AMERICAN CANALS

BULLETIN OF
THE AMERICAN CANAL SOCIETY

BULLETIN NUMBER 4 FEB. 1973

"Captain's Corner"

Our first year as the American Canal Society has passed. We have survived - that is the main thing. We are getting most of our first-year members back - and that is a healthy sign. We need to decide whether or not to become tax-exempt - with its advantages and disadvantages, or not.

Some of you may wonder what our organization is really like? Mostly a few hard working volunteers such as Vice-President/ Secretary Bill Shank, Vice-President/ Treasurer Bill Trout, Committee Chairmen Peter Stott and Ed Boss and their committee members, our wives and a few faithful contributors. We need to find better ways to share the load so that we can spend our time more profitably. Did you know that the bulletin you are reading was typed with three fingers by your president? Surely we can find some way to raise a few more dollars so that we can maintain and raise the quality of our society. I would like to think that I could better serve you as your national leader and by providing you with quality canal information rather than as a typist, particularly when I am not a very good one.

Please share you ideas about the American Canal Society with me. We will try to incorporate as many of them as possible. I am looking forward to working with you in the second year of the American Canal Society. Tom Hahn

C&O Canal Hike

The Annual Chesapeake and Ohio Canal Reunion and Justice Douglas Hike have been set for 5 May by the C & O Canal Association. The hike will be from Dam No 4 to Shepherdstown (Lock 38), a distance of about 12 miles. The Annual Meeting will be at the Western Maryland Sportsmens Club at Dam No 4 and the banquet will be at Shepherd College in Shepherdstown, West Virginia. Details and reservations from Ms Bonnie Troxell, 612 Montgomery Ave, Cumberland, MD 21502.

How old is "Old"

The subject of the antiquity of various of the American canals has come up several times in recent correspondence with ACS members and in recent canal articles and books. We touch on the subject in the review of Alander Brown's Dismal Swamp Canal.

Without being victims of the "Columbus Discovered America disease" (as Jim Wilson puts it,) I think it would be interesting to have an exchange of ideas on this subject.

What should the basis of antiquity be? A proposal? First chartered? First to begin construction? First to carry traffic? We await your comments.

New ACS Directors

Two new Directors of the American Canal Society are Alexander Crosby Brown, "Ballymena," 228 James River Drive, Newport News, Virginia 23601 and J A L Atkinson, MA, 8 South Parade, Doncaster, DN1 2ED, England.

Mr. Brown is a well-known auhtor of the canals of Virginia. Mr Atkinson is a Member of Inland Waterways Amenity Advisory Council of England who has an active interest of the American canals as well as those of the United Kingdom.

ACS Directors are ex-officio members of all standing committees. We will include a list of directors and addresses in the next bulletin.

Rideau Canal Field Trip

The Society for Industrial Archeology has invited members of the American Canal Society to participate in a field trip to be held in September. The fall venture will feature a land and water tour of the Rideau Canal (focusing on the Jones Falls Site) plus an inspection of industrial buildings in the town of Merrickville and the City of Kingston, both early 18th century. Tour coordinator is: Ms Dianne Newell Macdougall, National Historic Sites Service, Ottowa, K1A OH4, Canada. Trip details to be published later.

Ohio Society Field Trip

The CSO has a tentative tour scheduled for the western portion of the Sandy and Beaver Canal in the fall. Verification and further details will be included in the next issue of American Canals.

Canal Periodicals Index

The canal periodicals index committee, under the chairmanship of Edward (Ed) Boss of 345 E McMurray Rd, McMurray, PA 15317 is beginning to move. The primary functions of this committee are: To determine the extent of indexing of periodicals; to help with the indexing (if none has been done) or help bring the extant indexes up to date; and, to somehow make the individual indexes available to all interested parties, i.e. members of other societies. The committee is concerned only with periodicals published by canal organizations. Another ACS committee is needed for indexes of publications that only occasionally have material on canals. There is also a separate ACS committee on bibliography under the chairmanship of Harry Rinker.

More help is needed. If you would like to help with the indexing of any particular canal publication (periodical) or assist in other ways, please write to Chairman Ed Boss.

New York & Pennsylvania Canal Society Field Trip

The Canal Society of New York State and the Pennsylvania Canal Society are collaborating on a joint tour of the old Susquehanna West Branch Canal the week-end of May 4,5 & 6, 1973. The tour route will cover many interesting ruins between Lock Haven and Muncy, Pa. The above photo is reproduced from a very old calendar with title; "Williamsport-Market Street Canal Bridge- a 'Flyer' of the 80's". Headquarters for the joint meeting will be the Sheraton Motor Inn, Williamsport, Pa. For full details write Richard L. Mix, 338 Lincoln Ave., Williamsport, 17701.

American Canals

BULLETIN OF THE AMERICAN CANAL SOCIETY

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"AMERICAN CANALS" is issued quarterly by the American Canal Society, with headquarters at Lockhouse #6, Chesapeake and Ohio Canal, P.O.Box 638, Glen Echo, Maryland 20768. Objectives of the Society are to encourage the preservation, restoration, interpretation and usage of American Canals, past and present; to provide a focal point for action on threatened canals; and to exchange information of general interest.

Annual subscription to "AMERICAN CANALS" is automatic with a minimum ACS dues payment of $4.00. Individual copies may be purchased by non-members at $2.00

Highest Canal?

(Following received from ACS member Carrel I. Tod): "I looked through my books on British Canals searching for the highest point reached by an artificial waterway in Britain. This is 637'at the Standedge Tunnel on the Huddersfield Narrow Canal. The highest point currently in use must be the summit level of the Leeds and Liverpool at Fourridge Tunnel, 497 feet.

"This leads me to wonder what the highest point was on American canals. I suppose it would be one end or the other of the Allegheny Portage Railroad. Inasmuch as Lake Erie is already 572 feet above sea level, I would expect that we must have had some canals higher than 637 feet."

(The answer was replied by ACS Vice President, Bill Shank): "Highest point on the route [Allegheny Portage Railroad] was at the top of Plane Number 6 on the Hollidaysburg side of Allegheny Mountain--2334 feet above sea level, nearly 1400 feet above the level of the canal basin at Hollidaysburg and about 1150 feet above the Johnstown Station at the west end of the Route. Since sectional canal boats were actually towed over the mountain, this means that the boats themselves climbed to 2334 feet. The highest watered section of canal on the route would have been at Johnstown--about 1185 feet above sea level."

Is this then, the highest elevation of a canal in the world?

French Canals

Earlier this month I once again did a long auto trip in provincial France and I wonder if the members of ACS are aware of the absolute immense kilometrage of active or only recently inactivated canals in that country. They are a delight and I can recommend, for example, tunnels at Liverdun (near Nancy in Lorraine) and Langres, and along many rivers long stretches of tree-lined, grassy canal banks which are bucolic and peaceful. The Michelin maps in the yellow series will, if studied carefully, show any enthusiast where to go. (Submitted by Dennis K McDaniel)

"Dedication"

What can be achieved by one dedicated man is at times astonishing. James Lee of Stewartsville, NJ,has uncovered what most likely is the only Scotch or Barker (reaction) hydraulic turbine surviving in the US in situ (only two others known), at the bottom of its 30-foot supply shaft. The 13'-9" diameter turbine, c1850, powered the winding gear of (inclined) Plane No 9 West of the Morris Canal. When canal operations ceased in 1924, the shaft above the turbine was filled in as a safety measure. Lee, who lives in the Plane Tender's house, convinced that the turbine was still in place, began several years ago to dig out the shaft and has also cleared the 160-foot discharge tunnel. He is attempting to restore the entire plane, its machinery and a portion of the canal proper. (SIA Newsletter Jan 1973)

Pilgrim Canal Trip

In the November/December 1972 issue of Holiday Magazine, on page 79, is an article about Leyden, Holland, which was the home of the Pilgrim Fathers before they embarked on the Mayflower for America. The pilgrims traveled by canal from Leyden to Delfshaven (now part of the massive Rotterdam port) and there embarked on the chartered ship Speedwell for America, changing over to the larger Mayflower at Plymouth, England because the Speedwell proved unseaworthy. (Alan Dietch)

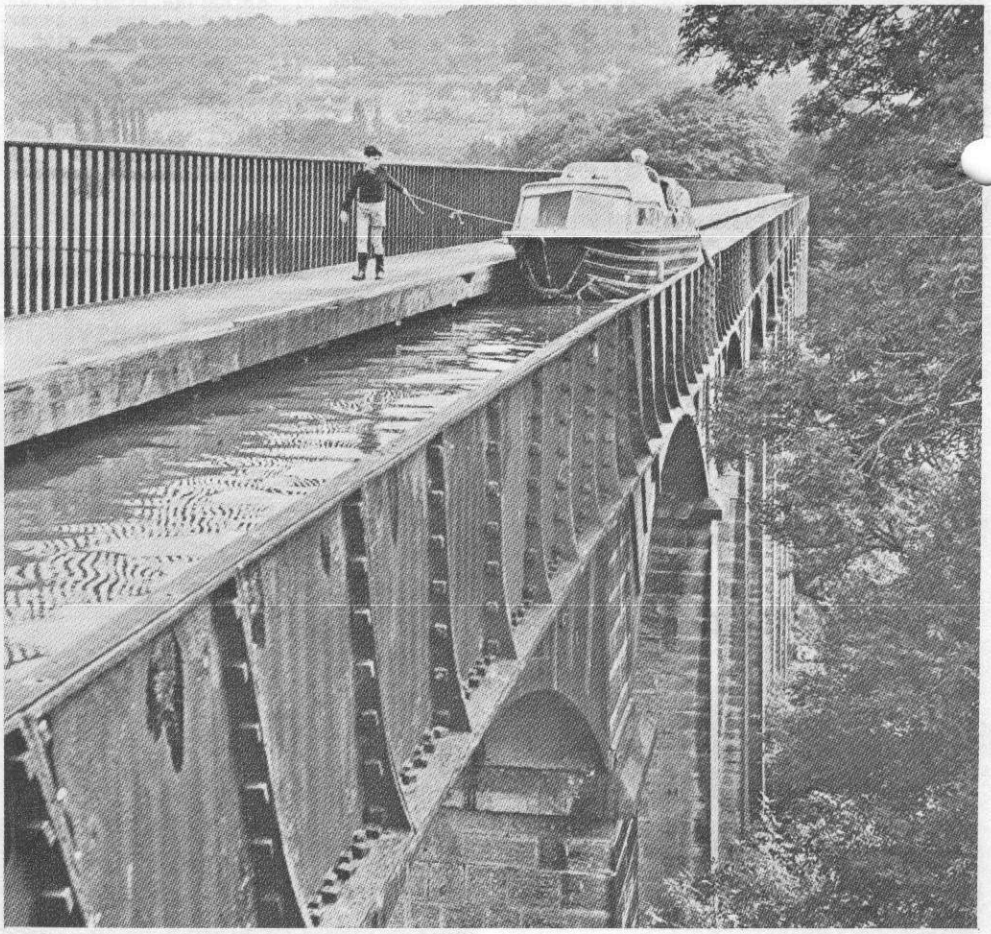
ACS Sew-On Patches

We are looking for ideas for a sew-on patch for the American Canal Society which would sell for about a dollar. C. Sulecki has submitted a design which is a Pennsylvania packet boat in yellow and green, a white background, green border and the name AMERICAN CANAL SOCIETY in brown. Any other ideas?

Inland Waterways Amenity Advisory Council

The Inland Waterways Amenity Advisory Council is a body consisting of a chairman and not less than 12 members appointed by the Secretary of State for the Environment after consultation with the chairman of the Waterways Board. Members include persons who have wide knowledge of, and interest in, the use of inland waterways for amenity or recreational purposes, including fishing, and may not include more than four persons who are members of the Waterways Board. ACS Director J A L Atkinson, MA, is a member of the council.

Under the watchful eyes of the Council are at least 1,400 miles of operating cruiseways with 1,100 locks,at least 267 aqueducts, about 40 tunnels and thousands of bridges. One of the chief concerns of the Council is the several hundreds of miles of remainder waterways, much of which needs to be restored.



A small cruiser on the Llangollen Canal (England) passes over Telford's magnifice aqueduct at Pontcysyllte -- 120 feet above the Dee Valley. This fine photo is published in "The Last Ten Years", issued in January 1973 by the British Waterways Board. We are indebted to Sheila Doeg of BWB for a copy of this fine booklet, who adds: "Great news! We have been reprieved by the Board and will not be disbanded after all." The British Waterways Board last month celebrated its tenth anniversary with appropriate ceremonies. For information on BWB, and its publications, write Sheila Doeg, Press and Publicity Office, Melbury House, Melbury Terrace, London NWi 6JX, England. Also available is a beautiful, four-color canal calendar.

THE DISMAL SWAMP CANAL

(Editor's Note: The title above is also the title of a book written by Alexander Crosby Brown, published by the Norfolk County Historical Society, Chesapeake, Virginia, in 1970. The following review has been written by Capt. Tom Hahn. The map to the right is one of the illustrations from the book itself.)

"The Dismal Swamp ship canal connecting Chesapeake Bay and Albemarle Sound is undoubtedly the oldest surviving artificial waterway in the United States. "Unquestionably the five-mile Washington Ditch built in the 1760s is the oldest useable canal in the United States." Those two statements alone should intrigue canal enthusiasts to learn more about those and their associated canals and feeders--Riddick, Jericho and North West Canals and Portsmouth Ditch and the companion/rival--the Chesapeake and Albemarle Canal. This well illustrated (photographs, drawings, maps, woodcuts) definitive work by Alexander Crosby Brown of Newport News, Virginia, traces the fortune of "America's most venerable artificial waterway" from the 18th century to 1970. It is an account of the Dismal Swamp as well as the canal by the same name. The book is good in detail, both as to history and physical description and is well annotated and indexed.

Use of the Dismal Swamp Canal by the Confederates, its role as a prize of war and the state of dilapidation in which it was left by Union forces are described, as are the rebuilding of the canal in 1896-99 and government purchase in 1925, at which time it became a toll-free waterway as a charge of the Army Corps of Engineers. Relieved at last of its immediate financial worries, the Dismal Swamp Canal began to flourish as it under federal ownership as a link of the Atlantic Intracoastal Waterway.

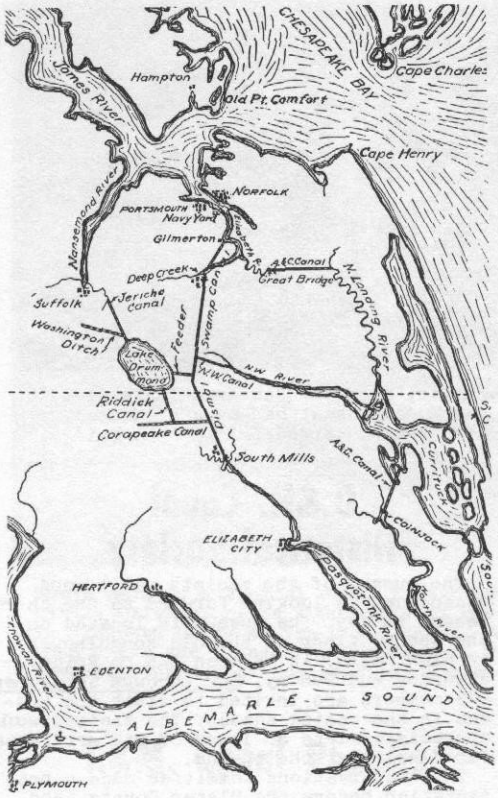
Through the years, particularly in recent ones, the Dismal Swamp Canal has been plagued by periodic lacks of water caused by insufficient rainfall in the area to keep Lake Drummond supplied and overflowing into the feeder ditch. Mr Brown points out that the proliferation of drainage ditches has been partially responsible for the lack of water needed to keep the canal going. From its beginning the canal has had pretty much of a marginal existence and is under the constant threat of being closed as a poor revenue producer. Fortunately in 1970, the Corps of Engineers decided to continue to run the canal.

An unexpected bonus for steam-propelled enthusiasts are the "Particulars of Steam Vessels Using the Dismal Swamp Canal."

Information, Please!

Alexander C Brown of 228 James River Dr, Newport News, VA 23601 is following his Dismal Swamp Canal study with a similar history of the Albemarle and Chesapeake Canal, which the Norfolk County Historical Society will sponsor. Although never a towpath canal, it has several things which should attract the interest of canal history enthusiasts. The lock at Great Bridge completed in 1859 was then one of the largest in the country, measuring 220 feet long by 40 feet wide. Being a guard lock to check tidal flow, it had the unique distinction of being the only double-gated lock in the nation although the lift and fall never amounted to more than two feet.

Mr. Brown says, I am well along on my manuel book on the Albemarle and Chesapeake Canal and would appreciate information or photos--particularly of the guard lock at Great Bridge, Virginia, in its original state, i.e. before the present 1932 lock was built by the Army Engineers."



Map of Tidewater Areas of Virginia and North Carolina served by the Dismal Swamp Canal. (Redrawn from 1867 map by D. S. Walton.)

WELDON CANAL

The Weldon Canal, built around the Roanoke Rapids in the Roanoke River in 1834, brought about important economic changes in northeastern North Carolina; it helped arrest the mass exodus of the population and brought prosperity to the area.

The numerous rivers and swamps made roadbuilding extremely expensive, so there was no satisfactory overland passage to the coast except through Virginia. Merchants and shippers in Virginia became prosperous while many in North Carolina were forced into bankruptcy.

Attempts were made to float cargoes down the Roanoke River, but the rapids above Weldon proved to be too dangerous. Freight wagons detoured the 10 to 20 miles to Virginia where they followed excellent roads to Norfolk or Richmond.

Despite the urgent need for the canal, it took 22 years to complete it. Raising the $395,000 capital proved to be more of a problem than anticipated. Engineering information revealed that the construction would be more difficult than expected; crafts would have to be raised or lowered 104 feet just to pass through the roughest part of the rapids.

Excavating the waterway was by no means the most difficult part of the construction; three intricate locks had to be designed and built that would safely raise or lower the fragile crafts as much as 45 feet at one point. In fact, the excavation was fairly easy; two and four-mule scoops easily removed earth and spread it on both sides of the canal to make roads. By necessity the locks were narrow so the canal was kept small, averaging 40 feet in width.

Despite all the financial troubles and a flood that destroyed an entire lock, the 13½-mile canal opened for business in 1834. Three hundred and fifty "bateauxes" of a special design were put into service. To navigate the narrow canal, the barges were narrow, only eight feet wide, but they were 65 feet long and carried 10 tons of freight. Cargoes were loaded onto the barges at a loading dock located at the beginning of the canal above what is now Roanoke Rapids City. Two men, one at the front to steer and one aft to pole the craft along, navigated the 13½ miles, two round trips a day. Larger boats waited below the third lock to receive the freight and carry it to seaports on the Albemarle Sound.

The prosperity of the Roanoke Navigation Company was short lived; two of North Carolina's first railroads were built across the canal. Freight loaded aboard a railroad freight car in Weldon could reach the deep water port of Wilmington before canal freight could reach a shallow water port on the northeast coast, where it would still have to be transhipped by coastwise boats to Norfolk. By 1840 canal traffic slowed to the point that it was barely profitable to keep the canal open. By the beginning of the War Between the States only a few barges were in service.

For the first few months of the war every serviceable barge was pressed into use. Food stuffs and war materials for the Confederate forces in Virginia were shipped through the canal and down the Roanoke River, but with the capture of the coastal towns by federal forces, the navigation company suspended operations.

There was yet one more period of profitable operation for the canal when Northern troops destroyed all railroad properties in the area. As in 1834, the Weldon Canal was now the sole means of freight movement along the Roanoke Valley. Barges that had been abandoned four years before were repaired and some new crafts were built. With the resumption of regular rail services in 1867, the navigation company was declared bankrupt.

Today few traces remain of the once important canal, except for a few hundred yards of it that carry water to manufacturing plants. One reminder is the beautiful stone aqueduct which carried the barges nearly 50 feet above Chockoyotte Creek. (From The State, 15 Sep 1969 by Don Causey. Submitted by Bob Mayo)

Lehigh Canal Flood Damage

Damage was sustained in several areas by Hurricane Agnes:

a. Lehigh Gap Dam and inlet works to canal and towpath through Boro of Walnutport were severely damaged. Repairs to restore flow were completed late October, some trim and dressing to be done at a later date.

b. Hokendauqua Dam and inlet works to canal, excessive siltation and debris and damage to wing wall severely restricted flow thru the canal in North Catasauqua and Hanover Township and Catasauqua. This has not been corrected. As this section river bank and dam are privately owned, public disaster funds are not available for restoration.

c. Allentown-Bethlehem, massive breach in the tow path drained the canal and diverted water from several levels downstream. Repairs to restore flow were completed late October, some trim and dressing work for a later date.

d. The engineered flood control works and impoundments in the Lehigh River Basin proved their worth in this hurricane. (Submitted by The Lehigh River Restoration Association.)

Roebling Aqueduct-ASCE Historic Landmark

The Roebling Aqueduct across the Delaware River, from the New York State side, circa 1900, shortly after the Delaware and Hudson Canal had been abandoned. The old structure, still standing today, has been converted into a toll bridge.

On 18 October 1972,The American Society of Civil Engineers, during their Annual Meeting in Houston, Texas, named John Roebling's Delaware Aqueduct, over the Delaware River in Lackawaxen Township, Pike County, Pennsylvania, as a National Historic Civil Engineering Landmark. Two plaques commemorating the event were then placed on the bridge (one on each side of the river) on Sunday, 12 November 1972, at 2:00p.m.

The nineteenth-century American civil engineer, John A Roebling, is best remembered for his crowning work, the Brooklyn Bridge. Although an engineering monument of the highest order, the Brooklyn Bridge must - if historical justice is to be done - share its fame with a small, relatively obscure suspension bridge that was Roebling's third work, and is his earliest still standing. Moreover, in all likelihood, the Delaware Aqueduct is the oldest existing American suspension bridge, and may well be the oldest existing suspension bridge in the world (that retains its principal elements). (So summed-up by Mr Robert M Vogel, Curator of the Division of Mechanical and Civil Engineering in the Smithsonian Institution.)

The aqueduct was built in 1847 for the Delaware and Hudson Coal Company. Its original use was as one of four aqueducts on the D&H Canal. Its present use is as a dual lane vehicular toll bridge. Its length is 535 feet; four span suspension with stone piers; one at 142 feet and three at 131 feet. Its width is 24 feet 4 inches at cast iron saddles; 18 feet 6 inches at roadway. The cables are 8½ inches in diameter with 2,140 wires with a weight of 123 pounds tension, 771 tons actual and 3,870 tons ultimate. The hangers are 1¼ inch diameter, double wrought iron rods. The deck is oak timber.

Master of Ceremonies was Robert E Nolan, Jr, Program Chairman, Lehigh Valley Section, American Society of Civil Engineers.

D.&H. Canal Park

On 16 October 1828, the first packet, the ORANGE, traveled the full length of the Delaware & Hudson Canal to Roundout (Kingston) from Honesdale carrying a full load. One hundred forty-four years later efforts are being made to revive a portion of this canal. The Orange County Citizens Foundation proposes to acquire a large tract of land, including a one-mile section of the canal near Cuddebackville in the Town of Deer Park, New York, to be developed as a county park. The goal for the historic site is to restore the one-mile length of canal, with one lock, a Roebling aqueduct, a boat factory, at least two canal boats and other canal-related facilities and activities. Inquiries and contributions (tax deductible) are invited by OCCF, Inc, Box 636, Goshen, New York 10924.

D.&H. Canal Historical Society

The museum of the society had a good season and is looking forward to the third season in May. The museum is located on the second floor of the old schoolhouse in High Falls. It is open 2-5 pm Friday, Saturday and Sunday, May through September, ACS members are invited to visit the museum in the coming season. The society would appreciate gifts or loans of D&H artifacts for display at the museum.

The Preservations Committee made a presentation before the Ulster County Landmarks Commission, with the hope that eventually the entire canal and canal-related buildings will be designated by the commission. At the annual banquet held at Lake Mohonk, Manville Wakefield spoke on how Coal Boats to Tidewater came into being.

Membersships in the society are: Single, $5; Family, $7.50; Life, $50. Further information from: D&H Canal Historical Society C/O Ms Grace Elliott, 300 N Ohioville Road, New Paltz, NY 12561.

Visit to "Big Chute" Marine Railway on Canada's Trent Canal

By Denver L Walton

The sign said, "Danger--Cross at Your Own Risk", and the rickety wooden bridge ahead would surely have discouraged all but the most sincere canal buff. We had traveled about 30 miles north from our campground at Bass Lake, near Orillia,Ontario, with scant information about our goal, and it was raining so hard we couldn't see across the bridge before us.

We came to see the marine railway on the Trent Canal, and the precious little bit of literature we could find on it indicated that it was here at Big Chute, where the Severn River drops down to Glocester Pool, an arm of Lake Huron. The bridge crossed over a rushing torrent which evidently drained the expansive lake on our right, down through the long rock-strewn gorge on our left. Could this be Big Chute?

We crossed the bridge and were immediately confronted by a second. This one spanning an inlet channel for a small hydro-electric plant, and rivalling the first for flimsy construction. If you can imagine a Pontiac station wagon tip-toeing across a bridge, that's about how we felt!

Amidst the rain and all the waterworks around, we would have been much more confident in a packet boat! We crossed a set of rails, then our road ended abruptly in a parking lot. Rails! Was this the Marine Railway? As we got out of the car, we were rewarded with an immediate drenching, but even our five year old son had caught our enthusiasm about finding the railway, so our only thought was to keep the camera dry. Looking around, we could see that we had crossed the track about midway on the short upper section of the cable system, between the river's edge and the control tower. Before beginning our inspection, we stopped in at the Tower for whatever information we could find, and we found none. There was nothing in print, and the operator offered very little in statistics.

We returned to the riverbank to watch the "locking" operation, only slightly discouraged by the continued heavy rain. A large railcarriage, about the size of a boxcar with top and ends removed, was half-submerged in the wind-tossed water of the Severn, beside a long wooden dock. A sixteen foot outboard drifted into the open end of the carriage, and the three crewmen, in yellow rain slickers, were securing it to the open framework on the side, while the keel rested on the padded blocks.

A heavy cable between the rails drew the carriage back up the slope, across the roadway, and up to a high point near the control tower. (An increase of about 20 feet in 60 yards.) At the summit, the car drifted over a pair of large sheaves while the slack cable, entering from the trackside engine house (under the control room), unwrapped itself from one sheave and slowly fell in place around the other.

The car stopped with a jerk, then the cable was reversed and the descent began. The car was lowered rather swiftly, faster than we could walk down a wooden stairway, to the pool some 70 or 80 feet below. Here, the process was reversed,and the boat, freed from its mooring, drifted backward out of the submerged carriage to the open water.

At the lower dock, three more pleasure boats awaited, one of them a big cabin cruiser. All were quickly accomodated. We watched the full procedure several times in a half hour or so (We never got any wetter after the first two minutes.) It seemed to take a long time to secure each craft to the car, but the actual passage was accomplished in less than five minutes.

We learned later that the Big Chute funicular system can handle boats up to 50 feet in length and weighing as much as 20 tons. The difference in elevation (or lift) is 58 feet, and the lower leg of the track drops at a steep 30° grade.

Big Chute was one of two marine railways in the Trent system, both of which were completed in 1919, replacing abandoned lift locks. The Swift Rapids marine railway was in turn replaced by an ultra-modern chamber lock in 1965(Lift,47 feet). Big Chute remains the only operating marine railway on the continent, carrying on the tradition initiated by Pennsylvania's Portage Railroad in 1834.

The Trent Canal has a facinating history, enhanced by the fact that it is in full operation and excellent condition today. One-hundred and one years elapsed beteen the Duke of Wellington's proposal in 1819 that a canal be constructed over the route discovered and described by Champlain, and the actual completion of the waterway.

The first actual construction was a temporary wooden lock at Bobcaygeon, completed in 1835. On July 6, 1920, the Couchiching Lock was opened to receive the motor launch "Irene." This vessel had left Trent on July 3, and went on to Port Severn on Lake Huron to become, on July 12, 1920, the first vessel to travel the entire 240 miles of the Trent Canal.

No longer the freight route it was intended to be, the Trent is operated for pleasure craft. Boaters pay no locking fees. All expenses are borne by the Dominion.

In return, the region attracts a tremendous number of tourists.

Middlesex Canal Association

At an election of officers of the association held in September 1972, Douglas P. Adams of Charlestown, Mass was elected President and Wilbar M. Hoxie (Director of the American Canal Society) of Plaistow, New Hampshire was elected Vice President.

In Towpath Topics (Bulletin of the MSA--December 1972), President Adams talked about the "pall of change" hanging more deeply over the southern portion of the Middlesex Canal than the northern, the latter of which is often thought of "as primarily gifted with sylvan charm and economic contribution," probably because greater portions remain intact in that region. Most members of the Middlesex Canal Association also come from there. President Adams said, "I would like to enter a mild plea that the lower portion (below Horn Pond) be not forgotten with the passing years...My suggestion primarily is that the thought of one end or the other be favored less than that of a unified Canal whose overriding success lay in solving a wide diversity of problems through its economic domain from the White Mountains to deep water docking. Nearly 30 miles long, this tiny thread scarcely 30 feet wide was hewn from the land to create the granddaddy of all American traction canals.

"May we not always regard it as a single unit to be worked for and cherished mile by mile in history, in our minds and hearts and those of our newly acquired members. Should we not appropriately support explorations of the possibility of a canal park trail virtually its entire length?... When we think back to our founding days and the progress since those times, should we not set our goals high for the next decade?

(Enquiries re the Middlesex Canal Association to Box 333, Billerica, Mass 01821.

Muskrats Threaten Dutch Dikes

The muskrats are coming and the Dutch are scared. In that country the only good muskrat is a dead one.

For several years, muskrats have been converging from the Belgian border on the south and the German border on the east. Neither Germany nor Belgium has much concern about them, but then they do not have half of their country below sea level, needing the protection of dikes which the muskrats think make swell homes if dug into sufficiently.

A muskrat patrol along the Belgian border is made up of several overworked rat catchers, who besides trapping the furry animals themselves, pay people five guilders bounty for any they hand over.

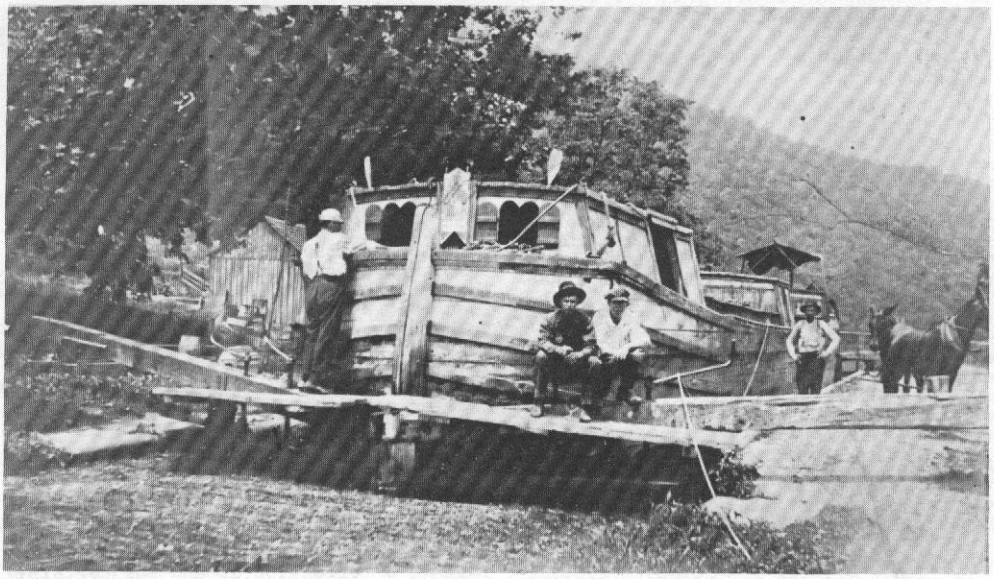
The whole trouble began when muskrats were introduced from the United States and Canada into Czechoslovakia and France in the '30s with the hope of profit. The fur never caught on in Europe, so owners simply turned the animals loose about the time the war began.

They have been spreading ever since. The first one was sighted in the Netherlands on the Belgian border nearly a decade ago. More keep turning up, born there, or swimming, burrowing or otherwise sneaking into the country. They flourish in burrows along dikes, eating roots of the reeds which grow along most canals.

The pests are called "muskusrat" in ...ch, but even calling the fur "bisam" ...s not made it popular. The illegal and dangerous aspect of the animal sticks to it.

The Dutch have a law with a very stiff fine for keeping muskrats as pets or even using them for laboratory tests.
(From the Evening Star) (Provided by Don Ramsey)

C.&O. Towpath Guide Series Completed



Shown here is a typical canal freighter in Lock 60 of the C & O Canal, near Little Orleans, circa 1900. This is one of the many historic illustrations used in "Towpath Guide to the C & O Canal, Section Four" just published by the American Canal and Transportation Center, Ft. Frederick to Cumberland is section covered. Three previous sections trace the towpath from Georgetown west.

I.&M. Canal Repairs

The Rock Island District of the Corps of Engineers will repair most of the locks on the Illinois and Mississippi Canal and construct a towpath bridge at Aqueduct No 2 near Lock No 12 north of Tiskilwa, Illinois. Work on this project will be done along the entire length of the canal from the Illinois to the Mississippi Rivers in Bureau, Henry and Rock Island Counties. The repair work is being done for the State of Illinois, which now owns and operates the canal for recreational purposes.

Lock No 9 east of Tiskilwa will be completely restored to its original condition. Repair work at all of the remaining locks will consist of removing the old lock gates and building new concrete breastwalls at the site of the upper lock gates, allowing normal water levels to be maintained throughout the canal after the repair work is completed. Boaters using the canal will have to portage around the locks where concrete breastwalls are built as the walls will permanently close off those locks.

Locks 22, 23 and 24 between the feeder canal and Genesco, Illinois and a lock at the upper end of the feeder canal are not included as they were restored to operating condition by the Corps of Engineers in the early 1960s. Lock No 30 east of Milan, Illinois will be repaired by the state.

Five foot water levels will be restored in all sections of the canal. The State of Illinois plans to restock the canal after the water levels are restored.

Georges River Canal

"I live on the bank of the Georges Canal and am very interested in its preservation but at 86 years of age I cannot do much toward its care. I do have some perennial flowers on the bank and keep the bushes cleared away. It is too steep for using a lawn mower so grass gets tall. Men folks today do not like to use a hand scythe so bushes and trees grow..."

(From Mrs Grace H Johnson, Route105, Appleton, Maine 04862)

Park Bill Drafted

Legislation has been drafted for introduction in the U S Congress to extend the C&O Canal National Historical Park to its original terminus in Cumberland, Maryland. The boundaries of the national park are set by legislation enacted in January 1971 and cannot be changed without amending the authorizing act. While the canal and towpath are under National Park Service ownership all the way to the canal terminus in Cumberland, no expansion or development is authorized under existing legislation beyond North Branch where the current park ends. According to the Tri-County Council for Western Maryland, there has been "Considerable interest at the local level" regarding extension of the park and canal program to the original terminus. Both the Cumberland and Allegany County comprehensive plans call for development of the canal area to the terminus as a "national historic parkway stressing preservation, recreation and interpretation," according to the council.

Camillus Erie Canal Project

There is an extensive plan to "recycle " some 5.7 miles of land along the old canal in Camillus, New York, which has been abandoned and lain useless for almost 50 years.

Behind the plan is a patient group of seven persons, who comprise the Camillus Erie Canal Committee. Last year the town decided to go all out: town officials offered the state $1 for the land and the state accepted.

By denying access to the canal area, the committee has arrested the dumping of refuse, garbage, car parts and car bodies. Volunteer groups are clearing and cleaning up the canal.

A plan to raise the water level in the main canal by purchasing a feeder water supply or use of a pond on nearby property are under consideration.
(Syracuse Herald Journal 11/23/72. Submitted by Daniel Mordell.)

THE CANALS OF SOUTH CAROLINA

By Lewis W Richardson

(The first of a two-part article)

In the last decades of the 18th century, South Carolina faced a problem common to all of the struggling new states - that of developing the economy by "Internal Improvements," i.e. cheap and efficient means for the transportation of goods and produce. It did, however, have certain problems peculiar to its own situation. The state was very sparsely settled. In 1790, there were less than 250,000 inhabitants, slave and free. Charleston, the principal seaport and largest town, boasted of just over 15,000 people. And it would be 25 years before Columbia, the capitol, would grow above 2,000. There were no known mineral resources and no manufacturing worthy of the name. The economy was based entirely on agriculture.

As in many states, there were no roads fit for the hauling of heavy loads. People looked to the waterways as the only practical means of transport.

A glance at a map will show that over half of the area of the state is drained by one great river system. Rising at the foot of the mountains in the west are three important streams; the Saluda in South Carolina and the Broad and Catawba in North Carolina. Flowing south and east, the first two merge at Columbia to form the Congaree River. The Catawba enters the state near York and thereby acquires a new name, the Wateree. The Congaree and the Wateree, both swollen by numerous tributaries, finally join to become the great Santee River, which flows across the lowlands to the coast. The Pee Dee River, with an outlet to the sea at old Georgetown, served the area along the North Carolina line and the Savannah River, between South Carolina and Georgia, drained a smaller area to the west and south.

It would seem that the Santee system would offer an opportunity for a river navigation that would well serve most of the state. There were, however, two major obstacles that would first have to be overcome. The Santee reached the sea at a point some 50 miles north of the Port of Charleston. As an open sea voyage down the coast was dangerous, if not impossible, for the keels and flats of the river trade this meant that cargoes must be transferred to coastal vessels at the mouth of the river. And this meant that trade might be taken to any port, even Charleston's arch-rival, Savannah. The second great problem was with the rivers. As in other eastern states, each stream was marred by dangerous shoals and rapids, usually where the river crossed the "fall line." South Carolina's canal history is really two stories; how each of these two problems was resolved.

Reaching to the north from Charleston Harbor is the Cooper River, a wide, sluggish estuary of the sea. Some 30 miles from Charleston, the two rivers, the Cooper and the Santee, were only about 20 miles apart, with a low ridge between. A navigable connection here would not only bring the trade to Charleston but would shorten the voyage of the river craft by at least 45 miles. It is not known who first saw the opportunity, but the time was certainly before the Revolution. In spite of the destruction of property and the loss of personal fortunes because of the war, canal proposals had progressed to the point that subscription lists were opened in 1785. A charter was granted in 1786 but actual construction did not begin until 1793. The cost of the project was then estimated to be 55,000 pounds sterling, but the eventual outlay was nearly $800,000. Even with the digging underway, assessments were slow to bring in money and the state allowed the Canal Company to conduct a lottery in 1795-96. This was something less than successful. Nevertheless, the work continued, increasing in momentum as money became more plentiful.

The Shareholders and Directors of the Company were from leading merchants, planters and military heroes of the coast. These were in large part, the same men who would, 35 years later, cause to be built one of the first and, at the same time, the longest railroad in the country. This was the South Carolina Canal and Rail Road Co., which extended from Charleston to Hamburg, across the Savannah River from Augusta, Georgia. Charleston is rightfully famous for its aristocratic society and culture. It must also be recognized as possessing a dynamic business community.

The man selected to build the canal was a Swedish-born veteran of the Revolution who had served as the state's Chief Engineer - John Christian Senf. A subject of much controversy, then and since. By all accounts, Senf was a supreme egotist, arrogant, a perfectionist and was certainly responsible for several serious errors of judgement. In spite of these handicaps, the man completed his task in seven years. Some historians have placed the date of completion as 1802, but it must have been 1800, as the Charleston TIMES reported through passages early in 1801. And if seven years appears to be a long time for such a short canal, the record of contemporary projects of similar lengths should be recalled. The Middlesex Canal, started in 1794, one year after the Santee, was not completed until 1803 and the Dismal Swamp Canal, begun in 1787, was only opened to boats drawing two feet or less, by 1807. And, with all of his faults, Senf built to endure, his structures were sound.

Five possible routes for the canal had been selected in 1775, but Senf chose yet another. For this he has been castigated, but it is very possible that influential land owners were responsible for the final choice. He can be blamed for one curious decision. He decided to supply water to the canal from rain-filled reservoirs rather from streams and ponds so abundant in the low country. There is, normally, plentiful rainfall in the area, but a three-year drought, in 1817-19, resulted in 14 miles of dry canal bed, closing down the works. Two steam pumps were purchased by the frantic Directors, to raise water from the river to the upper levels, but the machines were not equal to the task and wagon trains hauled freight along the towpaths until the rains came. Senf's unfortunate temperament must have caused another mistake in judgement. He refused to contract any part of the construction, keeping everything under his personal supervision. At first, with a small labor force, this was no problem, but at one time a thousand hands were at work. The result could have been only delays and general chaos. Senf finished the canal but did not long enjoy the fruit of his labor. He died at Rocky Mount in 1806.

Beginning at the Santee, the canal rose 34 feet, by way of a guard lock, a single lock and a double lock. From the summit level, it descended 69 feet to tide water on the Cooper by six single and one double lock. These structures and eight aqueducts or culverts were built with locally fired brick. Except for the guard lock, all were 60 x 10 feet. The entrance lock was larger so that boats could rearrange cargoes before transiting the canal. At the Cooper River outlet, one large wooden tide lock was built. A towpath, 10' wide was built on both sides of the prism. The canal was 35' on top, 20' on the bottom and had a water depth of 4'. Difficulty was experienced in holding water in the ditch with the sandy soil available; one level was lined with heavy plank. It was calculated that the canal would accomodate boats of 22 tons capacity. It should be remembered that these were river craft, not canal boats. The total length of the project was 22 miles.

Toll charges were set at a flat $21 per boat or flat, either way, loaded or empty. This resulted in the rather curious practice of building boats so that two could go down, loaded; and then on the up-trip, one would be loaded on the other, paying one toll. It was originally planned that the Canal Company would supply tow teams at either terminus to haul traffic through. In practice it was found that the large crews required for river craft could do the work and for the life of the canal, towing was done by manpower. Canal traffic was heaviest in the fall, after the harvest and when cotton was ginned. Water was usually drawn off in June for cleaning and maintenance. Few records of traffic volume or revenue are available. We do know, that in one year, 1830, about 720 boats, loaded with 70,000 bales of cotton arrived in Charleston via canal. This was possibly a peak year. By 1840 the railroads had begun to probe the back country and cut into the waterway's business. By 1850, the take over by the iron horse was complete and in that year water was drawn off for the last time. So far as the investors were concerned, the canal was a failure, but for 50 years it had been a vital link in the state's transport system. And, as the shareholders benefitted from the prosperity the project brought to Charleston, how much was lost?

In the 1930-1940's, vast hydro-electric projects in the low country created lakes and new waterways and much of the canal was obliterated. A part of the old ditch and some of the massive brick structures remain on the Santee end. During the Tricentennial Celebration in 1970, some of this was made accessible to the public and moves were initiated to create an historical park. Unfortunately, this program seems to have come to a halt and the future of the old canal is in doubt. It is to be hoped that a state agency can acquire the property for it is well worth saving. Canal buffs in the vicinity should inquire at Charleston or Moncks Corners as to the current status of the property and how best to see it.

Wreck on the C.&D.

A cargo ship rammed a railroad bridge along the Chesapeake and Delaware Canal on 2 February near St Georges, Delaware during fog and rain, killing a deckhand and putting the canal and bridge out of service.

The 522-foot vessel "Yorkmar," owned by Calmar Lines of Baltimore, Maryland, wedged under the Penn Central railroad bridge, causing extensive damage to the vessel.

The vessel, a converted World War II troop ship, was empty at the time of the accident. It had been traveling westbound on the canal, having left Port Newark, NJ, for Sparrows Point, Md, where it was to pick up a load of steel for delivery to the West Coast. The bridge has a 45 foot clearance down; when raised, its clearance is 133 feet.

Extensive damage was done to the ship's forecastle and wheelhouse. A crane of the ship was caught between the understructure of the bridge and the deck.

(From The Morning Herald, Hagerstown, Md)

First Ride on the "General Harrison"

The christening and "first" ride of Ohio's newest canal boat replica was held on September 3rd 1972. Now, with the help of a tape-recording made for the Canal Society of Ohio's library, let's go on that ride.

"We're now aboard the GENERAL HARRISON in Piqua, Ohio. Miss Shirley Patterson, the great, great, great granddaughter of Colonel John Johnston, whose homestead was dedicated today as part of the Piqua Historical Area, has just christened the boat. The crew is now poling our craft across the southern turn-around basin toward the twin mule-power waiting on the towpath.

"Our motive power, Jack and Katy, are now being attached to a 150 foot long towline in the traditional tandem fashion... O.K. we're hitched up--the mules are moving up the towpath taking slack from the line. Soon we'll be under way...And, here we go!"

"Listen to that cheer go up from the crowd as the GENERAL HARRISON begins its initial voyage. Wait a minute!, now we've stopped. At least the mules have stopped. The canal boat continues to glide along... The harness has apparently slipped from the team and has to be tightened, but it will be just a temporary delay..."

"We're now lying still in the water after coasting nearly 50 yards. This was a good demonstration of how small the friction force is between the boat's hull and the water...The harness has been repaired and, once more, we're ready to go...The mule team is in motion once again taking up the slack. In a few seconds we'll once more be under way...A few more seconds ...ll do it...Just about-- O.K., any second ...w and--here we go, we're on our way, ...re on our way."

"There is some jerking in our start. These mules appear to be somewhat inexperienced right now and don't give the GENERAL HARRISON as smooth a start as the ones experienced on the MONTICELLO II and the ST. HELENA II. A few days of work should eliminate any skittishness the mules now have, however, and allow the starts to be as smooth as the rest of the trip. And it is smooth! We're skimming along the canal at a rapid rate, about 3 to 4 miles an hour."

"Now would be a good time to describe our craft. It is painted more colorfully than Ohio's other two replicas. The GENERAL HARRISON'S hull has yellow, blue and brown striping, while the cabins are painted yellow with blue trim. Its design is a composite of several standard types. Basically, its lines are quite similar to those of the familiar three-cabin freighter, but the GENERAL HARRISON has a full roof and the bow and stern decks are accessible from inside the boat via permanent wooden steps."

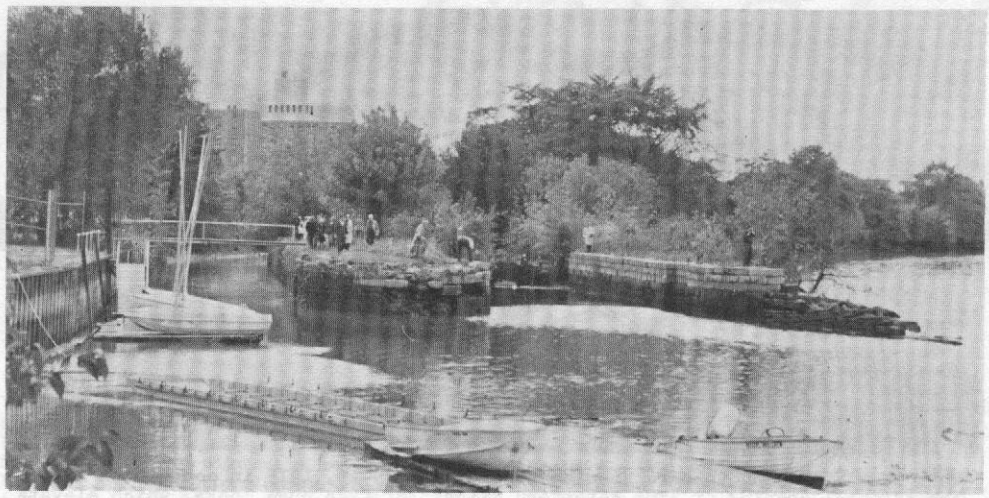
"Noticeable by their absence are the complete lack of seats. There are nearly 150 passengers aboard this inaugural trip and we're all standing! I don't know if this arrangement will persist in the future but a lack of seats could bother some of the older potential travelers."

"We've just passed the regular loading area, about half way along this one mile stretch of restored canal. Here, paying passengers will be taken on either the northern or southern loop of the route. This ride will be about half as long as ...e ones given by the other two boats, ...t the price of the trip is about half ... much."

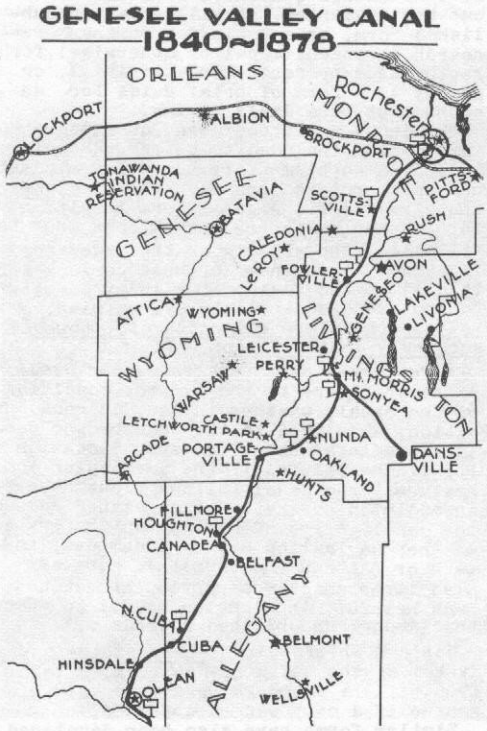
"We've now completed our northern turn-around and are headed back down the canal. An original stone lock, Lock No. 8--or State Dam Lock, is clearly visible during the turn-around. The boat is now passing through a most picturesque portion of the canal. The towpath is smooth and well maintained. Both banks are tree-lined and back from the canal a bit stand some gigantic trees that could very well be part of Ohio's virgin timber."

"The boat dock is now in view and our trip will soon be over. A smoother, quieter ride can't be imagined. The GENERAL HARRISON is a well constructed, colorful boat and a ride on it is well worth the trip to Piqua and the Miami & Erie Canal." (Reprinted from CANAL COMMENTS.)

Student Project on the D.&R. Canal



The Delaware and Raritan Canal, Bordentown to New Brunswick, N.J.(1834-1933), most its 42 miles still water-filled, has been studied by a group of Rutgers University students. The students propose its conversion to a State Park, principally in connection with the Bicentennial, and also as a potential element of New Jersey's state and regional transportation system. The photo above was made during a recent tour of the Pennsylvania Canal Society. It shows the outlet lock on the D. & R. at New Brunswick. Interested parties are invited to write Cooper P. Bright, Director, Center for Transportation Studies, Eagleton Institute, Rutgers University, New Brunswick, N.J. (SIA Newsletter, Jan. 1973.)



This map is excerpted from an interesting little booklet on "The Genesee Valley Canal" written by Gladys Reid Holton of Webster, N. Y. in 1970 and distributed by Canal Society of New York State.

Canal Society of N.J. English Canal Tour

Here is the latest on the CSNJ trip to England this summer.

"In case there should be any doubt, we are definitely going to England...sixteen members have made part payments toward the trip. We leave Sunday evening, June 24th and return July 16th."

The trip will include an orientation tour of London, a boat ride on the Thames to Hampton Court Palace and perhaps a ride on the Regents Canal; a visit to the Waterways Museum at Stoke Bruerne on the Grand Union Canal. At Great Haywood Junction the group will board their Anglo-Welsh Narrow Boats which will be home for a week.

The boat trip will start out on the Staffordshire-Worcestershire Canal. A side trip will be by a horse-drawn narrow boat on the Llangollen Canal to travel over the Pontcysllte Aqueduct, which will undoubtedly be the high point of the trip. That amazing piece of early engineering, built by Thomas Telford in 1795 to 1805, is 126 feet high and 1,000 feet long.

During the last week everyone will be on his own. Though the trip is firm and reservations filled, anyone interested in a possible substitution due to a cancellation should contact President Clayton F Smith, 7 Samson Ave, Madison, NJ 07940.

(Membership in the Canal Society of New Jersey is $5.00 per year for an individual and $8.00 per year for a husband and wife. THE TOWPATH POST is published quarterly by the society and is mailed free to members. Applications for membership to be addressed to the treasurer, Mrs George N. Pettigrew, Box 512, RD 2, Mohawk Road, Andover, NJ 07821.)

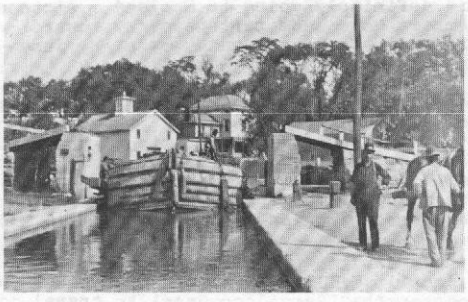
Old D.&R. Photos Needed

William J McKelvey, Jr, 98 Waldo Ave, Bloomfield, NJ 07003 and Cliff Crawford, 8 Piedmont Drive, Cranbury, NJ 08512 are working with the Canal Society of New Jersey to preserve and publish a photographic and factual record of the D & R Canal as it was during its years of operation. Pls contact one of them if you have or know of materials which would aid their project.

Opening of the Erie Barge Canal – 1915

This is a MICHON photo-card showing ceremonies May 15, 1915 in connection with the official opening of "The Waterford Flight" of five huge locks, which elevate lake-size vessels 184 feet from the Hudson to the Mohawk River, on the Erie Division of the New York State Barge Canal.

From Dr. Paul E. Grattan, ACS member in Waterford, N. Y. comes word of a fabulous collection of photo-post cards of days gone by in that area, with many scenes along the Erie Barge Canal in its opening days, circa 1915. Two of these cards are reproduced here. They are available at "Michon's" news room and novelty store in Waterford. Some 280 old negatives, of cards out of print for many years, have recently been discovered and reprinted. They sell for 15¢ each. Dr. Grattan advises all canal buffs in the area to make a "bee-line" for Waterford and look them over.



Shown here is a MICHON photo, circa 1900, of a canal boat "locking through" one of series of Champlain Canal locks in the Waterford area.

C.&D. Pumphouse

Chesapeake City, MD, housing two large 175-HP (36" x 84") beam engines by Merrick & Sons (Philadelphia): one of 1852; the other 1854. the earliest American steam engines in situ. These drove a 40-foot diameter x 10-foot wide scoop or lift wheel that raised water 14 feet to make up that in lockage. When the canal, which connects the head of Chesapeake Bay and the Delaware River, was widened and deepened in 1926-27, the locks at each end were removed, but the pumping station, then obsolete, was preserved by the Army Corps of Engineers, custodian of the canal. House engines and wheel are intact, a recent superb museum of the canal's and the pumphouse's history now occupying the boiler house. Generally open daylight hours, 7 days. 10 miles S, Exit 9, Kennedy Expressway) through Elkton, Md. An additional "bonus" for the visitor is a small folder issued by the Corps of Engineers, giving a history of the Pumphouse, vital statistics, and a C. & D. Canal map.

Piqua Pamphlet

The pamphlet enclosed with this issue of the ACS Bulletin was arranged by ACS Member James R. Paisley of Wheeling, West Virginia. Jim is a regular contributor of information to the American Canal Society.

Canal Index Form

The canal index form which accompanies this bulletin represents the beginning of an attempt to establish a fairly comprehensive and up-to-date index for all canals in North America. Hopefully, in coordinating the vast amount of work done by individuals and canal societies thruout North America, it will serve, in published form, as a basis for further research (archaeological or otherwise), for restoration/preservation activities, or simply as a form of brief guide for an enthusiast on a day's outing.

The index committee does not expect the information included to be comprehensive; indeed; a supplementary "structure index" has been proposed and may take some of the strain off the canal form itself. Rather than necessary blanks that must be filled in, the wording on the index form is largely a reminder of what to look for. It will be the task of the index committee to amend and collate all entries; we welcome therefore all endeavors, however seemingly insignificant.

A few notes as to the terms employed: "Status" refers to the present condition of the canal; whether in use, in good condition, abandoned to the underbrush, needing immediate attention, etc. "Location": It will be helpful if the particular land feature(s) the canal follows might be noted in addition to the towns at either ends of the canal. "Type of Navigation" refers to whether navigation was by steamboat, towpath or batteau (no towpath). Maps are also important; if a particular set has been helpful, it might be useful to note that among "unpublished records..."

Noble E Whitford's History of the Canal System of the State of New York, 2 vols, 1906 will be found to be a very valuable source if a copy can be obtained.

Similar forms have also been developed for canals which were surveyed only and also for those on which construction was begun but which never actually saw use. For these forms and any further information write to the canal index committee c/o the address at the bottom of the form.

Highline Canal

Correspondence with the Aurora Historical Commission of Aurora, Colorado (PO Box 627--ZIP80011) led us to a new consideration, when they stated, "After reading your material on the canals I think that we are probably not interested in the SAME kind of canals - but we are pleased with membership in your organization. Alas and alack - our canal is of the irrigation type! Please do not look down upon us, as we are preserving it, our canal is becoming a thing of beauty."

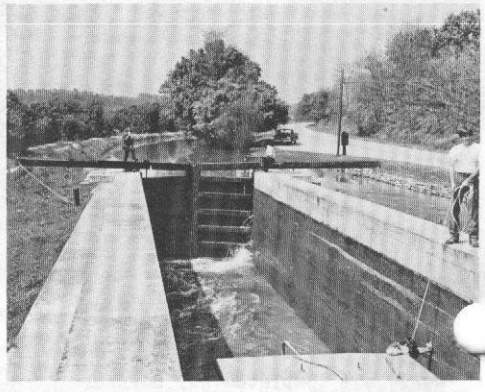
The Highline Canal, which runs through Aurora, is now undergoing a five-year beautification plan, including bicycle trails and bridle paths. It has recently been made part of National Trails System.

We have assured the Aurora Historical Commission that they are welcome members to the American Canal Society and that the only reason we have not covered irrigation canals is that no one brought up the subject. Let us know if you have an interest in this aspect of our American history.

Whitewater Canal

With reference to the map on the Whitewater Canal on page 5 of the Nov 1972 issue of American Canals, Lew Richardson comments, "Although the article is about the Whitewater, the map printed with it shows not only that waterway, but also the Cincinnati and Whitewater Canal, an entirely different project. This could be misleading to readers unfamiliar with the Hoosier State. Although I must admit that the two canals are often lumped together, even by Indiana historians. The Ohio map, page 3, shows the difference.

"The facts are these: The Indiana Internal Improvement Bill, January, 1837, provided for, among other things, a canal from the National Road (Cambridge City) to Lawrenceburg on the Ohio River. This canal, the corporate name to be the Whitewater Valley Canal, would later be extended north to Hagerstown. Before construction began, there was concern in Cincinnati over the prospect. The Miami Canal was then attracting business from the southeastern part of Indiana and all of this was funneled through the Cincinnati gateway. An all-Indiana canal could hurt the Ohio city. Because of this, it was decided to build a canal to the west, tap the Whitewater and keep the trade or most of it. A private company was created and $800,000 spent to build the Cincinnati & Whitewater. The State of Ohio bought shares worth $150,000 and the City chipped in $40,000. Both canals were completed the same year, 1843, but Lawrenceburg never amounted to much, the Queen City retained the bulk of the trade."



Fully restored lock on the "Whitewater" at Metamora, Indiana. The "Valley Bell" tour boat (lower right) is being locked through. (Eugene R. Bock photo.)