY – ALIVE AND WELL!



Map of the Great Lakes/St. Lawrence System Ports. (Courtesy of SEAWAY REVIEW.)

(Editor's Note) In our November 1985 issue we gave considerable attention to three unfortunate accidents along the St. Lawrence Seaway over a period of 12-months. While we tried to keep our reporting factual, we may have given the impression that the Seaway's usefulness was in doubt. We feel it is only fair, then, to publish here the following article which appeared in SEAWAY REVIEW for April - June, 1986, under the title "A Perspective That Needs Correcting":

Three unrelated events within one 12-month period caused delays in the movement of ships through the St. Lawrence Seaway. One was a problem with a lift bridge at Valleyfield, Quebec; the second was the collapse of a section of the wall at Lock 7 in the Welland Canal; the third

was the collision of a freighter into a bridge abutment near Montreal.

The net result of these incidents was a world press which asked the kinds of questions media usually ask: Are the Seaway's days numbered? Is the Seaway falling apart? What will break next?

Shippers and shipping lines who have used the Seaway for the 27 years of its existence know that the System is reliable and trustworthy and in good physical shape. They are aware that during these years, nearly 180,000 transits of the Seaway locks have taken place without incident or accident. The incident at the Welland Canal, in fact, occurred at transit number 179,464, and was the first stoppage in the history of the Seaway to occur as a result of lock damage. Users of the System know that it was simply a bad break that a lock wall, a collision and a stuck bridge should be linked together by the press to create a less-than-reliable name for the Seaway. Stoppages occur at Suez and Panama, and storms rip tide-water port ranges, playing their own kind of havoc upon shipping. That the Seaway became a "media event" due to a set of unrelated circumstances 12 months apart is unfortunate. To identify those events as an indication of unreliability is as untrue as it is unfair.

The Great Lakes ports, both Canadian and U.S., handle over a hundred million tons of cargo every year. In some years, it's double that amount. They are among the most efficient ports in the world, just as the Seaway locks that tie these ports to the world are well constructed and well managed.

In an effort to reassure shippers of the reliability of the Seaway, and to restore the confidence which world shipping has placed in the waterway for nearly three decades, the U.S. and Canadian Seaway entities have individually addressed the

circumstances which have created the concern.

Experts of the highest professional calibre have been brought in by both governments in an effort to evaluate and pass judgment on the sound condition of locks and other physical facilities and to seek out those areas, as they might exist, which need further examination or maintenance.

The Seaway is an important American and Canadian resource. It makes money for the people who use it. It sustains the bi-national region it serves. It creates jobs and taxes. It provides easy access into the rich and vital industrial and agricultural core of North America for shippers from around the world who wish to do business here.

Simply put, it works, and works well.

THE WHITE HOUSE
WASHINGTON

March 10, 1986

The construction and operation of the St. Lawrence Seaway is one of mankind's most outstanding engineering feats. As a joint project of the United States and Canada, the Seaway stands as a symbol of the friendship and cooperation which have long existed between our two countries.

Since the Seaway's opening in 1959, it has carried more than 1 billion metric tons of cargo worth more than \$200 billion. And after more than a quarter-century of operation, the future for the Seaway is brighter than ever and the partnership between the United States and Canada is stronger than ever.

The St. Lawrence Seaway system is our fourth seacoast. By transforming our Great Lakes cities into international ports it plays an important role in our prosperity.

I want to thank my good friend Prime Minister Brian Mulroney for his spirit of cooperation in this joint partnership, and I firmly pledge our continued support for this magnificent international Seaway linking our two countries.

Ronald Reagan



PRIME MINISTER PIERRE ELLIOTRAID

I VERY MUCH appreciate this opportunity to share a few words with the Canadian and American readers of SEAWAY REVIEW.

As President Reagan chooses to take issue, the construction of the Seaway was a remarkable demonstration of international cooperation, and represents one of the most impressive engineering achievements of recent history. In a few short years, the heartland of North America was linked to the East Coast and the greater world beyond, opening dynamic economic growth in both Canada and U.S. in the process.

Twenty-five years later, the St. Lawrence Seaway plays a more important role than ever in ensuring growth and prosperity in our two nations. Although beset by a series of unavoidable incidents in recent months, it remains a vital and efficient channel of national and international trade, just as the Canadian Government remains firmly committed to its successful operation in the years to come.

ALL THE BEST TO THE CREWERS AND STAFF OF SEAWAY

REVIEW

Pierre Elliott Trudeau

OTTAWA
1986

A PLAN TO SAVE THE WHITEWATER CANAL

By Thomas Meek

The Whitewater Canal State Historic Site consists of about ten miles of the old Whitewater Canal lying between the Feeder Dam near Laurel, and the town of Brookville in Franklin County, Indiana.

The Laurel Feeder Dam supplies water to the upper end of the State-owned canal section. The water then flows down the canal to Metamora, where one level of the canal has been restored and is kept in a watered condition. This level, about a mile long, lies between the Metamora Lock in the town of Metamora and the Millville Lock, a short distance East of town. To the tourist as well as the historian, this is the most interesting and significant level of the Whitewater Canal if for no other reason than that it contains the Duck Creek Aqueduct. This unique historical treasure is the only surviving wooden covered-bridge type of canal aqueduct in the world.

Also at the town of Metamora, the State of Indiana maintains and operates the BEN FRANKLIN II a horse-drawn canal packet boat replica, and a canal water powered gristmill for the education and entertainment of visitors.

This State Historic Site, formerly known as the Whitewater Canal State Memorial, is a spectacular and informative facility which draws hundreds of thousands of visitors each year. Over the years, this Site has helped many people to gain an understanding of a form of transportation which was of great importance to the industrial and commercial development of the Hoosier State.



The Laurel Dam rebuilt across the Whitewater River in 1953 to restore water to a ten-mile section of the old canal between Laurel and Metamora, Indiana.



The Metamora Lock and "by-pass" weir shows an adequate supply of water for the canal downstream. In the left background is the old grist mill, powered by canal water.

In the 1940's, when plans were being formulated for the State Memorial, the hopes were to restore to operating condition the entire stretch of the canal between Laurel and Brookville. Unfortunately, adequate funding was not available and the backers of the project had to be content with the restoration of the Laurel Feeder Dam, the Duck Creek Aqueduct and the Gristmill at Metamora, as well as other repairs to the canal. State and private money also restored the Millville Lock. This lock, with its massive gates in working condition, is one of the most valuable learning tools in the entire complex.

Ideal as it may seem at first examination, there are some serious problems with the current state of affairs, problems which threaten the continued existence of the waterway itself.

These difficulties may be illustrated by comparing a general description of a canal with a description of the Whitewater Canal as it exists today.

A canal is a man-made waterway, a sort of an artificial river, but with one very important difference. While a river slopes more or less continuously from one end to the other, a canal is made up of a series of level stretches lying at different elevations. These "levels" are joined by locks, where the entire difference in the two relative elevations is taken up at one step. Since the placement of locks on a canal is determined by relative differences in elevation and not by distance, it follows that the steeper the slopes encountered, the closer will be the spacing of the locks.

As originally built, the Whitewater Canal consisted of a series of level pools connected by locks having lifts of between six and nine feet. To prevent stagnation of the water, a slope of about one inch per mile was built into the canal bed.

Contrast this with the picture presented by the watered sections of the Whitewater Canal today. Here, instead of a series of quiet, level pools, we see what resembles a small and relatively swift stream which gurgles over rocks and gravel at the bottom of a much oversized ditch. The water flowing through this artificial creek fills the navigable level of the canal at Metamora as well as providing water to power the mill. It is the creek-like nature of the canal between Laurel and Metamora which threatens the continued survival of the entire hydraulic structure.

Erosion is a powerful and unrelenting force. It is the agency by which the great valley of the Whitewater River was carved out of solid rock, and it is just as powerful today. Erosion is what is happening to the Whitewater Canal.

Because of the speed with which the water flows through the canal between Laurel and Metamora, it takes an un-

(Concluded on Page Five)



The "Ben Franklin" canal boat replica, built in 1980, in the Millville Lock below the canal town of Metamora.

(Concluded from Page Four)

healthy portion of soil along with it. This material comes from the sides and bottom of the canal through which it flows. When the water reaches the level and pond-like stretch of the canal at Metamora, its speed decreases, causing the suspended material to be deposited on the bottom of the channel and contributing to the silting which is gradually filling up that portion of the canal.

The real danger, however, stems from the fact that a canal is not merely a big cross-country ditch, but is a carefully designed and constructed water conduit which is isolated from the groundwater and surface drainage of the region through which it passes. The necessary waterproofing was usually done by means of "puddling" in which a layer of compacted clay several inches thick provides an impervious lining for the canal. If this clay puddling is subjected to serious erosion, it will eventually be pierced and will leak. This leakage will find its way to the groundwater drainage patterns and will gradually erode an easier path for itself, leading to caving in of the canal banks and destruction of the waterway. An examination of the Whitewater Canal leaves little doubt that this is its eventual fate if corrective action is not taken.

Since the presence of water in the canal is not only the cause of the present deterioration but is also the significant element in the restoration, its elimination is not desirable. What we do seek is some means of slowing the destructive speed of the water between the Feeder Dam and



The Duck Creek Aqueduct near Metamora, as seen from the bow of the "Ben Franklin". This is probably the only covered-bridge type aqueduct in the world — still in use.

Metamora. Fortunately, an economical solution to the problem is near at hand.

The means originally used to divide the canal into its separate levels were locks. These consisted of large stone chambers with huge gates at each end to allow passage of the boats and regulation of the water levels. While the locks between Laurel and Metamora all lack their gates, the stone sidewalls of the chambers are, for the most part, still in place. It is the absence of their gates which prevents these locks from fulfilling their function of dividing the canal into separate levels. Replacement of the lock gates would not only stabilize the canal, but would also restore it to working order. Unfortunately, this would be a very expensive undertaking, and funding for such a project is even less likely than it was in the 1940's.

I propose instead, a plan which could be carried out with a minimum of expense and a minimum of heavy construction. This plan is for a series of small dams to be placed at the upper ends of each of the three locks between the Feeder Dam and Metamora. These dams would serve the purpose of the absent lock gates by restoring the canal to a series of level stretches and increasing the depth of the water. This deepening would effectively increase the cross section of the stream of moving water, reducing its velocity while still allowing the passage of sufficient water to operate the facilities at Metamora.

Because the actual slope of the canal bed between locks is slight, the level of the water would only need to be raised by about two feet in order to restore the levels, so the dams would not need to be either massive or high. The series of level pools resulting from this scheme would also allow easy paddling for canoeists in both directions since the speed of the current would be greatly reduced. Ramps for passing canoes over the dams could be provided at small additional expense.

Since the project would consist of three small dams, the work could be carried out in three phases, thus stretching out the construction over a period of several years. That way, the amount of money

required at any one time would be small. Much of the labor required for such a project could be provided by volunteers. Spread out over a period of several years, the construction costs might fit into the existing budget for maintenance of the facility. Funds which are already earmarked for maintenance of the Whitewater Canal State Historic Site would be well used to thus ensure the continued survival of the waterway itself.

Thomas N. Meek is an ACS Director and also Editor of "Indiana Waterways", Bulletin of the Canal Society of Indiana. The above article was featured in their Winter, 1985 Issue, just off the press. For further information write: Thomas N. Meek, 413 High Street, Ft. Wayne, IN, 46808.

CANAL CALENDAR

June 15, 1986 — SIA Tour of various sites in the Cuyahoga Valley National Recreational Area, Cleveland to Akron, including the Ohio and Erie Canal. Registration: Stouffer Inn on the Square, Cleveland, Ohio.

July 11, 12, 13, 1986 — Old Canal Days Festival, Canal Fulton, Ohio.

July 12, 1986 — 11 a.m. to 6 p.m. Lehigh Canal Festival, Hugh Moore Park, Easton, PA. Music, canal boat rides, historic displays, canal boatmen's reunion.

July 21-25, 1986 — A full course of "Canals, Locks and Docks" by ACS Life Member Michael Handford, South Warwickshire College. Contact Graham Winton, South Warwickshire College, the Willows North, Alcester Road, Stratford-upon-Avon, CV37 9QR, England.

July 25, 1986 — Canal Society of New Jersey six-day tour of the Trent-Severn Canal in Canada. Contact: Bill McKelvey, 103 Dogwood Lane, Berkeley Heights, NJ 07922.

August 15, 16, 17, 1986 — Coshocton Canal Festival, Roscoe Village, Ohio.

October 17, 18, 1986 — Canal Society of Ohio Tour of the Miami and Erie Canal; Side cut Park (Maumee) to Ludwig Mill in Providence Metro Park.

October 24-25, 1986 — Pennsylvania Canal Society and Monongahela River Buffs Association "Fall Foliage Boat Ride" along the upper Monongahela. Contact: PCS, Canal Museum, P.O. Box 877, Easton, PA 18042.

May 15-17, 1987 — Combined Meeting of American Canal Society and Canadian Canal Society, Syracuse, New York, Canal Museum Tour. Boat rides on the "Emita II" and "Independence". Steam train ride. Canal ballads by Dr. Bill Hullfish and his singing group. Contact: Bill Shank, 809 Rathton Road, York, Pa. 17403.



After the canal above Metamora was abandoned for transportation, an over-shot water-wheel was installed in the upper lock to power the old gristmill. Surplus water flows around the Lock, as shown in another photo.

GOWANUS CANAL FUTURE IS "MURKY"!!

By CHARLES SEATON
Daily News Staff Writer

Although now viewed as an eyesore at best and a health hazard at worst, Brooklyn's much maligned Gowanus Canal was for nearly a century the center of the borough's waterborne trade.

The Gowanus Expressway, however, which diverted much of the waterway traffic from boats to 18-wheeler trucks, was blamed as one of the reasons for the decline in the canal's use and maintenance.

Although a 15-year rebuilding program for the canal is to begin in two weeks, its future — and that of surrounding areas — has been made unclear by controversy.

One segment is asking that the areas around the canal remain industrial, while another is pressing for a combination of business and much needed housing.

Use declined

From the late 1800s until the end of World War II, the Gowanus Canal was the center of a bustling, thriving, manufacturing zone. The 100-foot-wide man-made waterway was created to transport raw materials and finished goods in an age before tractor-trailers, expressways and interstate highway systems.

But use of the canal declined dramatically with construction of the Gowanus Expressway, which freed many of the canal-based firms to trade their barges for trucks.

With its decline came a subsequent lack of maintenance. A pumping station, built in 1947 to keep the murky waters moving, was kept operational for 13 years.

A chief's name

Viewed on a map, the canal appears as a nasty slash running from Gowanus Bay into the heart of Boerum Hill. In reality, the mile-long waterway has earned a well-deserved reputation of being one of the dirtiest in the city.

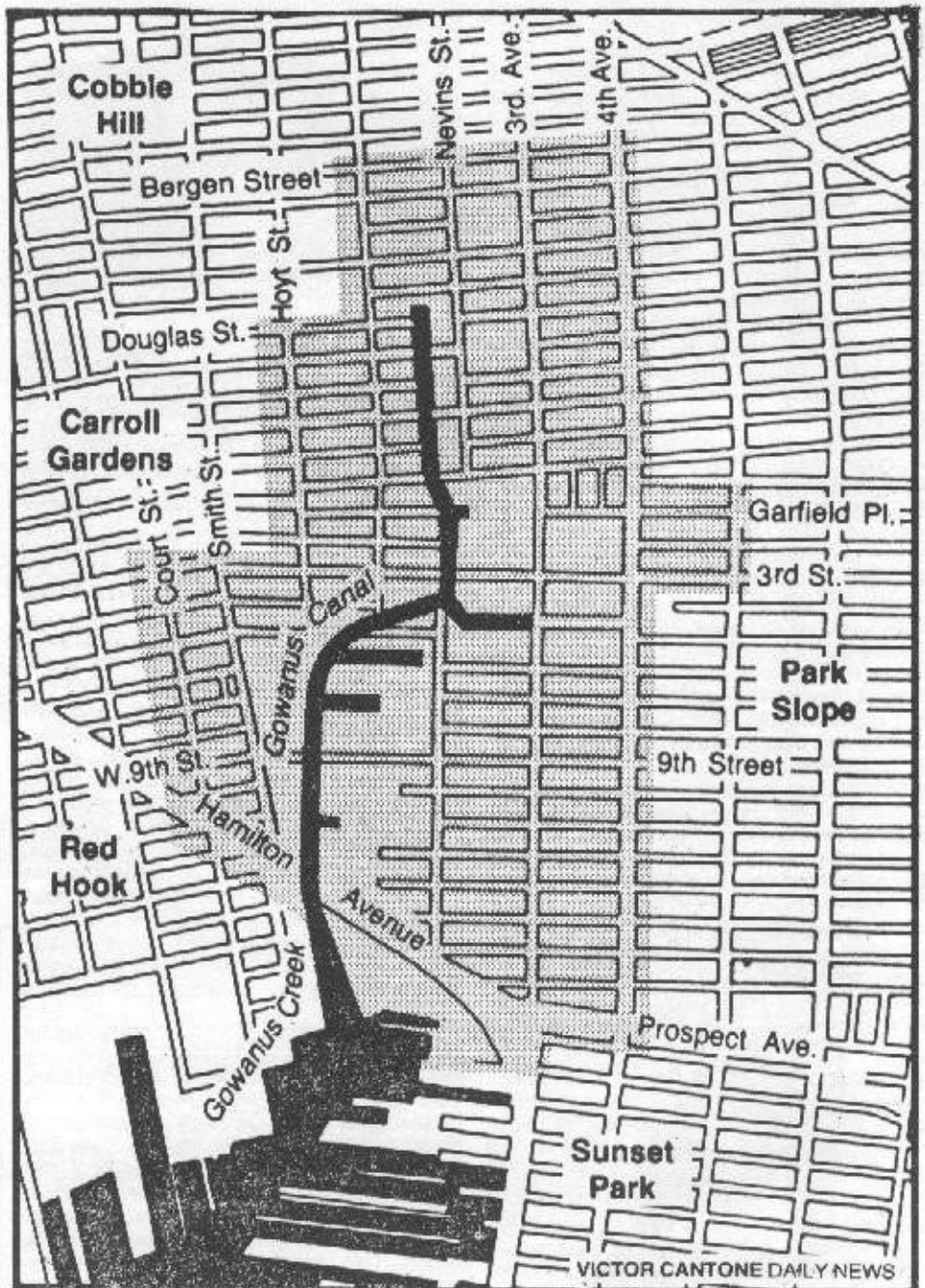
When the temperature climbs, the stagnant waters bear a palpable odor as far as three blocks from its banks, of which residents have complained — long and often.

The project to construct the canal, named after a Mohawk Indian chief, Gowane, began in 1848. The goal was to rid southern Brooklyn of several acres of marshland while opening the surrounding area to commercial development.

Cost was 88G

Initial cost of the project was nearly \$80,000, plus an additional expense of \$8,000 for the construction of a boat basin on the bay.

Conditions began to go downhill in 1888 when a bill was passed in the State Legislature to allow the City of Brooklyn to channel rainwater and sewer runoff into the canal at Butler St. Because of the odors spawned by the raw sewage,



neighborhood residents dubbed the canal "Lavender Lake."

The waterway's deterioration can be blamed on inadequate maintenance and its use as literally an open air sewer. A study issued in the late 1970s by the Department of Environmental Protection labeled the canal one of the city's dirtiest waterways.

Yuppies nearby

Businesses and their storage facilities are tucked behind the bulkheads on both banks of the waterway, but travel more than a few blocks away from the immediate area and one finds the burgeoning Yuppie communities of Carroll Gardens, Boerum Hill, Park Slope and Sunset Park.

As the massive clean-up and rehabilitation campaign begins, however, sides are already being chosen to determine just what the future of the canal area will be.

The choices are either an increased emphasis on manufacturing and industry, or the beginning of a new residential community in the midst of a group of growing Brooklyn communities.

Business sought

According to a recent city study, businesses which remain along the waterway are still strong. The study, issued last fall by the City Planning Commission, is seeking new businesses for the area.

To protect the industrial district around the canal, the study proposed the rezoning

of several areas for light manufacturing to encourage the retention and expansion of industrial jobs. Currently, the areas are zoned residential.

Another strategy seeks the prevention of illegal residential conversion along the canal through monitoring by the Loft Board. The study also recommends including firms moving out of Manhattan to select sites near the canal through grants from the newly established Industrial Relocation and Retention Program.

Development pushed

Salvatore Scotto, one of the founders of the Gowanus Canal Development Corporation and president of the Carroll Gardens Association, takes a different view, one that would push the development of residential properties on the west bank of the canal and the continued development of light industry on the opposite side. "We view the canal as an incredible resource," said Scotto. "It is a great drawing point for low-to-moderate income housing and a light manufacturing district."

As an example of the rebirth of the area, Scotto cited the conversion of a 10-story factory building into a 126-unit cooperative at 505 Court St. The conversion spurred the rehabilitation of four adjacent buildings and has led to a stabilization of the area.

To the Editor, AMERICAN CANALS:

I thought the ACS Bulletin readers might be interested in the accompanying article as published in the Daily News for Jan. 19, 1986. The Gowanus is probably the only working Canal anywhere that can be reached by subway.

If you are not familiar with the Gowanus area, the canal's mouth is right next to the Erie Basin, the southern terminus of the Erie Canal. The five bridges mentioned are quite varied and include a double leaf Bascule, single leaf Bascule, and 2 swing bridges with off-center pivots so that the span rests in an opening in the canal wall parallel to the canal when it is opened.

The canal is also responsible for the very high viaduct immediately after leaving the Brooklyn-Battery tunnel, the viaduct had to be high enough to allow the Hamilton Avenue bridge (right under it) room to open. The Hamilton Ave. Bridge is a double leaf Bascule, but the roadway crosses the canal at an angle, so the spans are shaped like parallelograms instead of rectangles. And when the bridge is opened it looks quite strange with nothing square and all parts at different angles.

I'll keep you posted on further developments.

Charles F. Hruska
2074 Cropsey Ave.
Bklyn, NY, 11214

Housing needed

Scotto added that low-income and senior citizen housing is desperately needed in the area and if the canal was to remain, it should be developed to its potential. He asserted that work to provide additional residential units should be started now before development costs become prohibitive. The city's study interviewed 420 firms, representing more than 6,500 jobs. The results of the study show that from 1969 to the early 1980s there was a 35% loss in jobs. In the past several years, however, many of the remaining firms have expanded with a resulting increase in jobs.

Used by firms

Only five area firms currently use the canal regularly, two oil firms and three concrete mixing plants. Other firms also use the canal, but less regularly.

The firms that continue to use the canal do so despite difficulties brought about by a buildup of silt along the bottom, decaying bulkheads and the wrecks of long abandoned barges.

By far the largest of the businesses on the canal is Bayside Fuel Oil Depot Corp., located at 510 Sackett St. According to the figures of company President Alfred Alligretti, Bayside distributes more than 200 million gallons of oil each year, making it necessary for barges to move through the canal every day.

Oil barged in

"We move all of our oil into the depot by barge, but we have several problems with the condition of the canal, particularly the miserable operation of the drawbridges and low water in the canal," said Alligretti.

He expressed hope that things will improve when the Douglass St. pumping station, which was closed due to lack of maintenance, is reactivated, creating a current. He expressed irritation that the pumping facility has been allowed to remain inactive for more than a quarter of a century.

Alligretti added that there are several hazards to navigation along the length of the canal, including the abandoned barges, and cars which have been dumped there.

5 bridges passed

He said his problems are compounded because his firm is only a little more than a block from the end of the canal, making it necessary for his barges to have to travel the entire length.

"We pass all five bridges spanning the canal, he noted, "Because we can only come in on the high tide in the morning, if there is a problem with one of them, we are out of luck," Alligretti maintained.

In two weeks, the beginning of a project to renew the canal will begin. Expected to be completed in 15 years, it will see a total rebuilding of the waterway.

Gregory Perrin, of the Department of Environmental Protection, said the cleanup will start with the refurbishing of the Gowanus pumping station. The job is slated for completion in 1988 and is expected to cost about \$11.5 million.

Renewed station

The renewed pumping station will provide a current to keep water circulating through the canal and prevent the stagnation that spawns the odors. Farther down the line is a complete rebuilding of the canal, which will include dredging, new bulkheads and a new bottom for the waterway.

After completion, the canal will be fenced off to prevent the illegal dumping which contributes so heavily to its polluted state. With a completion date set so far in the future, Perrin said it was impossible to put a price tag on just how much the entire project will cost.

"HALL OF FAME"

(Concluded from Page One)

Of particular interest to ACS members during the Seminar was the featured appearance of Franz Katz, ACS Life member, writer and travel and tour specialist of New York City, who spoke on the subject: "The Waterways Passenger Explosion - Unheralded - Unknown - and Underpromoted". The economic and social significance of canals was presented jointly by Lance Metz of the Canal Museum at Easton, Pa. and Spiro Patten of Widener University, under the title: "A Rich Social and Economic Legacy". Other panelists spoke on various phases of inland waterway travel, past present and future. An impressive ceremony was held May 3rd called the "Mingling of the Waters", during which there was a mixing of waters from each of the fifty states, which was then poured into the Mississippi at Dubuque Ice Harbor, to flow down to the Gulf of Mexico.

"MERRITT DAY"



Captain Robert Fleming, left, master of the S. S. Elmglen, owned by P & H Shipping, Mississauga, is presented with The St. Lawrence Seaway Authority flag by Ken Ludwig, Director of Operations, and actor/playwright David MacKenzie (right) portraying transportation pioneer William Hamilton Merritt, promoter/builder of the Welland Canal and "Father of Canadian Transportation." The event commemorating "Merritt Day" took place at the Lock Three Viewing Centre of the Welland Canal November 29, the 156th anniversary of the first passage through the Welland Canal, November 29, 1829.

ACS — PCS GROUP TOURS WEST BRANCH CANAL



Miriam Mix (at the right) welcomes one of the two tour groups to the Lycoming County Historical Society Museum, where they inspected a number of canal and railroad displays. Many of the excellent exhibits here have been built by local volunteers.

Seventy some canal buffs from the American Canal Society and the Pennsylvania Canal Society convened the week-end of April 25-27, 1986 at the Sheraton-Williamsport for lectures and a tour of the upper section of the Susquehanna West Branch Canal, from Flemington to Muncy. Planning for the affair was done jointly by Robert Keintz, President of the Pennsylvania Canal Society and Bill Shank of the American Canal Society, with an "assist" from Tom Taber, local author and authority on the logging industry of northern Pennsylvania.

On Friday evening there was a slide-lecture by Bill Shank on the history of

the West Branch Canal and the Pennsylvania Canal Company. Saturday morning two bus-loads of canal buffs from Pennsylvania, New York State, New Jersey, Maryland, Delaware and Vermont started out on a perfect Spring day. They visited a number of well-preserved aqueducts, locks and dams on the old West Branch Canal system, as well as a 100-year old lenticular bridge and an equally old cast iron bridge, still in use along the route.

One of the high-lights of the tour was a mile-long hike along the tow-path of the beautiful Cross-Cut Canal above Flemington, one of the few historic canals in

Pennsylvania still running brim-full of fresh water ever since it was used by canal boats.

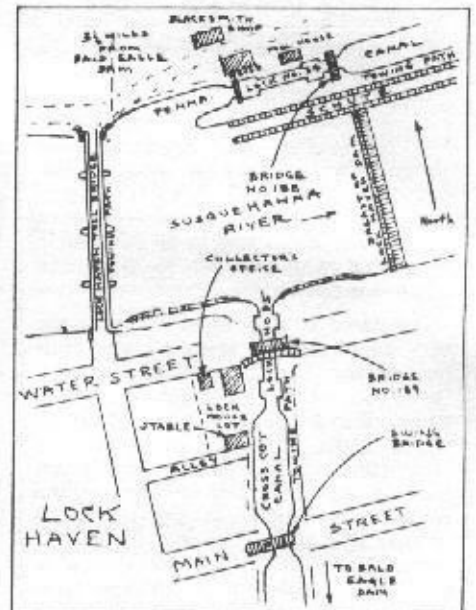
On Saturday evening the group reconvened for a banquet and lecture by Tom Taber on the history of the lumbering industry in northern Pennsylvania and the importance of the West Branch Canal as the prime means of transporting finished lumber to market. An added feature of the evening program was a slide-lecture provided by Dr. Ernest Coleman (in absentia) on the Bald Eagle and Spring Creek Navigation, which made connection with the Cross-Cut Canal at Flemington. This privately-owned canal company ran 25 miles from Bellefonte to Flemington and was in operation from 1848 to 1865.



Walking across the 100-year old cast-iron bridge into the "Long Reach" canal channel at Muncy Farms. Dave Wright, on the left. Bob Keintz, in the center of the background group.



The tour group inspects the Bald Eagle Dam, which feeds water into the Cross-Cut Canal, still maintained by Lock Haven paper plants as a water supply. In the foreground is the re-pointed masonry of the old Log Schute, to by-pass the dam.



Junction of the Cross-Cut Canal with the Susquehanna River at Lock Haven, and entrance lock to the main West Branch Canal on the north bank of the river. This drawing (by Bill Shank) has been foreshortened to show all pertinent structures as they were 100 years ago.

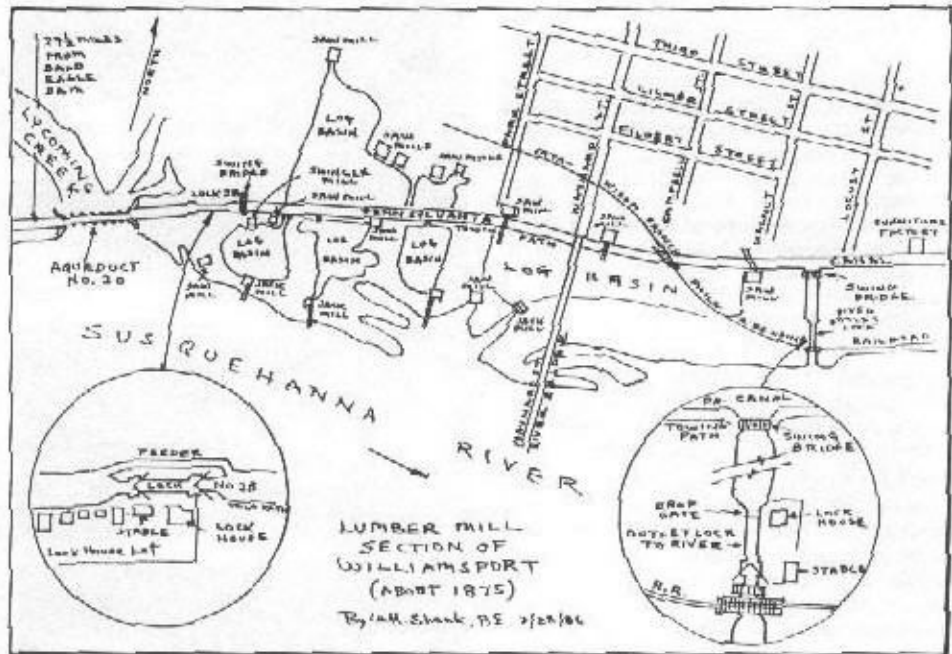
PENNSYLVANIA WEST BRANCH CANAL HISTORY

The Pennsylvania Canal Commissioners began work on the West Branch Canal at Northumberland in 1828, with the ultimate goal of reaching the Allegheny River. By 1835, when the canal had reached Farrandville, plans for a further extension were abandoned. The canal was now 73 miles long, with 25 locks overcoming a vertical rise of 138 feet.

Some years later the State built the four-mile "Cross-Cut Canal" at Lock Haven, to make a junction with the Bald Eagle and Spring Creek Navigation, completed between Flemington and Bellefonte in 1848 by a private company. The West Branch Canal soon became an important asset to the rapidly growing lumbering industry in the area, being the prime means of transport for millions of board feet of high-grade white pine and hemlock to market, from the many saw mills of Williamsport.

The Canal Commissioners sold their interest in the West Branch Canal to the local Sunbury and Erie Railroad in 1858. The railroad re-sold the canal to the West Branch and Susquehanna Canal Company, which continued to operate the entire 110 miles of canals between Flemington and Duncan's Island as a single unit. The West Branch canal system was acquired by the Pennsylvania Canal Company, a Pennsylvania Railroad subsidiary, in 1867. The new company widened & deepened the canal channel, doubled the length of the locks to permit passage of 260-ton canal boats, and provided its own fleet of canal boats of larger capacity and greater operating efficiency than the previous, privately-owned boats.

In 1874, the Pennsylvania Canal Company abandoned the Farrandville extension, and made the Bald Eagle Dam



Williamsport was the heart of the lumbering industry in northern Pennsylvania, and the West Branch Canal served for half a century as the primary medium for shipping finished lumber to customers throughout northeastern USA.



Well-preserved Little Pine Creek Aqueduct near Jersey Shore. There are a number of aqueducts on this section of the West Branch Canal.

(and Lock #36) the "head of navigation" for the West Branch Canal. The Bald Eagle and Spring Creek Navigation was by this time nearly defunct, after a devastating flood along the Creek in 1865. 71.32 miles was the official distance between Bald Eagle Lock #36, and the double outlet locks (#11 and #12) at the Northumberland Canal Basin. Both the "Muncy Cut", a 3/4 mile private canal connection to downtown Muncy, and the "Lewisburg Cross-Cut Canal" (with Locks #15 and #16), a state-built connection to Lewisburg, brought additional traffic into the West Branch Canal.

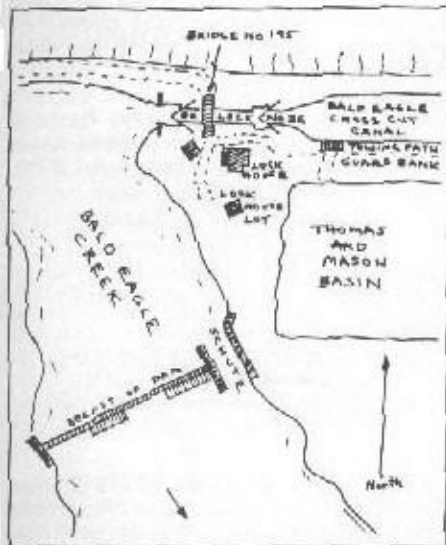
For the next twenty years the West Branch Canal and its connecting divisions prospered, under the ownership of the Pennsylvania Canal Company. The best year for the new company was 1869 when they showed gross income of \$735,000. However, with the competition of the railroads, this revenue had dwindled to only \$283,000 in 1879.

Ten years later the Great Flood of 1889 did tremendous damage to the West Branch Canal. By 1891 much of the canal west of Muncy had been abandoned, with the exception of the Bald Eagle Cross Cut, which was maintained to provide a water source for Lock Haven paper plants.

By 1901, the books of the Pennsylvania Canal Company showed a deficit of \$2,264,000 and the stock holders voted for complete abandonment. Immediately after this action all remaining canal mileage on the West Branch, the Wyoming Division, the Wiconisco, the Susquehanna Division, the Eastern Division and the Juniata Division were shut down forever! The Pennsylvania Canal Company continued to sell real estate along the canals until 1926, when it was formally dissolved. At that time its remaining assets reverted to the Pennsylvania Railroad Company.

"MAIN LINE" RUINS UNCOVERED

Last Fall, while digging foundations for a new railroad bridge pier on the North Side of the Allegheny River at Pittsburgh, Pa., workers discovered remnants of the old Main Line Canal weigh-lock and other facilities at the point where the Main Line Aqueduct turned south across the old Allegheny Aqueduct into downtown Pittsburgh. Nearby was the four-lock feeder canal to drop canal boats down to the level of the Allegheny River. These discoveries generated considerable excitement among amateur archeologists and canal buffs, who flocked to the site. (Pittsburgh Post Gazette, October 8, 1985).



Bald Eagle Dam and Lock #36 near Flemington — the official starting point of the entire West Branch Canal System, terminating at the Juniata Junction on Duncan's Island, some 120 miles south. (Sketch by Bill Shank.)

SOME NOTES ON CANAL BOAT DESIGN

By Terry K. Woods

Dave Stevens is a Commercial Artist from the Cleveland area. He is also a professional model builder and Secretary of the Committee of Model Shipwrights of the Great Lakes Historical Society in Vermillion, Ohio. Late in 1983 Dave came up with the idea of building a group of ship models and writing a series of magazine articles describing the construction. He decided that canal boats would be simple and straight-forward to design and build.

Dave first contacted representatives of the Cuyahoga Valley National Recreational Area who put him in contact with several possible information sources and canal historians.

He found what many before him had found, very little. The Nation's canal boat builders obviously knew how to build canal boats, but didn't do much record keeping, nor the maintenance of plans and specifications.

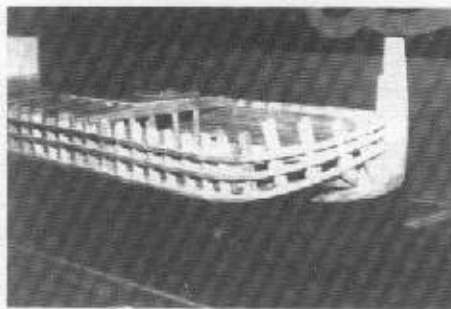
Two specifications did exist in the State Board of Public Works reports now located at the Ohio Historical Society in Columbus. But both were for State Maintenance Boats. The Canal Boat Design Index compiled in 1975 by Carrol Gantz for the American Canal Society was some help. Some additional help was provided by the Historian of the Canal Society of Ohio who had prepared a packet of material on Ohio Canal Boat design and construction for Bob Brooks of Toledo, who eventually built the steel-hulled SANDPIPER canal boat replica.

But the only construction plans for an Ohio Canal Boat, other than a few sketches drawn from memory by old boatmen in the 1960's, were those prepared from models and photographs by Carrol Gantz when the ST. HELENA II was constructed. In the latter plans, Dave felt several principles of the Shipwright's art had been violated.

All told, Dave spend over two years researching canal boat and small ship design and building practices. He spent much time in Maritime Museums, Historical Societies and the Patent Offices & Archives at the Smithsonian in Washington before he felt he had enough information to begin constructing his first model.

His initial premise was that canal boats were built by Shipwrights, or at least by men who had some sort of training or experience in formal ship-building. So he began looking for evidence that there was some Shipwright's influence in New York about the time boats were first constructed for Erie canal.

Dave's research indicated that the British had a fleet of armed vessels and gun boats located near what is now Detroit when the Second War with England broke out. This gave them immediate control of the waters in and around Lake Erie. The U.S. had no naval craft of any kind on Lake Erie.



These photos, by Ted Kasper, convey something of the intricacy and extreme accuracy upon which Dave Stevens insists in building his series of canal boat models.

The U.S. Navy Dept. sent an expedition into areas adjacent to Lake Erie in an attempt to purchase appropriate ships and to locate available shipwrights. The results of the Shipwright's survey was that there were very few of them in that part of the U.S. Therefore, in January of 1813, the Naval Dept. sent master Shipwrights Adam & Noah Brown and a small gang of ship's carpenters from New York to Presque Isle with orders to build two large brigs and a gun boat fleet. With few ship's carpenters on hand, Noah Brown gathered local barnbuilders together, men who were familiar with the handling of heavy timber. This group was augmented in April and May with more experienced ship's carpenters from New York. In all, Brown finally had about 200 men at Presque Isle.

Dave Stevens has located plans for several of these Lake Erie Gunboats and has discovered that their basic dimensions are within inches of those of the early Erie Canal Packet Boats. His deduction is that enough of the federal ship's carpenters stayed on in the Lake Erie area or passed their expertise along to others, to influence the wave of canal boat building that later swept up and down the Erie Canal. U.S. Naval records indicate that the gunboat fleet was sold out of service beginning shortly after the War's end in 1815. It is entirely possible that some of these boats found their way to the Erie Canal, which began partial service in 1820.

Historians have noted that early canal boats were sharp prowed, round bottomed and built more for speed than the later designs. Over the years, Shipwrights on the Erie (and other canals) flattened the bottoms of their craft and bulged out the lines a bit to carry the maximum amount of cargo on a placid and shallow body of water. Dave has chosen to build his models with a shallow Vee bottom (with a 2" dead rise) to allow leakage to collect near the center of the craft for easier pumping.

Anybody who could build a barn could construct a Vee-bottomed canal boat, with the exception of shaping the flat bottom to the curves of the rounded bow and stern. This special shaping, and the special cutting and steam-bending required were developed in unique ways by various Shipwrights over the years. They would prepare templates of the unique shapes and components required. They, and their licensees, could then reproduce these patented designs again and again.

Apparently the reason that so few real canal boat plans have survived is that, as they weren't needed, few existed. Quite likely, a customer would approach a boat builder along one of Ohio's canals with the basic dimensions for a boat, state briefly what he wanted in a craft regarding cargo to be carried, creature comforts, etc. Then the builder would get out his templates and build a 'standard' freighter of either open or closed design.

Dave is adhering to this concept of canal boat building for the construction of his models. He is using templates and construction techniques which his research has indicated are typical of Ohio's later canal boat design and coupling them with the 1907 Boarding Boat Specification. The result is a beautiful 1/2" = 1' model of the 76' long craft.

This first model is so far along that Dave plans to display the partially completed boat (enough of the planking has been left off to expose the beautifully intricate construction details) at the Canal Visitor's Center of the Cuyahoga Valley National Recreational Area on Canal Road south of Cleveland during the month of June, 1986.

The Boarding Boat is the first in a planned series of five scale canal boat models. The rest will be: an early Packet; a Work Boat; Dredge; and a Freighter.

There are even hopes that at least one of these Architect's Models can become the basis for a full-sized Canal Boat Replica, perhaps operating on a portion of the Ohio & Erie canal within the National Park's boundaries.

Dave Stevens has contacted the Greater Cleveland Growth Association for possible fund raising and assistance. He will also apply for matching funds from the National Committee for the Preservation of Maritime History. He and representatives of the CVNRA are presently discussing the details of how and where such a boat could be built, assuming appropriate funding can be obtained.

NEW CANAL BOOKS

WORLD CANALS, Inland Navigation Past and Present. By Charles Hadfield, 1986. Charles Hadfield, Dean of the world's canal historians, has come forth with a great work on the canals of our planet. Dubbed "The Ultimate Canal Book" it is the first to present in detail a world-wide perspective of the history of canals and inland navigation. Just browsing through the maps and illustrations is a pleasure and a revelation. There are a lot of canals out there for us canal buffs to enjoy reading about, and someday to visit. Our special interest is something we can indulge in almost everywhere on the globe; our water planet is a canal world, especially designed for us. God must be a canal buff too! We Americans can learn a lot from this book about canals in our own hemisphere; 141 pages of this hard-bound, 432-page work are given over to the New World. Hadfield gives full credit to the various ACS Members in the USA who assisted him with this section. Canal buffs everywhere will have a good time with this book! Publisher: David and Charles, Brunel House, Newton Abbot, Devon, TQ12 4PU, England. Price: 20 pounds.

ROBERT FULTON, A Biography. By Cynthia Owen Phillip, 1985. Almost everyone associates Robert Fulton with the early steamboat era. Few people are aware of his early interest in canals, while living in England in the late Eighteenth Century. In England, as a young artist-inventor, he made the acquaintance of the Earl of Stanhope, an entrepreneur of inland water navigation, and in 1796 published a treatise on "The Improvement of Canal Navigation". He also wrote a number of letters to President George Washington and the Pennsylvania Governor, urging construction of canals in America. Cynthia Phillip covers Fulton's canal activities and inventions in her early chapters. The book is hard-bound, 372 pages, and sells for \$18.95, via Franklin Watts, Inc. 387 Park Avenue South, NYC 10016. (A brochure enclosed with this issue provides additional detail.)

HOW TO MAKE A STEAMSHIP FLOAT And Other Great Lakes Recipes — By American Steamship Company, 1985. A clever cook-book, with interesting titles, such as "Seaworthy Soft Boiled Eggs", "Yankee Doodle Dock Salad", "Jay's Porthole Potato Soup", mixed up with many Great Lakes illustrations, and a table of nautical expressions. Made for rough use in the galley or at home, it is a heavy-paper, spiral booklet of 136 pages, selling for \$9.95, via Harbor House Publishers, 221 Water Street, Boyne City, Michigan 49712. (Details in enclosed brochure.)

RIDEAU WATERWAY, Second Edition, by Robert Legget, 1986. A civil engineer by profession, Robert Legget has a lively interest in the history of civil engineering and a love of the Canadian waterways, which led to his first edition of the Rideau Waterway in 1955. Thirty years later, at the age of 81, he has completely revised and up-dated this popular book, now in its eighth printing. Many new

illustrations have been added to the 1986 Edition, which, with 312 pages, is available in hard-back at \$30 or paper back at \$13.95 (Canadian funds). University of Toronto Press, 63A St. George Street, Toronto, Ont. M5S 1A6, Canada. In the USA, University of Toronto Press is 33 East Tupper Street, Buffalo, NY 14203.

BASINGSTOKE CANAL RESTORATION By Dieter Jebens and David Robinson, 1985. Published by the Surrey and Hampshire Canal Society, Normandy, Guildford, Surrey, England, this beautiful, 47-page, 8" x 10" paperback is actually a duo-tone picture album depicting the tremendous amount of restoration work (much of it by volunteer labor) in bringing back this derelict canal, to a fully-working, viable waterway once more. Foldout map of the restored canal system from Greywell Tunnel to the River Wey is included. Recommended by Roger Squires, ACS Director in the U.K. On sale in the USA, at \$8.00, by Canal Captain's Press, 103 Dogwood Lane, Berkeley Heights, NJ 07922.

THE WORK FORCE OF THE RICHELIEU RIVER CANALS, 1843-1950 by P. Andre Sevigny, 1983. This illustrated, 134-page paper-back deals primarily with the labor problems in staffing and maintaining the work force on the Chambly Canal and other sections of the Richelieu Canal System between the USA and the Lower St. Lawrence. Available from the Canadian Government Publishing Centre, Supply and Services Canada, Hull, Quebec, K1A 0S9, Canada. Price Canada \$7.50.

A GUIDE TO THE WORKS OF THE JAMES RIVER AND KANAWHA COMPANY From the City of Richmond to the Ohio River, by W. E. Trout III, 1986. A 36-page, 8" x 10" booklet, showing sectional maps, historic information, and a complete tour guide to the old canal remains, river improvements, connecting turnpikes over the Alleghenies, plus Edward Lorraine's nine-mile tunnel, planned but never built. Available for \$2.50 from Richard A. David, Rt. 2, Box 254, Lexington, VA 24450. (Checks payable to the Virginia Canals and Navigations Society.)

GREEK TEMPLES ON THE TOW-PATH A History and Guide to the Vischer Ferry Historic District, by John L. Scherer, 1985. A 102-page, 8½" x 11" paper back, well illustrated, with a number of sections dealing with life on the old Erie Canal and the Mohawk River. First Edition, 1977; Revised Edition, 1986. Maps and sketches included. Within the area described lies a well-preserved Erie Canal village, containing many Greek revival homes popular in the 1800's. \$6.00, payable to the Town of Clifton Park, 653 Clifton Park Center Road, Clifton Park NY 12065.

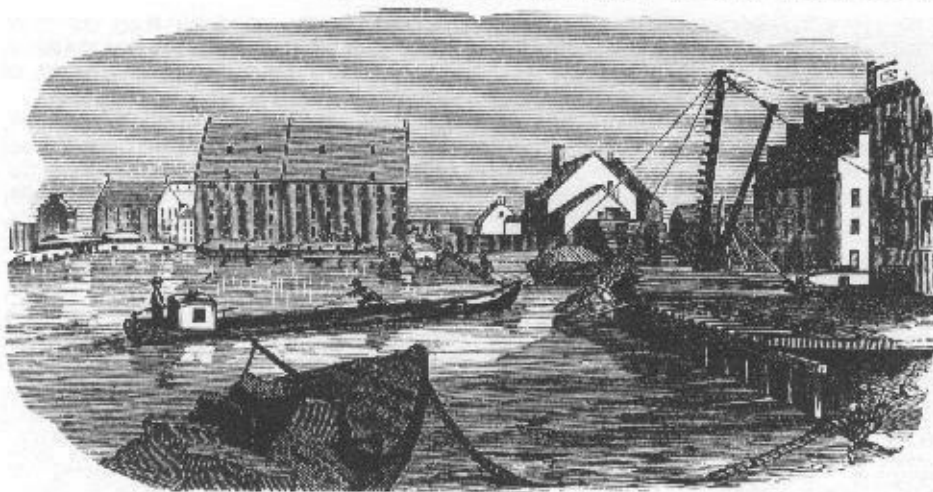
Frederica Kleist, Vice President of the Portage Canal Society, was recently presented an Historic Preservation Achievement Award by the State Historical Society of Wisconsin, for her efforts in the preservation of the Portage Canal.

CANAL BOATING IN HOLLAND



If you want the experience of piloting your own canal boat in a country where "locking through" is not the problem, but only the passing of many lift or turn-bridges, where the boater always has the right-of-way; and where you have an almost unlimited variety of canals, rivers and lakes to choose from; then Holland is for you! Friesland Boating in Koudum, Holland has two-cabin, three-cabin and four-cabin boats for hire. Their three-cabin boat — "Boorne" — is shown above. For full information contact: Nickel G. Rijk, Friesland Boating, de Tille 5, 8723 ER Koudum, Nederland. Phone: 05142-2607.

EARTHQUAKE ON THE CANAL!!



The Great Basin in Richmond, from Harper's New Monthly Magazine, 1857.

November 2, 1852, was not a very good time to be on a boat in the Scottsville basin. On that day, without warning, central Virginia experienced a shock which would still be remembered 23 years later when the next big one hit the same part of the state.

Newspapers around Virginia carried the story: In Charlottesville it came as a sound "like a heavily loaded carriage over a rocky roadway." In Buckingham, the tops of chimneys were broken off; in Nelson County, plates and cups shook "with great danger of being altered." In Richmond, the oldest inhabitants declared it was the severest shock they had ever experienced.

And in Scottsville, on the James River & Kanawha Canal, every house in the village was "shaken by the oscillation, the boats lying in the canal were tossed to and fro, and the waters gave evidence of being much troubled." (From the **National Intelligencer**, November 6, 1852.)

The earthquake 23 years later, on December 22, 1875, hit central Virginia just before midnight. In Ashland, it "peared lik a great roarin up in de elements." In Farmville and Fredericksburg, the oldest inhabitants said they had never felt anything like it. In Manchester, a man was thrown out of his bed. In Richmond, a man thought someone was trying to get in and had grabbed his pistol. In the Tredegar Iron Works those at work at the furnaces thought they were going to fall in, but those working near the machinery didn't hear a thing!

The earthquake was also felt down at the Richmond Dock, which is the 10-block long stretch of canal at the eastern end of the JR&K where canal boats and seagoing sailing ships could dock, up out of the tide. "The water in the dock and river was greatly disturbed. In the dock waves dashed quite high and angrily against the wharves . . . On the river . . . the waves suddenly rose several feet, and one or two of the tug-boats, a schooner, and a sloop parted their cables and drifted down below the wharf." (From the **Richmond Daily Dispatch**, December 24, 1875.)

These eyewitness accounts of early Virginia earthquakes are from **The Earthquake History of Virginia: 1774 to 1900**, an 87-page booklet by M. G. Hopper and G. A. Bollinger, published by VPI&SU in 1971. To estimate the severity and damage caused by early earthquakes, they had searched through the newspapers of the time, and among other things, had come across the two references to the Kanawha Canal.

The most famous of the early American quakes was back in 1811-12, centering near New Madrid, Missouri, beside the Mississippi River. It may not have affected any canals, but the shocks were strong enough to reverse the flow of the Mississippi for a short time. Timothy Flint, in **Recollections of the Last Ten Years (1826)**, edited by G. R. Brooks, (1968) said that so many canoes, keelboats and arks were capsized that the people in New Madrid could find everything they needed washed up in the harbor — including flour, beef, pork, bacon, butter, cheese and apples! An exciting account of a keelboat caught in the quake has been reprinted in **Before Mark Twain**, edited by J. F. McDermott (1968).



James River and Kanawha Canal Tide-water Lock at Richmond, as photographed in 1967 by Alexander C. Brown. The children on the lock walkway are his — Suzanne Brown and Alexander Brown, Jr.

We asked Drs. Hopper and Bollinger about other references on earthquake damage to canals. As you might expect, most of the American information is about irrigation canals on the west coast, where most of our earthquakes occur. The 1940 Imperial Valley Earthquake on the California-Mexico border moved the ground horizontally along a fault line, damaging or destroying about 60 miles of canal banks; at one point on the All-American Canal, the ground was displaced almost 15 feet. The 1971 San Fernando earthquake shook the ground, collapsing freeway bridges, knocking canal things off my self in Los Angeles, and destroying some local canals by generating landslides. But earthquakes on the west coast can even affect our eastern canals: The 1964 Alaska Earthquake probably didn't have any canals to damage in Alaska, but it still had an effect three thousand miles away, tossing canal barges around in New Orleans' Industrial Canal where the water suddenly rose six feet; and shaking about the showboat SPRAGUE (of recent memory) in the Yazoo Canal at Vicksburg, Mississippi.

Although the eastern U.S. is not usually thought of as earthquake country, we have had plenty of them, going back as far as recorded history. It makes you wonder, Did earthquakes sink any of the dozens of boats we found in Richmond's Great Basin?

Bill Trout

PRESIDENT'S MESSAGE

(Concluded from Page One)

archaeology as a respectable field in itself. If someone can start a list, we can pass it around for additions, and put it to good use.

Brad Haigh, our C&O Canal expert from northern Virginia, has had his turn as ACS Sales Officer for several years and is ready to pass on the job to the next applicant. ACS Sales handles requests for our canal guides and other sales items. Anything further, such as keeping a weather eye open for opportunities to increase sales or improve our stock, is up to the individual. Any volunteers? We can't do without a Sales Officer!

Do we have a member who would like to keep us informed of hydropower development at historic canal sites in the U.S.? The Federal Energy Regulatory Commission (FERC), Washington D.C. 20426, is being bombarded by applications laying claim to the waterpower at canal dams and sites, and some of these projects will be built. Since they are federally regulated, you can be notified of proposals and can put in a word during the planning stages. Ask FERC to place you on the mailing list for applications in your state or region. We could use some practical articles to help us deal intelligently with these proposals. Whether a project leads to a destroyed historic site or a canal park could be up to you!

Bill Trout