AMERICAN CANALS

BULLETIN OF
THE AMERICAN CANAL SOCIETY

BULLETIN NUMBER 59 Editorial Address – 809 Rathton Road, York, Pa. 17403 NOVEMBER 1986

PRESIDENT'S MESSAGE

Well, canals have made it to the Big Time, as those of you know who listen to "A Prairie Home Companion" on National Public Radio. Garrison Keillor told us how travellers on the North Coast Limited would get out their fishing gear when the train slowed down to trolling speed along the "Trans-Dakota Canal." Ah, the good old days! Now, I wonder if he will tell us about that little old stone lock on Lake Wobegon which was so carefully restored?

Can anyone suggest a good and economical source for burgees? Even if you don't have a boat, you should have an ACS pennant to hang on the wall, and we will have something to present at canal ceremonies. I envision a triangular burgee, silk-screened blue on white nylon (so it shows on both sides of the cloth), the ACS logo (a map of the western hemisphere), and AMERICAN CANAL SOCIETY spelled out horizontally, so there is no doubt of who we are. I'd greatly appreciate better suggestions, and a good place to have them made

Next year is the Bicentennial of the American Consitution, so the Virginia Canals and Navigations Society, and James Madison University, have invited undergraduates in the Potomac River basin states (the Virginias, Maryland and DC) to enter an essay contest on "From Canal to Constitution," examining the origins of the Consititution in the interstate negotiations to build the Patowmack Canal. Prize money totals a thousand dollars for the three top winners; the deadline is April 15th. National Geographic will have an article celebrating the Bicentennial and the canal, complete with photos of Joe Ayers' batteau in the Seneca Cut, one of the Patowmack Company's batteau sluices.

Incidentally, it is also not overly late to celebrate the Millennial of the invention of the pound lock by the Chinese. According to Needham's **Science and Civilization in China**, the first pound locks (to us, an "ordinary" lock impounding a boat's length of water) were invented just over a thousand years ago. Someday I hope Chinese archaeologists will search for the oldest canal locks in the world. I have a list of Chinese canals to look into to. If you are going to China or can help encourage Chinese canal archaeology, let me know!

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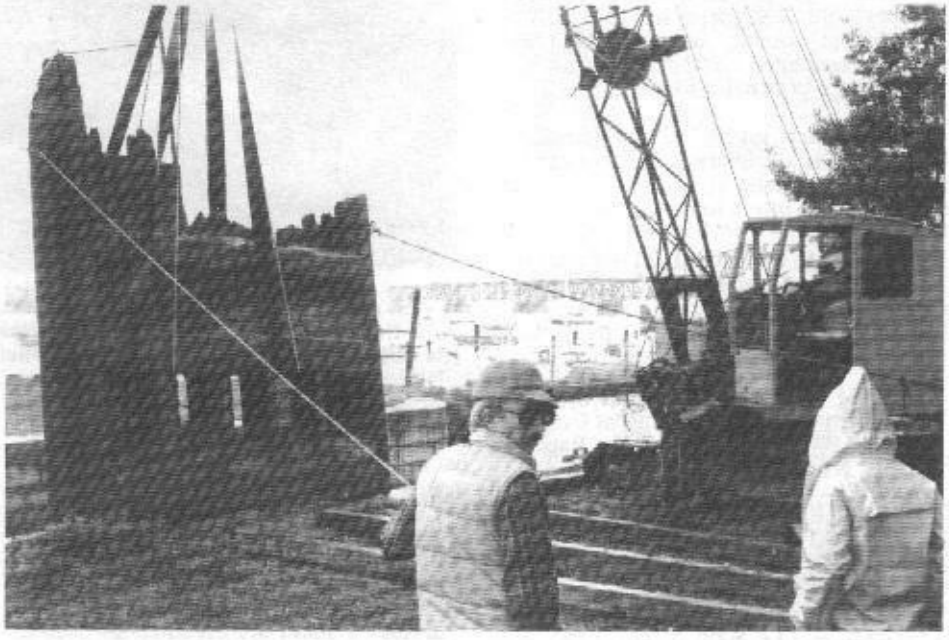
LOCK GATES TO BE REBUILT



The old lockgate just after the "lift" out of the silt in the bed of the lock. In the foreground is C. Jay O'Dell, Project Coordinator, Maryland Tidewater Administration.

The Canal Basin and Lock Restoration Project described in ACS Bulletin Number 56 (February, 1986) is attracting considerable attention in the State of Maryland. The locale is the Susquehanna Museum of Havre de Grace, just above the junction of the Susquehanna River with Chesapeake Bay. The Museum itself is the restored Lock House for the southernmost (outlet) Lock on the old Susquehanna and Tidewater Canal, which connected south-central Pennsylvania with Baltimore, and (by way of the Chesapeake and Delaware Canal) with Philadelphia.

Lower end of the lock gate, placed on skids for examination and measuring. The old, metal "wicket gates" were all in the "open" position. One of the wicket-gate control rods (and handle) was fully intact, though slightly bent.

C. Jay O'Dell, of the Tidewater Administration for the Maryland Department of Natural Resources, is planning to re-water the old Canal Basin, just north of the Tidelock, as a growing area for young shad. In this endeavor he is being assisted by Frederick Ward Associates, design engineers of Bel Air, Maryland, who plan to restore the basin to its historic water level by pumping water from the Susquehanna River.

The old Tidelock would become an important part of the operation, as an outlet for the young shad, after they have reached sufficient size to survive in the Susquehanna River. The Susquehanna Museum officials have applied to the Maryland Historic Trust for restoration funding and have also had the voluntary assistance of the Maryland Youth Conservation Corps in desilting the Lock, a process already nearly complete.

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American Canals

BULLETIN OF THE AMERICAN CANAL SOCIETY

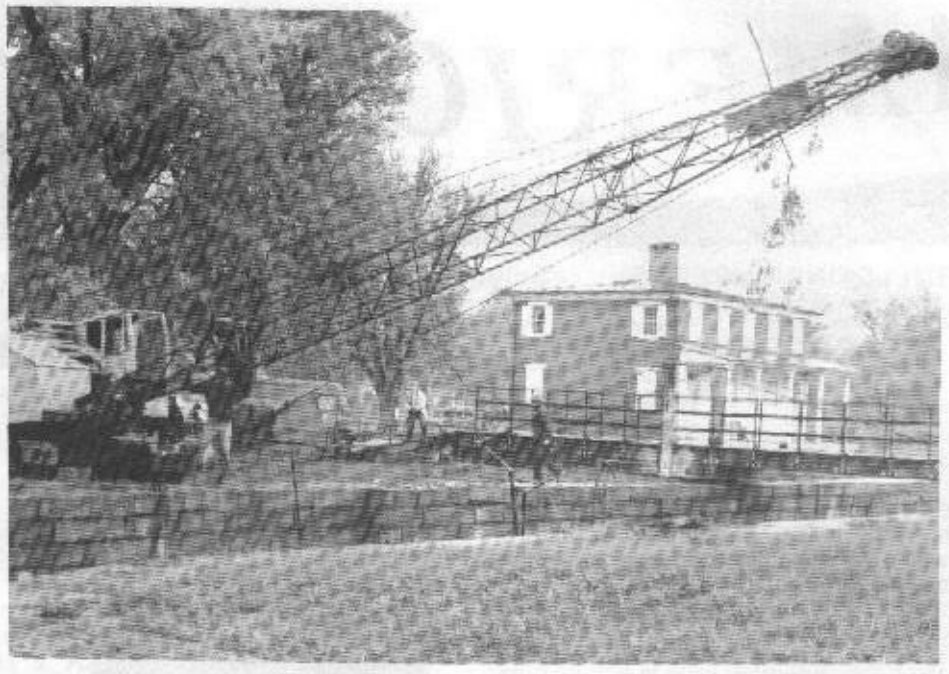
"DEDICATED TO HISTORIC CANAL RESEARCH, PRESERVATION AND PARKS"

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.

William S. Reid, of York Harbor, Maine, has just become the 53rd LIFE MEMBER of the American Canal Society. We are saddened to report the passing of Life Members **Nathaniel Wooding** of Halifax, Virginia and **Edward Mather** of Wilmington, Delaware in the past year, but this important group continues to grow.

LOCK GATES TO BE REBUILT



A view across the Tidelock at Havre de Grace, showing the boom-crane being positioned, with the Lock-House Museum in the background. In the right foreground can be seen the operating swing-bridge across the canal, built several years ago.

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One of the most interesting of the recent activities at the Lock, consisted of the raising one of the old lock gates from the silt at the bottom of the lock, where it has been preserved for the past 100 years. The "lift" took place on November 4th, using a boom-crane supplied (and operated) by the owner of an adjacent marina and a local volunteer diver. Present to observe the operation, in addition to Jay O'Dell, Project Coordinator, were: Charity Vanderbilt Davidson, of the Maryland Historical Trust; Dr. Thomas F. Hahn, canal archeologist; Charles D. Montgomery, P.E., and Ellsworth B. Shank, Board Members of the Susquehanna Museum of Havre de Grace; Rollin D. Morse, ACS Member from Columbia, (Pa.); and William H. Shank, P.E., Canal Consultant. The old gate, from the silt line down, was found to be in excellent condition and will serve as a pattern for the new gates.

PORTAGE CANAL-FORT WINNEBAGO PARK PROSPECTUS

We have just received, from the Columbia County Extension Office in Portage, Wisconsin, a very complete and comprehensive "Proposal for an Historic Portage Canal-Fort Winnebago Park." Introduction to the Proposal reads as follows:

"Our purpose is to solicit your support for the outlined planned developments and improvements related to the creation of the HISTORIC PORTAGE CANAL-FORT WINNEBAGO PARK at Portage, Wisconsin. This park would commonly promote the historic resources of the Portage Canal, Fort Winnebago area, Surgeons Quarters, Indian Agency House and Ice Age Heritage Hiking Trail under a unified banner. In addition, this park would call for a number of new major developments including a historic-cultural center, a partial reconstruction of Fort Winnebago, an historic Indian village, and several other possible restorations. This proposal outlines short and long term projects, gives some cost estimates and solicits private and public support for the park's development and maintenance."

One of the major goals of the project is the establishment of a small paddlewheel cruise boat on the Canal. Firmly behind the project are ACS Members **Henry Abraham** (President of the Portage Canal Society) and **Frederica Kleist**. Full information may be obtained from **Dr. Raymond Lenzi**, Community Development Agent, Columbia County Extension Offic, P.O. Box 567, Portage Wisconsin 53901. Phone: (608) 742-2191.

GEORGE R. WILLS

A long-time student of the Union Canal in Lebanon, Pennsylvania has left us – George R. "Bud" Wills. George was a retired employee of the Lebanon Steel Foundry. An enthusiastic collector of historical memorabilia on canals and bridges, George was a founding member of the Theodore Burr Covered Bridge Society and belonged to a long list of civic and historical organizations in central Pennsylvania. He has conducted a number of tours of the Union Canal for the Pennsylvania Canal Society, Smithsonian Associates and other historical organizations. We will miss him, and his frequent pictorial contributions to AMERICAN CANALS.

"FALL FOLIAGE TOUR" OF THE MON

Approximately ninety members and guests of the Monongahela River Buffs Association and the Pennsylvania Canal Society registered for the "Fall Foliage" Boat Tour of the upper Monongahela River out of Morgantown, West Virginia October 24-25, 1986.

Friday evening the group convened at Woodburn Hall on the West Virginia University Campus to hear a slide-lecture by Dr. John Kent Folmer on "The Packet Boat Era on the Monongahela River, 1814-1910". Dr. Folmer is Professor of History at California University of Pennsylvania and Editor of the tabloid "Voice of the Mon", house organ of the Monongahela River Buffs Association.

Saturday morning turned cloudy, with some moisture in the air, which did not dampen the spirits of a capacity crowd on board the "Gateway River Belle". The latter came up-river from Pittsburgh to take us on an all-day tour of "The Mon"

A group of canal enthusiasts watch from the upper deck as our boat rises in the Hildebrand Lock. (Photo by L.H. Weeks).

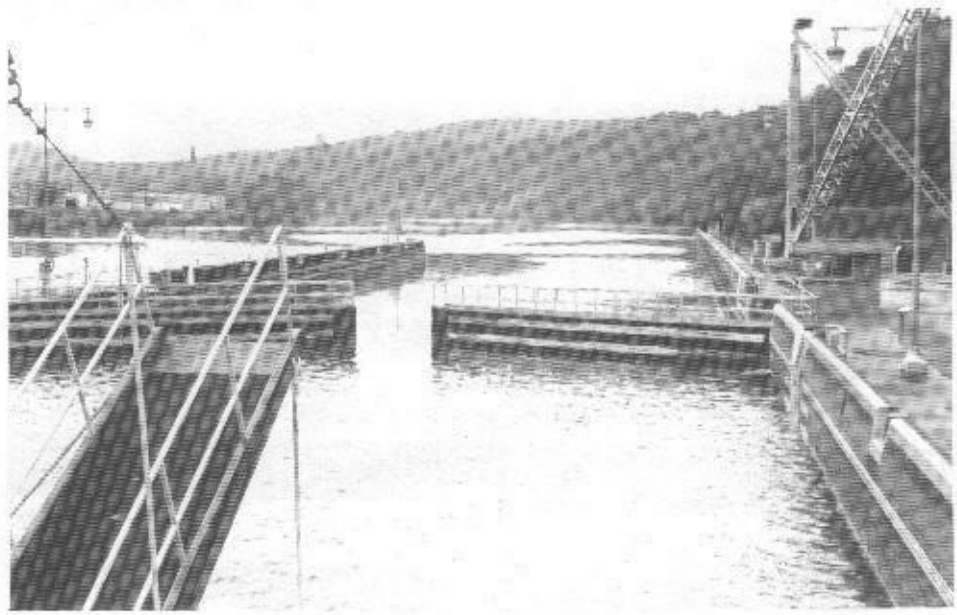
John Miller (with cap) checks passengers on board the "Gateway River Belle" while carrying on an earnest conversation with Harry Valley.

between Morgantown and Fairmont. We climbed some 130 feet through the Morgantown, Hildebrand and Opekiska Locks in our meandering thirty-mile journey up-stream and back again. In spite of the weather we got some fantastic views of the fall foliage, which was at its peak!

Saturday evening, after a banquet at the Morgan Hotel, we listened to a slide-lecture by Dr. L. Emory Kemp on the discovery, development and use of Hydraulic Cement along the Chesapeake and Ohio Canal. Dr. Kemp is Director of theHistory of Science and Technology Program at West Virginia University. He is also a Vice President of the Society for Industrial Archeology. In May of 1986 he was given an Historic Preservation Award for outstanding accomplishment in the field of recording, restoration and interpretation of historic bridges in eastern USA. The Award was made by National Secretary of Transportation Elizabeth Hanford Dole.

One of the most interesting features of West Virginia University is the so-called "People Mover", an unbelievable system of small, completely automated, electric cars connecting the upper and lower campuses. The little cars respond to card, or coin signals from users at five different terminals over a several-mile route. The cars, each about the size of a mini-bus, run on small elevated tracks, are almost completely silent, and both cars and terminals are completely free of any visible operators or maintenance personnel!

Typical of the table-groups on board the "Gateway River Belle" was this bevy of women surrounding Dr. Emory Kemp, our Saturday evening speaker.



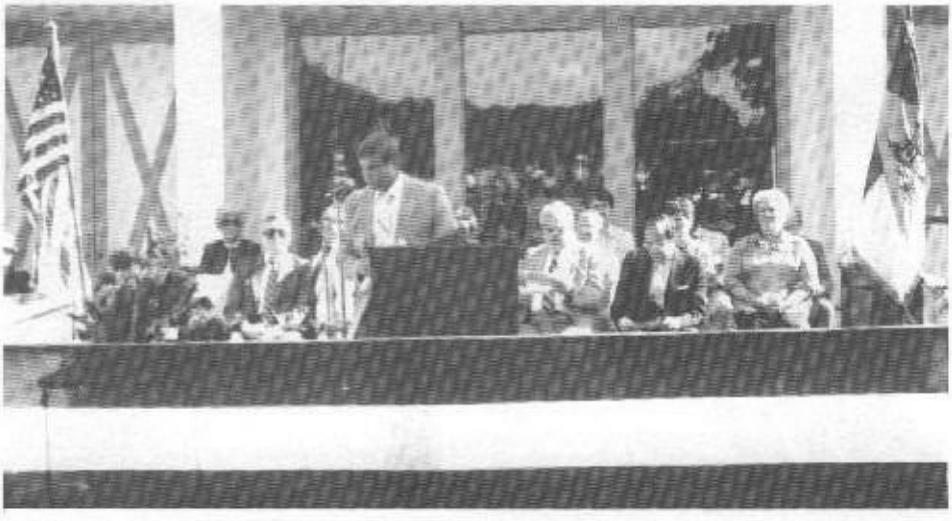
View from the bow of our boat as we prepare to leave the Morgantown Lock, after climbing approximately 45 feet from the previous river level.

NEW CANAL MUSEUM DEDICATED

The C. Howard Heister Canal Center, from the west. In the right foreground is a reproduction of an old canal boat such as used on the Union or Schuylkill Canals.

Florence Hiester (center) prepares to cut the ribbon to open the new museum which bears her late husband's name. On the left is her daughter, Louise Hiester-Graff; on the right, William W. Semmel, Director of the Berks County Park and Recreation Department.

A rewatered section of the Union Canal, adjacent to the Canal Museum. At the end of this level is a restored canal lock built several years ago.



Opening ceremonies in progress at the entrance to the Canal Museum October 5th. William Semmel is at the podium.

On October 5, 1986, at ceremonies attended by several thousand people, the **C. Howard Heister Canal Center**, Reading, Pennsylvania was officially opened to the public. This new historical museum contains the sizable collection of the late C. Howard Hiester, whose family operated a canal boat dry dock and repair yard in the Reading area for much of the nineteenth century canal era. It is part of the Berks County Heritage Center, which already included the renovated Gruber Wagon Works, a re-built covered bridge, a grist mill, a rewatered section of the old Union Canal and a restored Canal Lock. It is located just north of the Reading Airport, near the junction of Route 183 and the 4-lane "Road to Nowhere" (L.R. 1035).

The new Canal Center, in addition to the Hiester collection, contains a number of fully-professional, animated canal exhibits, which tell the canal story extremely well. It is probably one of the finest canal museums of its type in the United States, and is a tribute to much hard work on the part of William W. Semmel, Director of the Berks County Parks and Recreation Department, and the historical experts in the area who assisted him on a voluntary as well as a professional basis.

The opening ceremonies included talks by Donald W. Bagenstose, Chairman of the Berks County Board of Commissioners, William W. Semmel, and a ribbon-cutting by Mrs. Florence Hiester, widow of the late Howard Hiester, assisted by her daughter, Mrs. Louise Hiester-Graff. There was also musical entertainment by the Pretzel City Ragtime Band, a demonstration by the Philadelphia Mounted Police Drill Team, a carriage and wagon display, a horse-pulling contest, and an antique auto rally.

PRESIDENT'S MESSAGE

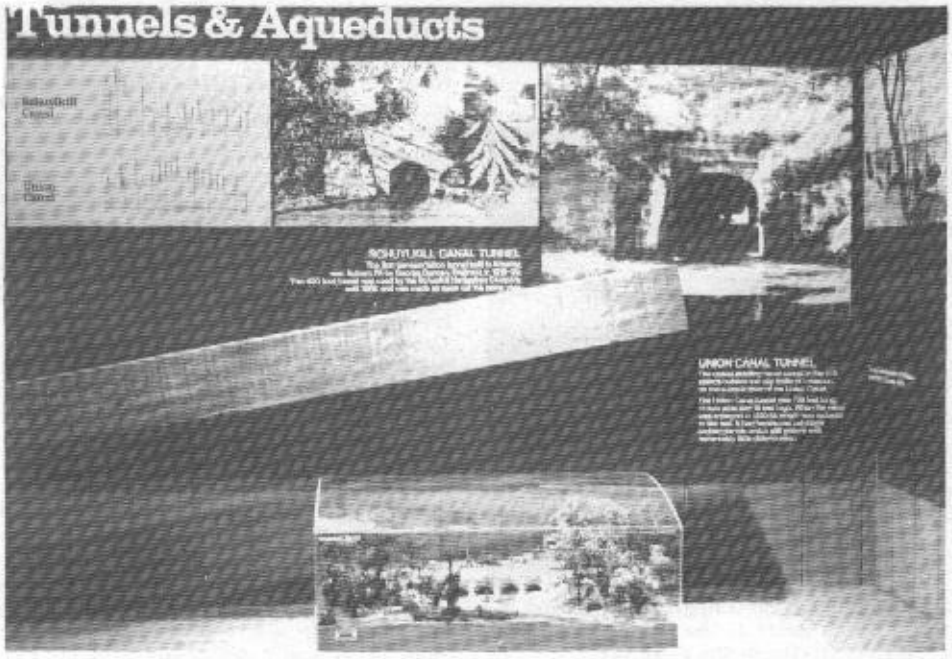
(Concluded from Page One)

A few weeks ago ACS member Bev and Dollie Morant came by to give our local canallers a pep talk on canal restoration here and abroad, and to take a quick tour of the local canals. We're always eager to meet canal buffs passing through Richmond! Call me at (804) 288-1334 and come over to see some canals or talk shop.

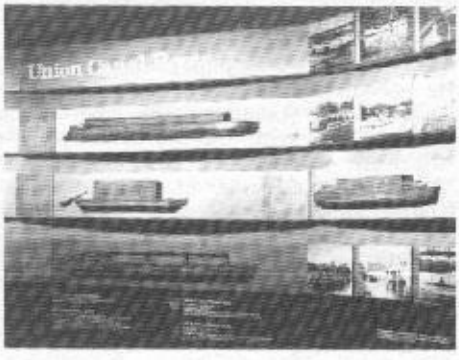
Lastly, ACS is embarking on a new experimental project, AMERICAN CANAL ABSTRACTS, to be edited by Bill Dzombak, 621 Spring St., Latrobe PA 15650. The purpose is to let our members know what the several dozen canal-related societies in America are publishing in their bulletins and newsletters. This should not only be a useful information resource, but should develop local society membership. We'll start by listing the titles or subjects of pertinent canal articles in current publications. If you want to see your society's publication included in AMERICAN CANAL ABSTRACTS, put Bill on your mailing list or get in touch with him!

Bill Trout

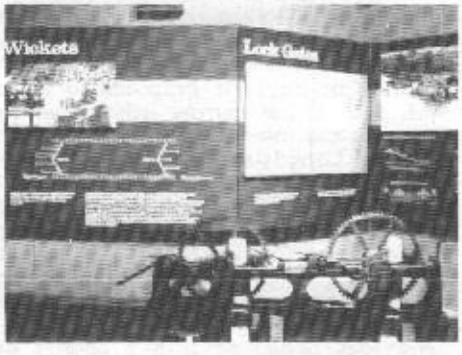
NEW MUSEUM EXHIBITS



One of the displays in the new museum -- showing the Union and Schuylkill Canal Tunnels in the background, and a model of the Schuylkill Aqueduct across Allegheny Creek, south of Reading, in the foreground.



A display showing various types of vessels used on the Union Canal, smaller than on other Pennsylvania canals.



A display, showing how the Wicket Gates were used. In the foreground is the cranking mechanism for opening and closing the wickets.

SANTEE CANAL - 1842

By William Dzomback

The British geologist, Charles Lyell, spent the years 1841-1842 travelling about the eastern part of the North American continent, studying the geology of the new world. His tour took him to Charleston and up the Santee Canal, where he made the following observations about the canal:

"Having satisfied myself that all the white limestone of the Savannah river was referable to the Eocene epoch, I now set out to determine whether the same could be said of that exposed to view of the Cooper river and Santee canal, about thirty miles north of Charleston. We had come from Charleston in a small private steam-boat, and after passing Strawberry Ferry and entering the Santee canal, were allowed by favour to pass through the locks without paying tolls, and, contrary to the usual regulations, which exclude steam-boats.

"The thoughtless negroes allowed the chimney of our vessel to get so choked up with soot that we were soon forced to quit this conveyance, and travel by land. The barges of the canal are constructed of different sizes, so that, after going down laden with cotton, they are put one into another when returning empty, and thus escape a large part of the tolls at the locks. The slaves are fond of cock-fighting; and on the prow of each barge there stood usually a game-cock, perched as if he were the ensign of the vessel. We passed the Brygon Swamp, about forty miles north of Charleston, where the remains of the mastodon were found when the canal was cut."

(Charles Lyell, Travels in North America, London, 1845.)

"Coon-Hunting Mules"

"COON hunting mule, G/disposition, sound, 48", 9 or 10 years old & he jumps. Asking $400 or trade."

I don't know much about mules, so this ad in the local paper raised strange visions of canal boatmen, after a hard day's work, sending their mules off in the gathering dusk to chase unfortunate raccoons up trees, jumping and braying until a boatman arrived to throw lumps of coal at his intended dinner.

If this ad wasn't a joke, and if a "coon hunting mule" wasn't a kind of enormous Coon dog, then mules really were out there doing something with raccoons. But nobody I asked had ever heard of such a thing.

I finally got the straight dope at the Virginia State Fair from Edie Roudenbush, who just happened to be sitting on a Coon Hunting Mule decorated with a first-prize blue ribbon. In "real" life you can see her leading the mules which tow passenger boats along the C&O Canal in Washington.

It seems that Coon Hunting Mules actually exist, but they chase the coon dogs, not the coons, and you ride on their backs like fox hunters in England. There is no particular breed called a "coon hunting mule," because mules are sterile offspring of a male donkey and a lady horse, and can't breed. From these unions come an unpredictable variety of mule types, of which some are selected to train for coon hunting, in addition to other farming tasks. The smaller size of mule is generally preferred, to keep the rider's head from hitting too many tree branches. At the fair, the specialty of Coon Hunting Mules is jumping over obstacles.

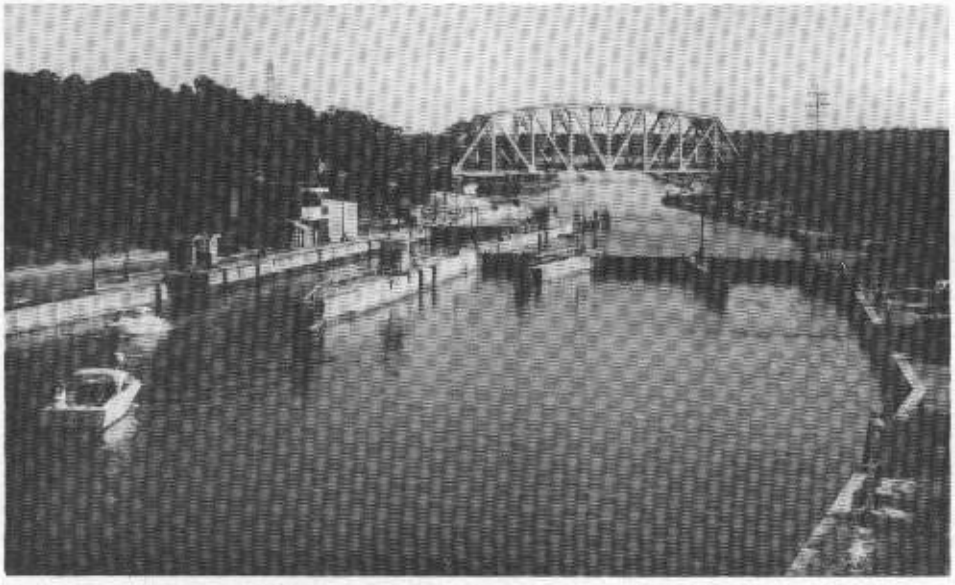
Mules are used for coon hunting and for canal boating for the same reasons. Resulting from a cross between two different species, they are the opposite of "inbred" and exhibit "hybrid vigor." They are strong, vigorous, resistant to disease, and very intelligent. We call them "stubborn" because they are careful animals and are smarter than humans, refusing to do anything which will hurt themselves. For coon hunting, walking through the woods at night, this means that they are much less likely than horses to step in holes or get into a nasty predicament. If you need proof of the superiority of mules, just ask a canaller!

Bill Trout

R. MAX GARD

ACS Director Terry Woods reports the death of **R. Max Gard** of Hanoverton, Ohio on October 19th, 1986. Max was best known as co-author with William H. Vodrey, Jr. of "The Sandy and Beaver Canal" book published by the East Liverpool Historical Society in 1952. He also wrote an historical column in the Salem, Ohio "Farm and Dairy" Weekly, often about local canal history. He was a County Commissioner for several terms and was owner of the Sandy and Beaver Antique Shop near Hanoverton.

HISTORY OF THE SHINNECOCK CANAL



Looking south toward Shinnecock Bay, where the water level is higher at this time of day. Hence, all gates are closed, except for the lift-lock gates at the left, where boats are entering and leaving the lock. Long Island Railroad Bridge in the distance.

QUERY ANSWERED

(Editor's Note: We had asked our readers some time ago if any of them could tell us anything about the Shinnecock Canal on Long Island. Responding to our query, **William L. Huber**, who lives at Sag Harbor, Long Island, made it his business to find out all about this tide-water canal, in considerable detail. He has done an excellent job of telling ACS members about the canal, its history, and its operation, in the accompanying articles, sketches and photos. If you have any questions after reading his material, and studying the sketches, we refer you to Bill Huber, himself, whose full address is: Box 333, RD 2, Whitney Road, Sag Harbor, New York 11963)

View from west bank of the Canal. Tidegates in the foreground. Lift-gates and control tower on the far side. (Huber photo).

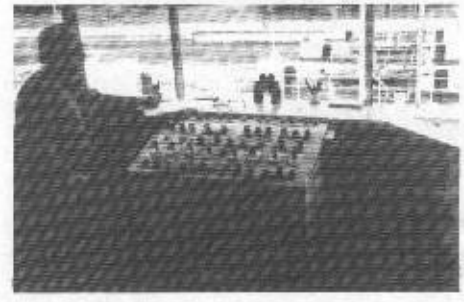
By William L. Huber

In 1826 Holmes Hutchinson first proposed a canal to the state legislature for the purpose of accommodating boats and for reviving the dying marine life in Shinnecock Bay. He proposed locks at each end of the narrow isthmus which separates the inland waters of the South Shore of Long Island from the large bays which split the island into North and South Forks at Riverhead. He estimated the cost at $30,913.80. In 1828 the Long Island Canal Co. was organized with a capital of $200,000. Nothing came of this and in 1848 another company called the Long Island Canal and Navigation Company was organized with a capital of $300,000 with the same result.

Finally in 1879 the state legislature directed the state engineer, Horatio Swymour, Jr., to survey a canal to provide navigation and help in keeping the inlet open. Evidently there was an inlet of sorts at Shinnecock at that time but due to a lack of sufficient tidal flow it soon closed solidly not to reopen until nature accomplished what man could not on Sept. 21, 1938. He quickly approved the canal and estimated its cost at $35,000 with another $1,500 required annually to maintain it. By 1884 the legislature appropriated $12,000 as a start with two additional appropriations of $15,000 each in 1885-6. Later additional appropriations were made in the amounts of $22,000, $10,000, and $15,000 making a total of $89,000. The job was finally started and completed in 1892 but the canal was soon subject to intense scouring by the flow of water from Peconic Bay into Shinnecock Bay. The flow was in a southerly direction only being controlled by tide gates. Navigation could take place only during periods of slack water in the tidal cycle. The Long Island Rail Road bridge abutments were too close together and added to the problem until they were replaced by the present ones in 1896. In 1913 $46,000 was appropriated for construction of a lock to extend navigation time but a storm in 1914 ruined the work. In 1919 a new appropriation of $35,000 was made which, with $12,000 left over from the previous one, was given to the Town of Southampton to provide tide gates and a lock which was completed in 1919. Until the hurricane of 1939 reopened the inlet these gates were lashed open Firday to Monday for six months of the summer and during the entire winter. For 75% of the time water flowed both ways through the canal. In 1930 the state turned the canal over to Suffolk County with the Federal Government spending $420,000 during the 1930's for bulkheading and the construction of protective jetties on the Peconic Bay end. As soon as the inlet was opened in 1938 the gates were operated each day so that the flow of water was in one direction only from Peconic Bay into Shinnecock Bay and thence into the ocean through the new inlet. Since more water now flowed out through the inlet than in, it remained open although subject to shoaling.

On October 28, 1967 the present gates and lock were dedicated having cost $2.5 million with an additional $3.5 million being expended in recent years for bulkheading. Currently the House of Representatives has voted to release $200,000 to complete pre-construction engineering studies for stabilizing the Shinnecock Inlet, which with the Moriches Inlet to the west, is constantly shoaling up. The Army Corps of Engineers estimates that stabilizing the inlet will cost $18.1 million. Another $1.29 million has been set aside for maintenance dredging of the International Coastal waterway from Bellport Bay to the Shinnecock Canal.

In recent years the Shinnecock Inlet and the canal have grown in importance. The County recently spent well over a million dollars on a pier just inside the inlet to accommodate a growing fishing fleet. With the constant shoaling of the inlet due to the lack of stabilizing jetties, passing through the inlet is often extremely dangerous. Passage of boats through the canal has reached 28,000 per year with 7,000 passing in July alone. The necessity for keeping the inlet open and the increased traffic through the canal has made it one of the most important canals in the nation.



View from control tower, looking west. Tide gates visible across the canal (Huber photo).

HOW THE SHINNECOCK CANAL WORKS

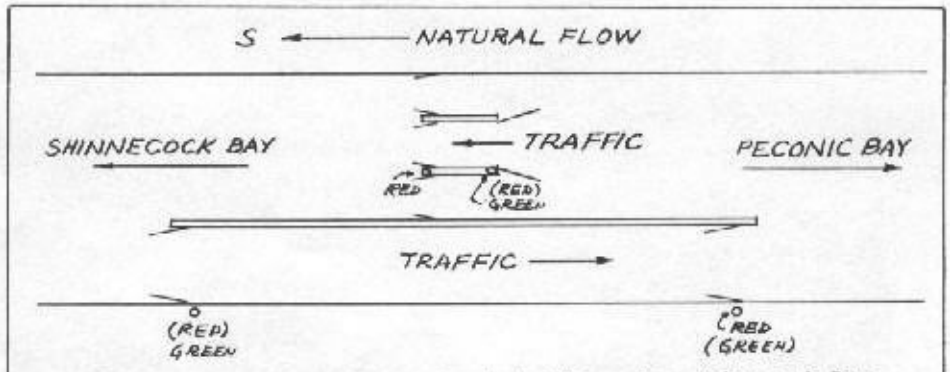
By William L. Huber

Although sea level is constant, the distance from the inlets to the respective bays of Shinnecock and Great Peconic is considerable resulting in a 3' variation in the water level depending on tidal and weather conditions. In order to provide a greater outward flow through the inlet than that provided by the incoming tide the gates of the canal are operated so that the flow of water is always to the south from Peconic Bay into Shinnecock Bay and thence through the inlet. Automatic tide gates 26' in width close about 15 minutes after slack water due to the rising tide which takes 1½ hours to reach the lock from the inlet which is less than two miles distant. The lock gates are closed at slack water before the tide gates open in order to prevent slamming and damage. For the next 6 hours the waters of Shinnecock Bay will rise as much as 3' over those of Peconic Bay before the next slack water period between the two bays. It is the function of the lock, which measures 40' x 250' with a height of 20' from the sill to the top of the wall, to permit the passage of boats during this period.

As soon as the tide in Shinnecock Bay starts to ebb through the inlet the water level recedes until eventually it falls below that of Peconic Bay, which is rising, causing a southerly flow which opens the tide gates. The lock gates are kept closed briefly in order to direct all of the flow through the tide gates hastening their complete opening when the lock gates are opened and left open for the remainder of this 6 hour cycle. It is this extra flow of Peconic Bay water which scours the inlet preventing it from closing again.

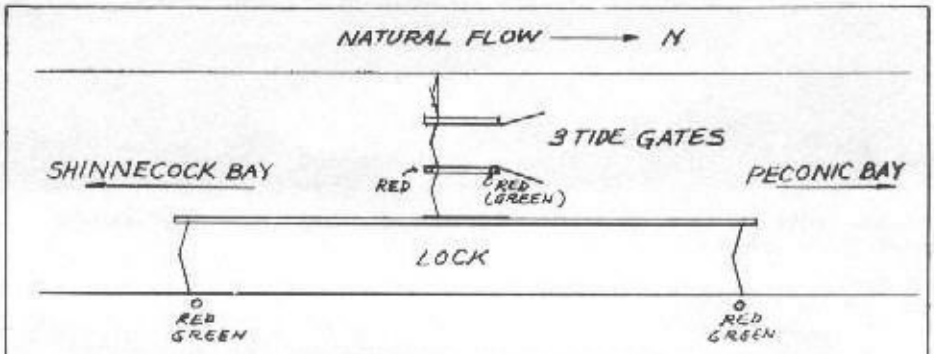
Traffic is controlled by a system of traffic lights mounted on each side of the center tide gate and on each end of the lock. The light on the south side of the center tide gate is always red, there being no green light. That on the north side is red when the gates are closed and green when the tide gates are open. Southbound traffic uses the center tide gate, which is fitted with funnel like bulkheads at the north entrance, and a red light on the north end of the lock directs traffic away from the lock. During the time all gates are open a green light on the south end of the lock directs all northbound traffic through the lock where it often must brest a 6-10 mph current.

As lock gates must have some means of dewatering them for repairs Shinnecock Canal has been provided with coffer dam leaves which drop into vertical slots on each side of each gateway, the leaves being stored adjacent to the lock. The lock gates are provided with slots on each side of each gateway so that a set of gates can be dewatered without dewatering the entire lock which is accomplished with portable pumps. During locking the flow of water in and out is by natural means through two of four 6' dia. butterfly valves. Painted tide gauges on a board, one on each side of the tide gates, tell the lock tender the height of the water on each side. An additional gauge tells traffic of the clearance under the railroad bridge which has the lowest clearance. In addition the county provides facilities for lowering and raising the mast on sail boats, if necessary, at no cost. In the control tower a tide graph keeps a 5 week record of the tides. All operations are controlled from a console overlooking the tide gates.



6 Hour Cycle When Peconic Bay Level is Higher Than Shinnecock Bay

When Peconic Bay rises above Shinnecock Bay the tide gates are pushed open automatically. The lock gates are kept closed briefly in order to force all of the water through the tide gates opening them more quickly. Once open the lock gates remain in the open position throughout this cycle. Southbound traffic is directed through the center tide gate by a green traffic light. The south light always remains red. Northbound traffic is directed through the opened lock bresting a current that can reach from 6-10 mph. A red traffic light on the north side of the lock protects the lock from potential two way traffic.



6 Hour Cycle When Shinnecock Bay Level Is Higher Than Peconic Bay

15 min. after slack water the rising waters of Shinnecock Bay close the 3 tide gates automatically. Prior to that, at slack water, the lock tender closes the lock gates. During this cycle marine traffic alternates through the lock directed by red and green traffic lights. The light on the south side of the center tide gate is always red there being no green light. The north light is also red during this cycle.

It is an interesting operation to observe from the roads paralleling the canal on either side or from the Sunrise Highway bridge which crosses the canal just north of the lock. When the inlet becomes stabilized the canal will face ever increasing traffic from both the ocean and on the Inland Waterway. The canal is a vital link in the safe, inland passage extending from East Rockaway to Long Island Sound and Montauk Point.

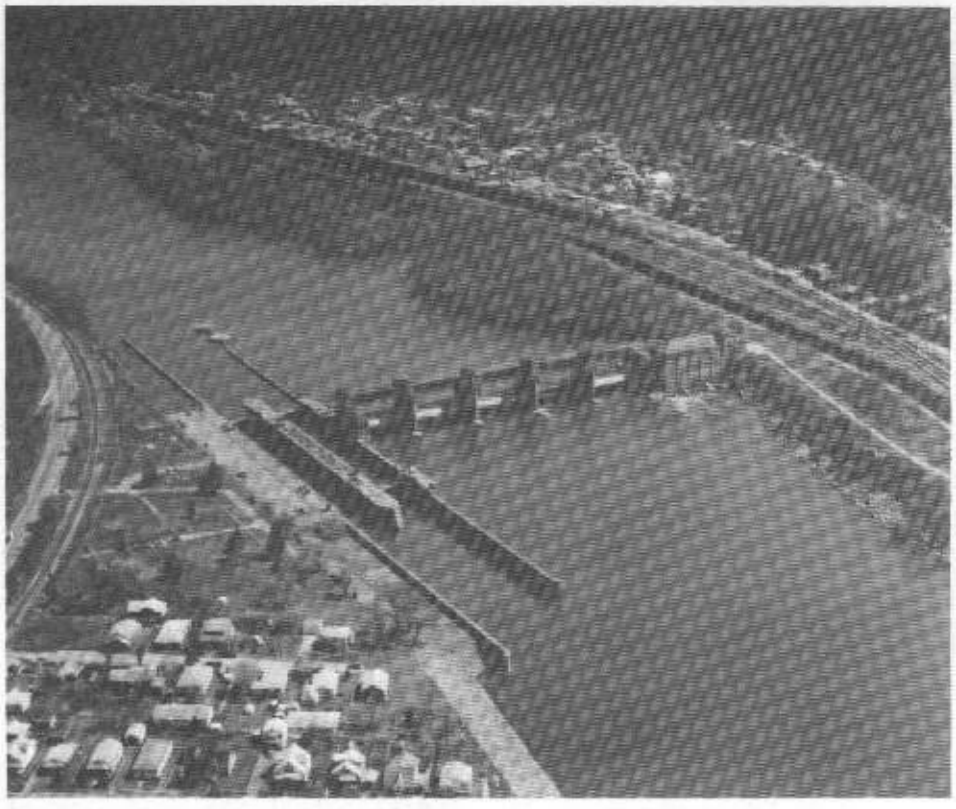
NEW GUIDE-BOOKS TO I. & M. CANAL

"Hiking the Illinois and Michigan Canal and Exploring Its Environs, Volume I" has just been released by Illinois Country Outdoor Guides in Chicago -- Author and Publisher is Philip E. Vierling. The new 390-page book has been published in four parts, and covers the lower section of the I. & M. Canal, between LaSalle and the Fox River (near Ottawa).

The book starts with a complete history of the I. & M. Canal, from 1822 to the formation of the Illinois and Michigan Canal National Heritage Corridor in 1984. It then delves, in great detail, into the geology and industrial history of the parts of La Salle County adjacent to the Canal, from La Salle through Utica to Ottawa, and the related impact of the canal on the coal-mining and other major industries which developed in that area. Excellent maps of present facilities along the Canal Corridor, and much local community history, are included.

The four parts of the new book are sold, in a collective packet, for $20, plus $1.75 shipping cost. Checks should be made payable to Illinois Country Outdoor Guides, 4400 North Merrimac Avenue, Chicago, Illinois 60630.

CRUISING THE GREAT KANAWHA

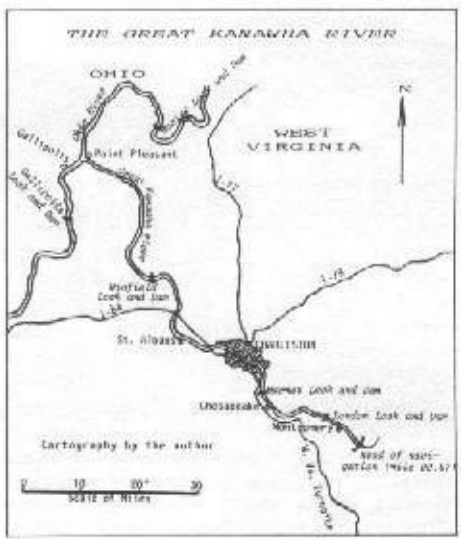


London Locks and Dam. Only 8 miles of navigable river remain upstream from this point. (Corps of Engineers photo).

By David F. Ross

The project for which the Kanawha River is best known to canal buffs, the James River and Kanawha Canal, was abandoned before canalization had been carried beyond the James. Nevertheless, the Kanawha is today a busy riverine canal. It is not widely regarded as a recreational waterway, and perhaps rightly so — but it has its attractions along with its deficiencies.

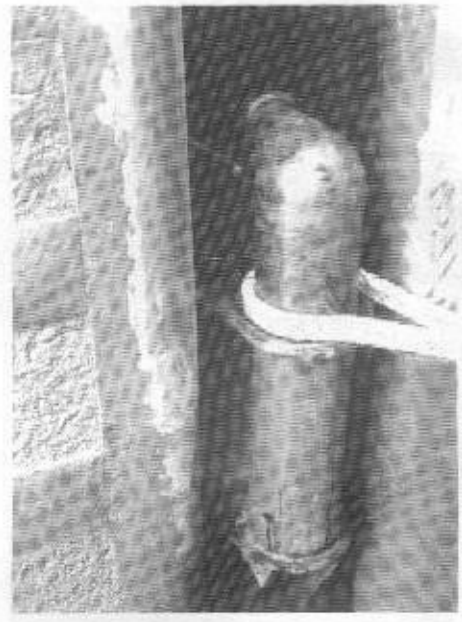
The "new" navigational system, which is now 50 years old, consists of three sets of locks and dams, with twin locks at each location. These replaced the 11 locks and dams which were built by the Corps of Engineers between 1874 and 1898. Commercial traffic on the river employs the standard Ohio River barges, so that they can be made up into standard Ohio River flotillas on leaving the Kanawha — 15 barges, three abreast and five in length. The Kanawha locks, however, were built when smaller barges were in use, and are awkward for their present use. In area, they are ample for two barges, but they are not quite long enough for two in line and not quite wide enough for two abreast. The standard Kanawha tow is five barges, Indian file, and it takes five lockages to get one through, the towboat and the fifth barge going through together. This cumbersome procedure can cause some delay for the recreational boater, particularly if the auxiliary lock is down for repair. If you are going in the opposite direction, however, the locktenders will generally let you pass through between barges.



From Point Pleasant, W. Va., where the Kanawha joins the Ohio, to the Winfield Dam, 31 miles upstream, the most distinctive feature of the river is the absence of people. It flows through what 200 years ago must have been some of the most prized farmland in the nation. The signs of human habitation now visible from the water suggest, however, that it is no longer very prosperous. You could well navigate the entire stretch without seeing another noncommercial vessel on the water — even the few fishermen I saw were fishing from the banks rather than from boats. Obviously this is where the scenery ought to have been placed — but it wasn't. There's nothing wrong with the view, but neither is there anything special about it. It's just a broad, placid river flowing through mostly flat farming country.

Next Section More Interesting

The next 30-mile section of the river, from Winfield Dam to Charleston, is strikingly different. As soon as you have passed through the locks, you begin to encounter expensive homes along the waterfront, with expensive boats moored at their docks or pulling their inhabitants around on waterskis. You also begin to get a foretaste of the scenic beauty of the Kanawha valley, as the hills draw closer and show aspirations of becoming mountains. The expensive homes, however, are not correlated with the scenic beauty — they are there because of the chemical plants which also begin to line the riverbanks. Supposedly the chemical plants are the descendents of the salt-mining operations which gave the Kanawha its first significant commercial traffic. Their presence may also have something to do with the State of West Virginia's relatively tolerant official attitude toward polluting industry. In any case, they are there, and they affect both your perception of the scenery and your attitude toward the water. I courageously bathed in the river on both the first two days of my trip. Then on the third day I went ashore for groceries, bought a newspaper, and learned that ten tons of ethylene oxide had been accidentally discharged into the river from a Union Carbide



The floating "bollards", to which the boats are hitched in the lock, rise and fall with the lock water level, eliminating the need for manual guide ropes to hold the boats in place against the lock walls.

plant just before my arrival. The authorities felt that ten tons of toxic chemical in a river the size of the Kanawha did not constitute a dangerous concentration, and so far as I know they were right. Even so, this kind of thing tends to detract from one's enjoyment of the natural attractions of the environment.

Mountain Scenery

The final third of the navigable river, the 30 miles above Charleston, is where the mountain scenery really takes over. If you were not otherwise aware of this, the fact that two of the three dams are in this stretch would remind you. Marmet Dam, at 67.7 miles above the mouth, provides a pool just 15 miles long, at the end of which you step up again at London Dam, beyond which only about 8 miles of navigable waterway remain—unless you are equipped to continue your journey by canoe, in which case you might get a view of the falls. There is still a considerable amount of commercial activity on this section of the river — presumably it would not otherwise have been canalized. There are fewer chemical plants, however, and more

Marmet Locks and Dam, just above Charleston at the site of old Lock-Dam #5. (Corps of Engineers photo.)

coal-loading facilities, which makes it a little less alarming to the recreational water user, and the gaps between industrial establishments are longer. I found a particularly agreeable spot to linger on the back channel behind Wheeler Islands, between miles 87 and 88. There is a sand bar between the islands where you can safely beach a boat and go ashore for a picnic or a wade in what ought to be relatively unpolluted water.

Limited Docking Points

Coming ashore is often a problem for recreational explorers. Communities which make heroic efforts to attract motorists from adjacent highways commonly overlook the potential business passing their waterfronts. There is no good place to dock in Charleston, for example. The Charleston Boat Club will sell fuel to transients, but it is far from downtown, and mainly a membership facility. There are two commercial marinas on the river, however, one at Saint Albans (about

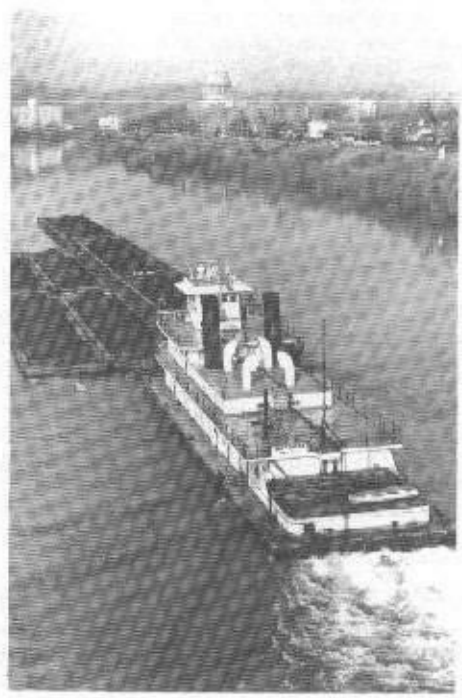
The veteran stern-wheeler "MAJOR" still moves coal barges on the Great Kanawha. (Courtesy Wm. R. Barr, Madison Coal & Supply Co.)

mile 46) and one at Chesapeake (mile 71.4), and the town of Montgomery has provided a free public dock (just under the highway bridge at mile 85.8). Montgomery is a college town, large enough to offer any products or services that are likely to be needed by the passing boater, yet small enough so that everything is within reasonable walking distance.

Antiquarian canalists will find few if any visible remains of the original locks and dams to whet their interest. There is, however, a working paddlewheel towboat, the *Major*, operating in the Charleston area. These may be more common than I realize, but the only others I have seen were very small and limited to ferrying automobiles across rivers, whereas the *Major* is a full-size towboat busily pushing coal barges around as if it did not know that it was an anachronism. *Major* was built in 1928 by the Charles Ward Engineering Works of Charleston, for the Kelly's Creek Barge Line. It is 18 feet by 64.7 feet, exclusive of the stern wheel, and diesel powered. It has been on the Kanawha all its life — or rather, all of both its lives. The first life ended by drowning in 1975. In 1981, the Madison Coal and Supply Company of Charleston bought the boat, resurrected it from the river bottom, and put it back into service. The remains of another stern-wheeler, this one a steamboat, can also be seen on the left bank at mile 50.1. The woodwork is gone, but all of the steel structure, including the twin stacks, is intact.

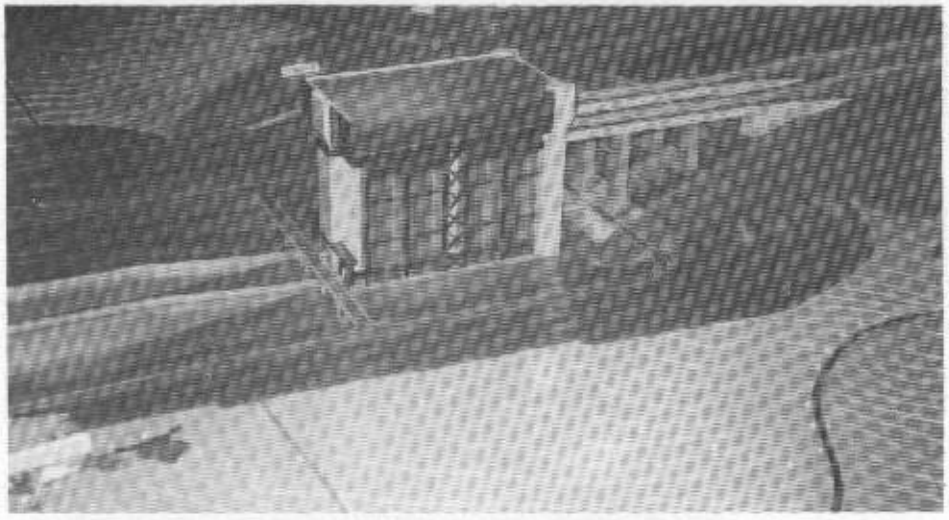
My own visit to the Kanawha was in early June. Given the Appalachian terrain with its hardwood forest cover, I suggest that the best time for a cruise might be in the fall, when the autumn foliage is on display. The 30 miles above Charleston should at that time be sufficiently rewarding to the eye to overwhelm the negative features of this somewhat justifiably unappreciated recreational waterway. Navigational charts are available at $3.50 a set from the Corps of Engineers, 502 8th St., Huntington, W. Va. 25701-2070.

(For anyone wishing to contact the author for further details, his full address is: David F. Ross, 228 Conn Terrace, Lexington, Kentucky, 40508. Editor)



A typical, seven-barge tow on the Kanawha, with the capitol building at Charleston in the background. This configuration of barges has to broken up at the locks. (Photo by Gerald Rafliff, West Virginia Chamber of Commerce.)

EUROPE'S NEW CANAL AND BOAT LIFT



A model shows the appearance of the finished Lift at Strepy-Thieu in Belgium, which will raise 1350-ton vessels, or 2000-ton barge and tug combinations 240 feet.

By Dr. Roger W. Squires

Our ACS Director in the U.K. has just completed a trip through Europe to see at first hand the developments which will ultimately increase the capacity of major waterways there to handle 1350-ton vessels. For a full discussion of the Rhine-Main-Danube Canal, (with map) see AMERICAN CANALS #46 for August 1983.

Two major waterway developments are presently under construction in Europe. One is a 73.15-metre barge lift at Strepy-thieu on the Canal du Centre in Belgium. The other is the final link in the new Rhine/Main/Danube Canal. Both projects are huge undertakings in their own right yet both have likely completion dates of 1991 or 1992.

Strepy Elevator

The barge lift at Strepy will become one of the "waterway wonders of the world." Its new dual caissons will be capable of raising craft of 1350 tons or tows of 2000 tons over 73.15 metres far in excess of the current leader in the Free world at Scharnbeck on the Elbe lateral Canal in West Germany. This new lift at Strepy provides the final link in a program to upgrade the main cross-Belgium route to the European "Standard" of 1350 tons. On the other ascent to the summit level the unique Ronquieres Inclined Plane creates a most interesting contrast between the respective merits of inclines against lifts.

Sadly, the opening of the new lift will mean that the four existing smaller hydraulic lifts at Houdeng Goegnies, built between 1888 and 1917, will become surplus to commercial traffic needs. However, these historic lifts on the Canal du Centre will not be allowed to fall into disuse, but are likely to be retained as historic monuments for pleasure use. This is due to the efforts of a local group of enthusiasts led by J. P. Gailliez who have formed the Compagnie du Canal du Centre ASBL and now receive local government support.

Vital statistics of the new Strepy Lift are:

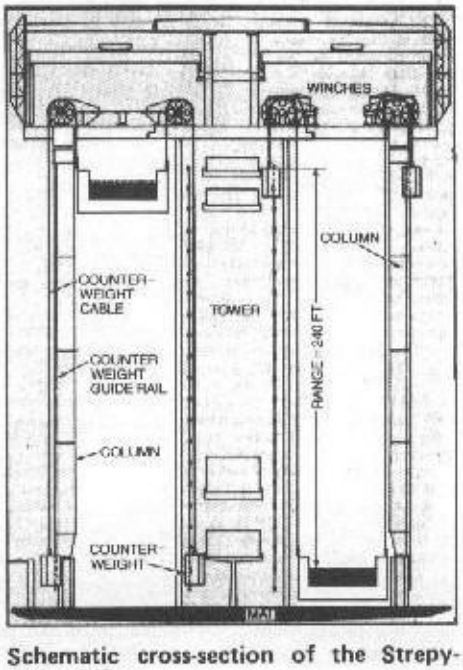
1. Caisson Size: 118 metres by 8 metres counterbalanced by weights of 8000 tons.

2. Caisson capacity: One 1350 ton motor barge or one 2000 ton barge and push tug.

3. Total time to complete the full lifting cycle: 38 minutes. Time for lift will be 6 to 7 minutes.

4. Total time saving of new lift and canal links: 3 hours 5 minutes.

The construction of the central concrete core of the new lift has just been completed, as also have been the associated initial approach channels. A major motorway aqueduct still has to be built but work is currently about to get underway on the assembly of the massive metal beam gantry structure from which the caissons and their associated balance weights will be hung. The metal beams have all been prefabricated and are already on site – off loaded on the line of a newly constructed lorry route that forms part of the overall development scheme. The whole project is being financed by the Belgium Government aided by E.E.C. Grants. It is hoped the Lift will be fully operational in 1991.



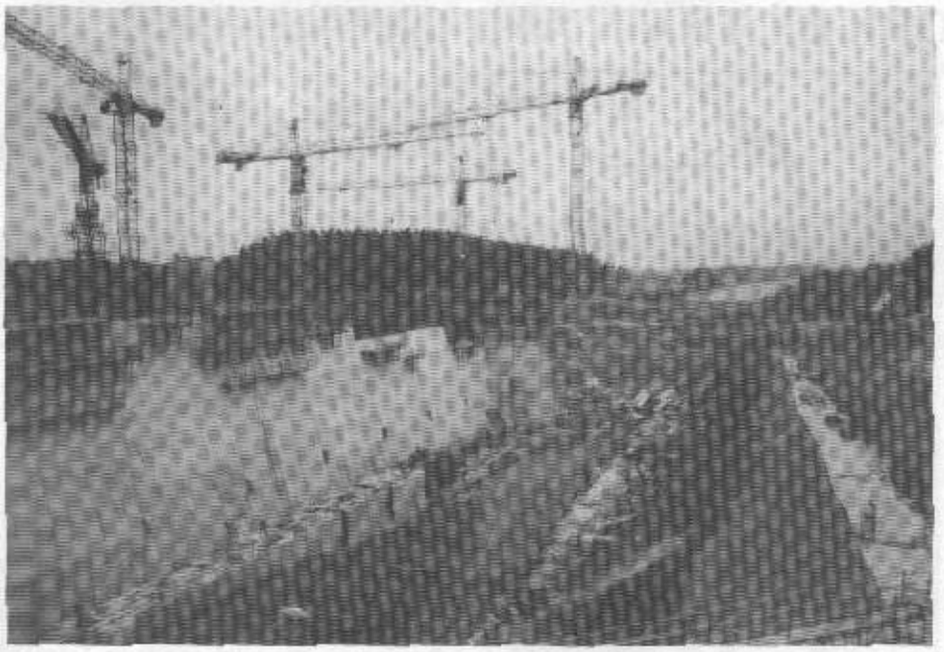
Schematic cross-section of the Strepy-Thieu Lift.

Rhine-Main-Danube Canal

Finance and the slow cash flow has been one of the major hurdles that the Company, Rhein-Main-Donau A.G. Munich, building the new Rhine and Danube canal link has had to overcome. The other has been the problem of international maritime politics which surround any waterway links between East and West. Originally the project was seen as being self financing in the associated building of a series of Hydro Electric plants on the upper sections of the rivers Danube and Lech. However, the additional problems of upgrading the Rivers Main and Danube to 1350 tons standard seemed likely to create even greater delays in completing the through route. More recently the Federal German Government and the Bavarian Government have provided interest-free loans, repayable by 2050 out of later profits, to enable the project to proceed at a faster pace. The completion aim is now 1992.

The earlier Rhine-Danube link was via the Ludwigs Canal. This was capable of taking craft of 300 tons, but was dependent on the fickle waters of the upper Danube and Regnitz. War damage closed that link in 1945. The new waterway follows much the same route except for a deviation at the summit level, but by careful engineering many of the features of the old canal are likely to be retained, using the old line as a series of backwaters for nature reserves and pleasure craft "lay-bys."

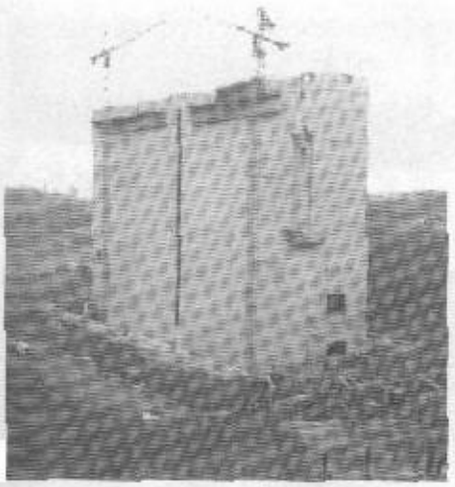
To date the greatest effort has been expended to the West of the summit level. The Main and Regnitz navigations have both been upgraded and now craft regularly utilize the huge new inland port at Nurnberg. Also some of the new locks and many of the water control/hydro-electric dams have been completed on the Upper Danube and the navigation substantially enhanced between Passau, Regensberg and Kelheim. Three additional locks and new dams to improve low-water sections have still to be built along this part before the whole project is complete. Currently, rapid progress is being made on the new canal section in Bavaria. The new locks and channel have all been completed above Nurnberg up to just below the summit level at Eckersmuhlen. The actual excavation of the new summit level and the two associated water saver locks 406 metres above sea level is underway. The locks at Hipoltstein and Bachhausen are now about 1/3 complete.



New lock being constructed at Hilpoltstein, West Germany, as part of the final link in the Rhine-Main-Danube Canal. Completed canal visible in the distance. (Squires photo)

Work on the Eastern section, especially in the river Altmuhl valley, is similarly proceeding apace with the new locks at Kelheim and Riedenberg ready for the first craft. Work is due to start on the remaining new lock at Berching later in 1986, with the canal section above and below the lock scheduled for a start in 1987. If all goes according to plan the link will be operational in 1992.

Both of these major waterway developments identify the European commitment to water transport for bulk goods and to the use of 1350-ton vessels and 2000-ton Push Tows as the future working craft. Both schemes also provide splendid examples of the latest waterway technology and construction techniques. The two openings in 1991 and 1992 will be major landmarks in the development of water transport and offer two new waterway wonders for the enthusiast to enjoy.



Center-column of the Lift under construction. Foundation site preparation required extensive dewatering and deep sand drains to stabilize the soil. (Squires photo.)

COLUMBIA CANAL

Construction of the Columbia Canal began in 1819. Five years later it was completed only to become a controversial subject of public and political issues continuing for many years.

Its original purpose was to bypass the shallows of the Broad River, and during 1827 it actually achieved some purpose in that 45, 612 bales of cotton were floated its four-mile length on barges. However, with the advent of railroads its prospects dimmed to such a point that the canal was almost abandoned.

From then on one speculator after another tried to salvage the investment. One Frederick W. Green, for instance, leased the channel, but soon defaulted on his contract and the property went back to the state.

During the Civil War the Confederate government made some practical use of the canal in the manufacture of gunpowder. Others tried to operate a grist mill, a sawmill, and a small powerhouse.

In subsequent years the state of South Carolina passed many acts to realize some advantage, or to pass the burden of maintenance to some individual or corporation. Even Governor William Sprague of Rhode Island at one time contracted to develop the canal.

Later, in 1891, a group of men organized the Columbia Water Power Company.

The old canal, its original purposes defeated, then came into its own when the new water power company in 1894 used it to power the world's first electrically operated textile mill, thus revolutionizing the textile industry.

Today the South Carolina Electric and Gas Company controls the old canal.

(Courtesy of T.J. Mims, Greensville, S.C.)

CANAL CLEAN-UP

Little did the National Park Service, the superintendent of the C/O Canal National Historical Park and the U.S. Department of the Interior know when they started the cleanup of the canal park damaged so badly by the Nov. 4-5 flooding of the Potomac River that they would be so successful.

The feat accomplished since last June is a fine example of American volunteerism. Thanks to 7,000 volunteers, many of them Boy Scouts and Girls Scouts, the canal towpath has been reopened for hiking much sooner than expected.

The high water last November covered the towpath and canal bed with trash of all descriptions. Parts of the towpath were washed away. Two-thirds of the park was closed because of its condition.

Attacking the problem was difficult because there was not enough money in the budget to handle it with hired help. The NPS had only $2 million to do $9 million of repairs.

Then the campaign started by Secretary of the Interior Donald P. Hodel for the country's national parks was adapted to the canal, "Take Pride in America." This drive was initiated originally to foster public awareness of citizen responsibility towards all of America's public lands.

Canal park officials then stepped in with their plan to have Boy Scouts and Girl Scouts participate in the 1986 C&O Canal Park Cleanup Camporee. Scouts from all over were invited to spend their summer camping periods clearing the debris and at the same time earning merit badges and having recreation along the river.

This plan proved to be a tremendous success, far beyond the dreams of the officials. This summer 7,000 youths participated in this program in getting the towpath back in use. In October another group of 2,000 will take part in special projects.

Not only have the Scouts of both genders been volunteering their services in getting this very popular outdoor attraction restored, but at many points along the 194.5-mile route people from all walks of life have been working to restore the canal.

This huge project proves that volunteerism is not dead and that these persons who worked this summer have pride in America.

(Cumberland (MD) Times - News, August 30, 1986)

The American Society of Civil Engineers recently dedicated the David Island Lock and Dam on the Ohio River in Allegheny County, Pa., as a national Historic Civil Engineering Landmark. Other canal sites also dedicated recently by ASCE as Historic Civil Engineering Landmarks include the Chesapeake and Delaware Canal in Maryland and Delaware, and the Cape Cod Canal in Massachusetts. (From Waterways Journal)

ACROSS NEW YORK BY TRAIN AND CANAL – 1837

by William Dzombak

Captain Frederick Marryat retired from the British navy in 1830, at age thirty-eight; he then took up writing, and authored several successful novels. In May, 1837 he arrived at New York and, after touring America, returned to England in November, 1838. The following passages have been taken from a diary he kept while in America.

He travelled from Schenectady to Utica by railroad, and left us the following description of the train ride.

"There is one disadvantage generally attending railroads. Travellers proceed more rapidly, but they lose all the beauty of the country. Railroads of course run through the most level portions of the States; and the levels, except they happen to be on the banks of a river, are invariably uninteresting. The road from Schenectady to Utica is one of the exceptions to this rule: there is not perhaps a more beautiful variety of scenery to be found anywhere. You run the whole way through the lovely valley of the Mohawk, on the banks of the Mohawk river. It was really delightful, but the motion was so rapid that you lamented passing by so fast.

"The Utica railroad is one of the best in America; the eighty miles are performed in four hours and a-half, stoppages for taking in water, passengers, and refreshments, included. The locomotive was of great power, and as it snorted along with a train of carriages a half mile long in tow, it threw out such showers of fire, that we were constantly in danger of conflagration. The weather was too warm to admit of the windows being closed, and the ladies, assisted by the gentlemen, were constantly employed in putting out the sparks which settled on their clothes - the first time I ever heard ladies complain of having too many sparks about them. As the evening closed in we actually were whirled along through a stream of fiery threads – a beautiful, although humble imitation of the tail of a comet."

Captain Marryat rode the Erie Canal from Utica to Syracuse and then the Oswego Canal north to Oswego, on Lake Ontario, as he tells us next.

"Set off for Oswego in a canal boat; it was called a packet boat because it did not carry merchandise, but was a very small affair, about fifty feet long by eight wide. The captain of her was, however, in his own opinion, no small affair; he puffed and swelled until he looked larger than his boat. This personage, as soon as we were under weigh, sat down in the narrow cabin, before a small table; sent for his writing desk, which was about the size of a street organ, and like himself, no small affair; ordered a bell to be rung in our ears to summon the passengers; and then, taking down the names of four or five people, received the enormous sum of ten dollars passage-money. He then locked his desk with a key large enough for a street-door, ordered his steward to remove it, and went on deck

Captain Frederick Marryat, about 1836, by S. A. Mount. (Metropolitan Museum)

to walk just three feet and return again. After all, there is nothing like being a captain.

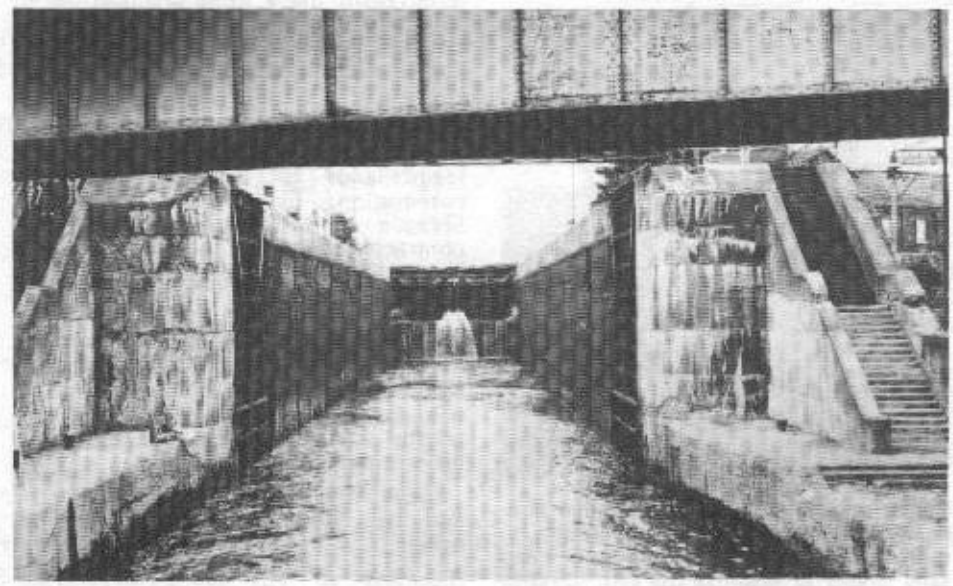
"Although many of the boats are laid up, there is still considerable traffic on this canal. We passed Rome, a village of two thousand inhabitants, at which number it has for many years been stationary. This branch of the canal is, of course, cut through the levels, and we passed through swamps and wild forests; here and there some few acres were cleared, and a log-house was erected, looking very solitary and forlorn, surrounded by the stumps of the trees which had been felled, and which now lay corded up on the banks of the canal, ready to be disposed of. Wild and dreary as the country is, the mass of forest is gradually receding, and occasionally some solitary tree is left standing, throwing out its wide arms, and appearing as if in lamentation at its separation from its companions, with whom for centuries it had been in close fellowship.

"The mosquitos of this district have reaped some benefit from the cutting of the canal here. Before these impervious forest retreats were thus pierced, they could not have tasted human blood; for ages it must have been unknown to them, even by tradition; and if they taxed all other boats on the canal as they did ours, a canal share with them must be considerably above par, and highly profitable . . . .

"The first sixty miles of this canal, which is through a flat swampy forest, is without a lock; but after you pass Syracuse, you have to descend by locks to the Oswego river, and the same at every rapid of the river; in all, there is a fall of one hundred and sixty feet. Simple as locks are, I could not help reverting to the wild rapids at Trenton Falls, and reflecting upon how the ingenuity of man had so easily been able to overcome and control Nature!

"The locks did not detain us long - they never lose time in America. When the boat had entered the lock, and the gate was closed upon her, the water was let off with a rapidity which considerably affected her level, and her bows pointed downwards. I timed one lock with a fall of fifteen feet. From the time the gate was closed behind us until the lower one was opened for our egress, was exactly one minute and a quarter; and the boat sank down in the lock so rapidly as to give you the idea that she was scuttled and sinking . . . .

"I was pleased with the journey, although, what with ducking to bridges, bites from mosquitoes, and the constant blowing of their unearthly horn with only one note, and which one must have been borrowed from the gamut of the infernal regions, I had had enough of it."



Lock Number Three on the Oswego Canal at Fulton, with a lift of 27 feet.