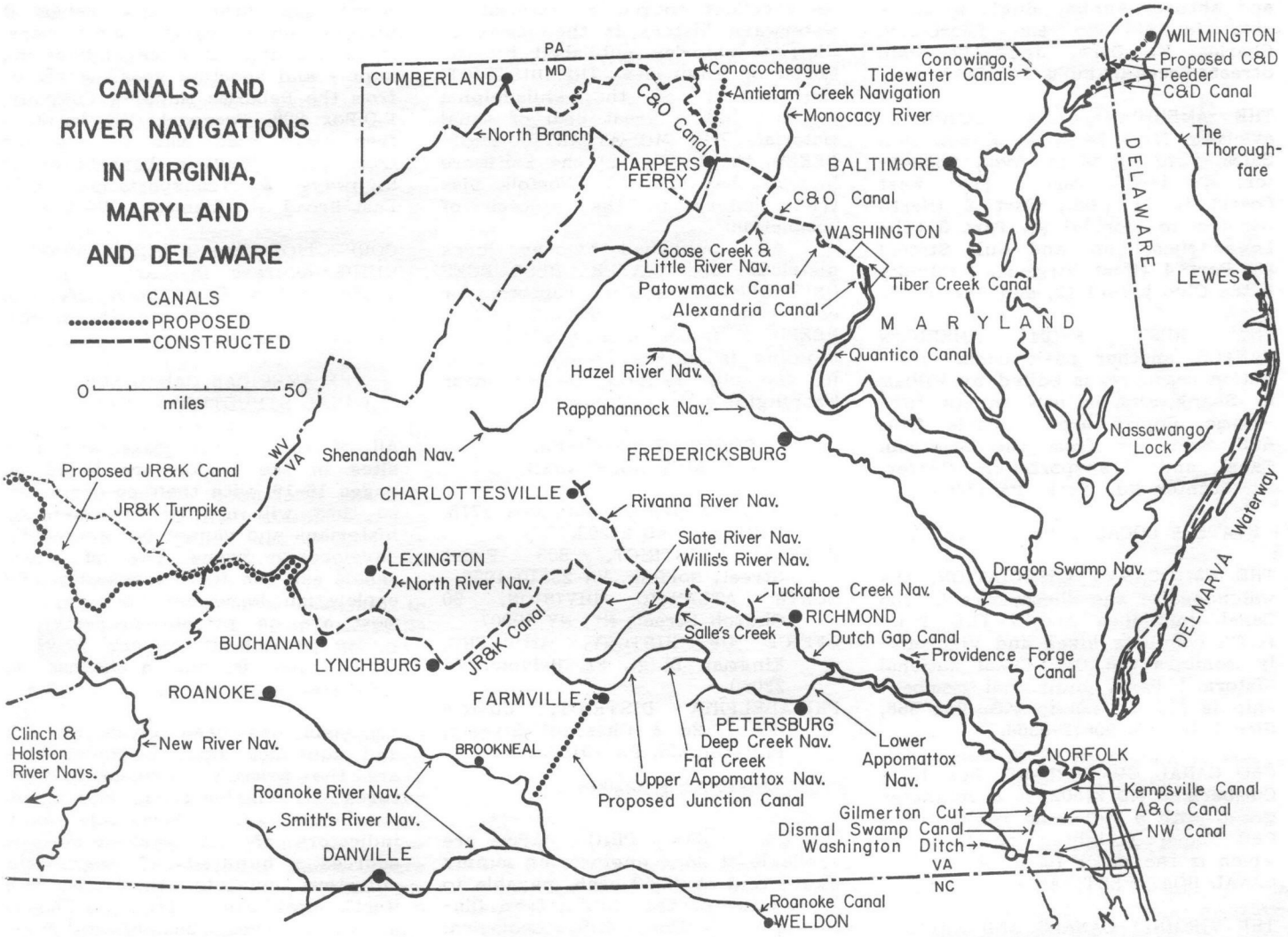
THE AMERICAN CANAL GUIDE

A Bicentennial Inventory of America's Historic Canal Resources

Published by the American Canal Society, 117 Main St., Freemansburg, Pa., 18017

Part 5 Virginia, Delaware and Maryland October, 1992



This is the fifth AMERICAN CANAL GUIDE, published as a Bicentennial contribution by the American Canal Society to provide park planners, historians and canal enthusiasts with a basic inventory of America's historic canal resources for research, preservation, restoration, and the creation of parks, trails and open space. Even the most forgotten of our historic waterways should have a role to play in modern times. It is only by saving the best of the past and making good use of its cultural inheritance that a society can develop its roots and mature gracefully.

PART FIVE, for Delaware, Maryland, and Virginia (including the District of Columbia), covers 506 miles of towpath canals and some 1800 miles of upland river navigation. Altogether, 508 locks and guard gates (half-locks), and lock locations (if not visible) have been identified in this region. It is essential to know where these historic canal resources are if they are to be used for parks, historical research, and archaeological studies.

Five of these locks are (or were) in Delaware, all on the C&D and its lost feeder; 11 were on the District of Columbia's canals; and 101 were in Maryland (three on the C&D, one on the Eastern Shore, 20 on the Susquehanna, and 77 on the Potomac).

In Virginia, 391 locks or sites have been identified. Of these, 191 were for mule-drawn boats on the "Horse Ocean": 161 on the James River and its branches, 10 on Goose Creek, four on the Alexandria Canal, and 16 on the Dismal Swamp Canal. All but two of the rest were built for batteaux navigating the "Whitewater Ocean," including seven on the Potomac, six on the Shenandoah (in West Virginia), 63 on the Rappahannock system, 14 on the James, 20 on the Rivanna, 30 (found to date) on the Slate and Willis's, 29 on the Appomattox, and 18 on the Roanoke.

It is up to the reader to make use of this work and to continue the research. Please send additions and corrections to William E. Trout, III, 35 Towana Road, Richmond VA 23226, (804) 288-1334.

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GENERAL INFORMATION

Canal buffs and professionals are urged to join the AMERICAN CANAL SOCIETY to receive the illustrated quarterly AMERICAN CANALS for the latest canal news, historical research, and reports from the US and abroad. Annual single membership is $14 to the Secretary, Charles W. Derr, Jr., 117 Main Street, Freemansburg PA 18017.

THE AMERICAN CANAL GUIDE is available from Keith W. Kroon, ACS Sales, 2240 Ridgeway Ave., Rochester, NY 14626. Part I (The West Coast) is $1 ppd., Part 2 (North Carolina to Florida) $2, Part 3 (The Lower Mississippi and Gulf States) $3, Part 4 (West Virginia, Kentucky & the Ohio River) $3, and Part 5 $3.

THE BEST FROM AMERICAN CANALS, another basic canal information resource, is edited by William H. Shank and is now in its fifth volume. Copies are available from ACS Sales or from the American Canal and Transportation Center, 809 Rathton Rd., York, PA 17403.

STATE & LOCAL CANAL SOCIETIES

THE C&O CANAL ASSOCIATION, the watchdog for the Chesapeake & Ohio Canal, publishes ALONG THE TOWPATH, conducts hikes and vigorously monitors the C&O Canal National Historical Park. Individual membership is $10 a year to P.O. Box 366, Glen Echo, MD 20812-0366.

C&O CANAL CUMBERLAND, Box 1378, Cumberland MD 21502, is a volunteer group with a full-scale replica of a C&O Canal freighter at Lock 75 which is the major focus of the C&O CANAL BOAT FESTIVAL every July.

THE VIRGINIA CANALS AND NAVIGATIONS SOCIETY publishes an illustrated quarterly, THE TILLER. Individual membership in the society is $10 a year to the treasurer, Lynn D. Howlett, 6826 Rosemont Drive, McLean, VA 22101 (Backup address, c/o the Alexandria Waterfront Museum, 44 Canal Center, Alexandria, VA 22314). Ask for a free flyer, "Canal Parks in Old Virginia."

THE VIRGINIA RIVER ATLAS SERIES has detailed maps and histories of the state's canals and batteau navigations. For a price list write Richard A. Davis, VC&NS Sales, Rt.2, Box 254, Lexington, VA 24450.

THE JAMES RIVER BATTEAU FESTIVAL, INC. organizes the annual festival, publishes a quarterly, and has a guidebook essential for prospective batteau builders. Some 20 batteau replicas descend 140 miles of the James every June, stopping for celebrations at river and canal towns. Membership is $10 a year to JRBF, c/o Sue Pechman, 33 Moorman Rd., Madison Heights, VA 24572, (804) 947-6105.

ARMY CORPS OF ENGINEERS

An excellent source of material on waterways history is the series of district histories published by the Corps of Engineers. THE DISTRICT, the history of the Philadelphia District, has a great deal of canal material; THE MID-ATLANTIC ENGINEERS, the history of the Baltimore District, has less. The Norfolk District history in the process of completion.

Also published by the Corps districts are WATER RESOURCES DEVELOPMENT status reports for each state. A new CORPS OF ENGINEERS MUSEUM and headquarters building is in the planning stages in the SE Federal Center near Washington's Navy Yards.

CORPS OF ENGINEERS DISTRICT ADDRESSES

BALTIMORE DISTRICT, P.O. Box 1715, Baltimore, MD 21203.
NORFOLK DISTRICT, 803 Front Street, Norfolk, VA 23510-1096.
NORTH ATLANTIC DIVISION, 90 Church Street, NY, NY 10007.
OFFICE OF HISTORY, Attn:CEHO, Kingman Bldg., Ft. Belvoir, VA 22060.
PHILADELPHIA DISTRICT, Custom House, 2d & Chestnut Streets, Philadelphia, PA 19106.

MAPS

U.S.G.S. TOPOGRAPHIC MAPS are available at some engineering supply stores and at $2.50 each, payable to "Treasurer of the U.S." from Distribution Section, U.S. Geological Survey, Federal Center, Bldg. 41, Box 25286, Denver, CO 80225. Ask for a free index map for each state.

NOS: NAVIGATION CHARTS for the C&D, A&C, Dismal Swamp Canal, and navigable rivers and the coast may be purchased from marinas and by mail from the Distribution Branch, (N/CG33), National Ocean Service, Riverdale, MD 20737-1199. Ask for a free copy of their Charts and Publications index map #1, for the Atlantic and Gulf Coasts. Navigators will also need the latest Mid-Atlantic Edition of WATERWAY GUIDE, from marinas and by mail from Waterway Guide, 850 Third Ave., NY, NY 10022.

DELAWARE county maps and a good free state road map are available from the Delaware Department of Transportation, Division of Highways, Office of Planning and Programming, P.O.Box 778, Dover, DE 19903.

MARYLAND state road maps good for canal work are available from the Maryland Department of Transportation, Baltimore, MD 21203.

THE VIRGINIA ATLAS AND GAZETTEER, showing county roads, contours and boat ramps makes it unnecessary to carry county maps. It is available at some engineering supply and sporting goods stores or from the DeLorme Mapping Company, P.O.Box 298, Freeport, ME 04032. A free state road map is available from the Virginia Department of Highways & Transportation, 1221 East Broad St., Richmond, VA 23219.

CORRECTION: The QUIMBY'S BOATING GUIDE address in Part 4 of the Guide should have been c/o the WATERWAYS JOURNAL, 319 N. 4th St., St. Louis, MO 63102.

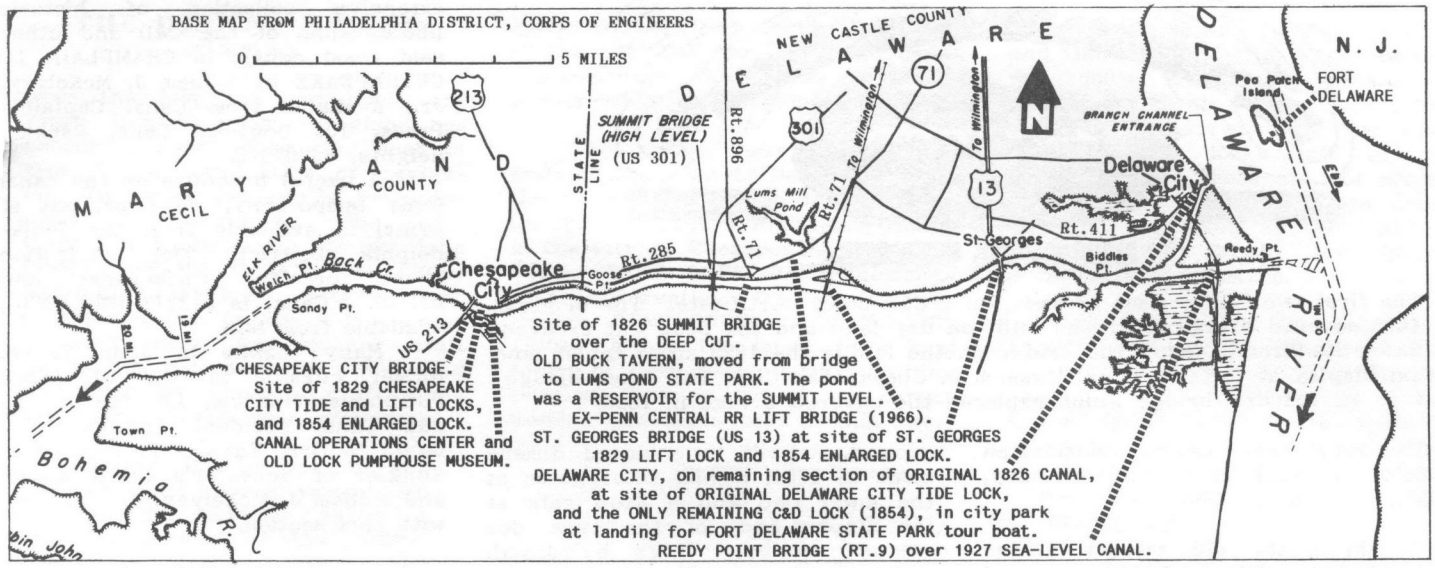
THE AMERICAN CANAL SOCIETY CANAL STRUCTURES INVENTORY

All of the known locks and lock sites in the region are listed on pages 16-19, with their co-ordinates, so they will not be forgotten by historians and cannot be ignored by developers. Every one of these canals can use further research and exploration. Remember, however, that most are on private property, s please respect the owners' privacy. This guide is not a license to trespass!

Emphasis has been given to lock and aqueduct sites, because these are the primary engineering features of navigable canals and inland waterways. But these are only indicators of the total canal resources - hundreds of magnificent cut-stone culverts, the canal bed itself, lockhouses (and lockhouse sites), wharves, basins, and evidence of the many other activities around historic canals.

UTM CO-ORDINATES: The Universal Transverse Mercator (UTM) grid, now used nationally to record historic sites, is easier to use than latitude and longitude, because it is based on a simple rectangular grid of lines one kilometer apart, indicated by numbered blue marks on the map edges. For example, the C&D Canal's Delaware City Lock at UTM 18.44950.438094, Delaware City DE-NJ, would be on the Delaware City 7½' quad, at km 449.50 from left to right, and km 4380.94 from bottom to top.

See National Register Bulletin 28, "Using the UTM Grid System to Record Historic Sites" from Interagency Resources Division, P.O. Box 37127, Washington, D.C. 20013-7127.



The Chesapeake and Delaware Canal as it is today, with the old lock locations added.

THE CHESAPEAKE & DELAWARE CANAL

In its day the C&D Canal's Deep Cut was "one of the greatest works of human skill and ingenuity in the world." Now a vital link in the Atlantic Intracoastal Waterway, joining Chesapeake Bay and the Delaware River, it was first proposed three centuries ago, in 1661.

The C&D as originally constructed in 1823-1829 was 13 miles long with a stone tide lock and a lift lock at each end which raised the summit level 16 feet. Horses and mules (up to 11 in tandem), until 1902, and then tugs, towed boats through.

Water supply was a problem, so in 1837 a steam pump (replaced in 1851-54 by two steam engines and a lift wheel) was installed near the locks in Chesapeake City to lift water into the summit level. In 1854 all the locks were enlarged from 22 by 100 feet to 24 by 220, and the two locks at the Chesapeake end were replaced by a single one. To save water, the 1854 Chesapeake City Lock had a "saving basin" or side pond, a feature rare in America. When boats were lowered, the top half of the water was diverted into this pond; when boats were raised, the same water was used again to fill half the lock.

In 1919, the United States government bought the canal, and by 1927 deepened it to sea level and widened it, removing all of the locks except the one in Delaware City.

A tour of the canal logically begins at the CHESAPEAKE & DELAWARE CANAL MUSEUM, Chesapeake City, MD 21915, at the end of 2nd Street (turn left after crossing south over the US 213 bridge). The Corps of Engineers has done an outstanding job of preserving the OLD LOCK PUMPHOUSE, open M-Sat 8-4:15 all year, and Sundays 10-5:30 from after Easter to Thanksgiving; phone (301) 885-5621.

Inside are models, dioramas, and two steam engines and the 37-foot diameter wooden lift wheel which once raised 130 tons of water a minute up to the summit level. The pumping machinery was designated a National Historic Mechanical Engineering Landmark in 1975. Don't miss the impressive 1829 stone tablet outside, which outlines the history of the canal's construction.

Beside the museum is the CANAL OPERATIONS CENTER from which the Corps monitors the C&D through TV cameras, two at each end and two on the railroad bridge over the Deep Cut. At the base of the flagpole are the inscribed namestones from the original four locks. There are no signs of the locks anymore in Chesapeake City. The two 1829 locks and the 1854 lock which replaced them, were between here and the US 213 bridge, where the navigation channel is now.

CHESAPEAKE CITY itself is a "canal town" worth walking through. Guided tours are available from the Chesapeake City District Civic Association, (301) 885-5233. A CANAL DAY is held here the first Saturday in July. Across the canal, Schaefer's Canal House restaurant, which began as a store beside the lock in 1917, has a history of the canal on its menu, a view of canal activities, and a dock for your yacht.

To tour the C&D Canal, one can drive along most of the sandy roads beside the canal through the C&D CANAL WILDLIFE AREA. These offer views of the huge spoil banks, the bridges and the boat traffic. The roads are not continuous; some are dead ends. Access to them is near the highway bridge crossings.

From north Chesapeake City try the four-mile stretch along the north bank, (south of Rt.285), from Schaefer's Restaurant east to the SUMMIT BRIDGE (US 301) and the DEEP CUT. After passing under the Summit Bridge, bear left up the bank to the top to an overlook at the earlier bridge crossing.

The present high bridge, completed in 1960, is the fourth SUMMIT BRIDGE, going back to the original wooden covered bridge which was built in 1826 on dry land, and then the canal was excavated beneath it. This technique was repeated in 1966 when the railway lift bridge to the east was rebuilt. The lift span was built on dry land, then the canal straightened to run under it. The old channel, LOREWOOD CURVE, is now in Lums Pond State Park. Lums Pond helped store water for the summit level of the original canal.

The 1829 stone tablet now at the Old Lock Pumphouse, was originally located here under the Summit Bridge, in the Deep Cut beside the canal. The tablet tells how the unstable land caused great problems, always sliding down the slopes into the canal. Slippery marl was the cause of the problem, but its

The first two C&D summit bridges, on a C&D stock certificate. The original 1826 covered bridge (top) was built on dry land and the Deep Cut excaved under it. Directly below the bridge on the left is the 1829 stone tablet now on display at the C&D Canal Museum in Chesapeake City. The other bridge is a drawbridge which replaced the covered bridge in 1865.

discovery here also revolutionized Delaware agriculture. Even today, slides are a problem.

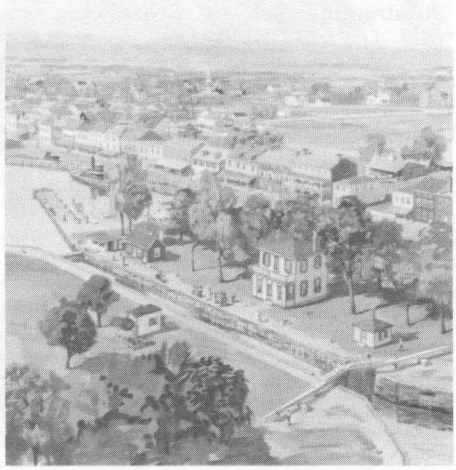
From the old Summit Bridge overlook take the right (east) paved road north, then right on Rt.71 for 0.4 miles to two brick buildings preserved in the historical area of Lums Pond State Park. One is BUCK TAVERN, the original canal tavern moved here from the old Summit Bridge when the Deep Cut was widened.

Continue east on Rt.71, then right on Saint Georges Road to the town of ST. GEORGES. This was the site of the 1829 SAINT GEORGES LOCK and the 1854 ENLARGED LOCK which replaced it. Both locks were completely removed when the sea-level cut was made.

Turn left on Delaware St. and right on Road 411 (Cox Neck Lane), into the canal town of DELAWARE CITY, where it becomes Clinton Street, named after the canal's strong supporter. Move a block to the north (L) to see 135 Washington Street, where legend has it that DEWITT CLINTON attended the dedication of the canal on October 17, 1829. At the end of Washington Street turn right to the DELAWARE CITY LOCK in Delaware City Community Park.

This is the only lock left today on the Chesapeake and Delaware Canal, bypassed when the canal was opened to sea level in 1927. It is on the National Register, has been stabilized and is now in a park, but badly needs gates and interpretation to make it presentable, or even recognized as a lock by visitors. Some historical information could be displayed beside it at the tour boat landing for FORT DELAWARE STATE PARK, a fort designed to protect the canal.

The original lock was built of stone on grouted timber cribbing, on a foundation made of over 800 piles driven into the unstable ground. Rebuilt to enlarged dimensions in 1854, it had miter gates at the lower end and a drop gate at the upper end, of the type developed on the Lehigh by Josiah White. In the park beside it is the 1839 diving bell once used for making lock repairs. In fact, the original 1829 lock may still be here, buried under the park, if (as with the St. Georges Lock) the 1854 enlarged lock was built beside the old one and not in the same spot.



The enlarged Delaware City lock is the only remaining C&D lock, now preserved in Delaware City Community Park but without its gates. (From THE DISTRICT, courtesy of the Philadelphia District)

From Delaware City, drive south on Rt.9 to cross first the original canal, still used by small craft, and then the modern sea-level cut.

For historical information including good canal material see THE NATIONAL WATERWAY: A HISTORY OF THE CHESAPEAKE AND DELAWARE CANAL, 1769-1965, by Ralph D. Gray, Univ. of Illinois Press, 1967, revised 1989; and THE DISTRICT, the history of the Corps' Philadelphia District, by canal buff Frank E. Snyder, and Brian H. Guss.

Of special interest is the extensive collection of historic photographs of the C&D and other east coast canals in CHAMPLAIN TO CHESAPEAKE by William J. McKelvey, Jr., available from Canal Captain's Press, 103 Dogwood Lane, Berkley Heights, NJ 07922.

A useful brochure on the canal (only temporarily, we hope, out of print) is available from the Philadelphia District. The navigation chart for the Chesapeake and Delaware Canal is #12277 (Old #570), available from NOS.

Many thanks to John Trush, former curator of the Old Lock Pumphouse Museum; J.R. Tomlin, Jr., C&D Canal Resident Engineer; Dr. David G. Orr, Edward F. Heite, G.C. Sunkler of Schaefer's Canal House, and William J. McKelvey, Jr. for help with this section.

THE C&D CANAL'S LOST FEEDER CANAL

The first attempt to build the C&D Canal was a failure: a 5½-mile navigable feeder from the Elk River down to the proposed summit level was begun in 1804. Engineer B.H. Latrobe built the feeder first, since the canal would have been useless without it and it could be used during construction. But a year later, when the feeder was nearly finished, the company ran out of funds. The feeder was never used because in 1823-1829 the C&D was built along another route further south where it is now.

Part of the feeder was actually put into operation. It was intended to take water from the mill-race at Elk Mills, crossing the Elk River there on a three-arched aqueduct above the Rt. 277 bridge. When the canal bed was complete from the aqueduct site to a quarry a quarter-mile below, Latrobe watered the canal to carry stone for the aqueduct. Alas, the magnificent aqueduct was barely begun, but one can follow the canal bed 0.1 mile south along a closed road, from the SE corner of the Rt.277 bridge, to see the stone arch of a ROAD BRIDGE over the canal. This section of the canal, at least, should be preserved, and the bridge stabilized.

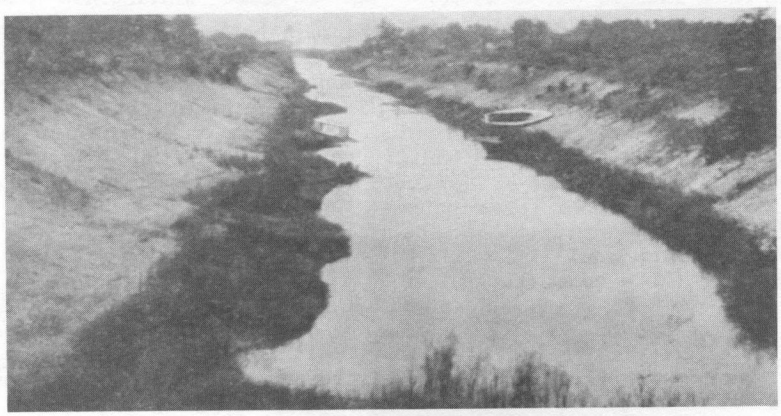
The other accessible site on the feeder is the deep SUMMIT CUT, immediately east of the MD-DE line, crossed by Rt.281.

For a map of the feeder and more details and drawings see THE ENGINEERING DRAWINGS OF BENJAMIN HENRY LATROBE, edited by Darwin H. Stapleton, Maryland Historical Society, 1980, pp. 11-18 and 125-129. See the UTM list for site locations. Many thanks to Dr. Stapleton for help with this section.

THE DELMARVA INTRACOASTAL WATERWAY

This waterway goes back at least a century to a failed attempt to create a 75-mile long inland waterway along the Atlantic coastline of Delaware, Maryland, and Virginia (the "Delmarva Coast") from Delaware Bay to Chincoteague Bay, by a series of tidal cuts and back waters behind the barrier islands. According to Corps of Engineers reports the project was begun in 1886 and abandoned unfinished in 1905.

The project was revived in 1912 and was completed, after a fashion, because some of the cuts are now quite shallow. There are no locks. From north to south, the cuts include the 9-mile long, 6 foot deep LEWES AND REHOBOTH CANAL between Delaware and Rehoboth bays, behind Cape Henlopen through Lewes; BIG DITCH and LITTLE DITCH between Rehoboth and Indian River bays; the ASSAWOMAN CANAL from there to Little Assawoman Bay; and THE DITCH to Assawoman Bay.



The Lewes & Rehoboth Canal (Russ Harding postcard)

There are other improved rivers in Delaware, including the St. Jones, Murderkill, Mispillon, and Smyrna rivers. The oldest canal is THE THOROUGHFARE, forming the mouth of Thoroughfare Creek, north of the Smyrna River, built in 1682 by Ephraim Herman. It is still open because it is self-scouring.

Another example is the canal system on DUCK CREEK (Smyrna River), begun in the 18th Century and finished by the Corps. "There is quite a story in these little navigation canals," according to Delaware archaeologist Edward F. Heite, to whom I am indebted for the Delaware canal information.

For details see the Mid-Atlantic Edition of WATERWAY GUIDE (850 Third Ave., NY, NY 10022); STARPORT CRUISING CHART NO.2, from Texaco U.S.A/ Waterway Service, c/o Rand McNally, Metro Industries, 1084 Whipple Court, Lexington, KY 40511; WATER RESOURCES DEVELOPMENT IN DELAWARE, from the Corps Philadelphia or Baltimore District; USC&GS nautical charts such as 12216, 12214 and 12211; and the Delaware state map.

In 1970 Congress approved a more ambitious waterway 100' wide and 6' deep along the entire 150 miles of the Delmarva coast, but by 1976 all three states had abandoned the idea for environmental and economic reasons. Another long-standing proposal has been a canal across the middle of the Delmarva peninsula near the Virginia line, making use of the Pocomoke River.

THE NASSAWANGO FURNACE CANAL

Nassawango Iron Furnace is on Maryland's Atlantic coast near Snow Hill, between Virginia and Delaware. When it was constructed in the late 1820's, the tail race was used as a navigable canal, about 3/4 mile long and 20 feet wide, down to Nassawango Creek. Boats carried pig iron and cast products (including water pipes for Philadelphia) down to the mouth of the creek on the Pocomoke River, for transshipment to sailing craft; and brought back clam and oyster shells to be used as flux.

It was not known until 1985, when youngsters discovered it while playing in the stream, that there was a wooden lock at the lower end of the canal. Since then it has been the object of a study by John Bowie, who found a lock chamber 9 to 9½ feet wide and 40 feet long, made of vertical square pilings lined with plank.

The furnace is now the centerpiece of FURNACE TOWN, a period iron furnace village open Tues-Sun 11-5, from 1st weekend in April to last weekend in October. The lock is on a nature trail developed by Furnace Town and the Nature Conservancy. A flyer is available from Furnace Town, P.O. Box 207, Snow Hill, MD 21863, phone (301) 632-2102. See "The Nassawango Iron Furnace," by Ann Wilmer, in the May 1988 CHESAPEAKE BAY MAGAZINE, pp.77-81. Also based in Snow Hill is a canoe livery and "Tillie the Tug" for those who wish to explore the Pocomoke River Navigation.

Many thanks to Kathy Fisher of Furnace Town, John Bowie and T.T.Brady for help with this section.

THE CHESAPEAKE BAY

Around the shores of Chesapeake Bay and the Atlantic coast are many other navigable cuts, dredged channels and hundreds of "finger canals" into housing developments, designed, we hope, with some consideration for the natural environment of the coast and its wetlands.

THE ALLIANCE FOR THE CHESAPEAKE BAY is the citizens' coalition formed to protect the bay through educational activities and publications including the BAY JOURNAL and information sheets on all of the bay's tributaries. Offices: 6600 York Rd., Suite 100, Baltimore MD 21212, (410) 377-6270; P.O. Box 1981, Richmond, VA 23216, (804) 775-0951; 225 Pine St., Harrisburg, PA 17101, (717) 236-8825; or call 1-800-662-CRIS.

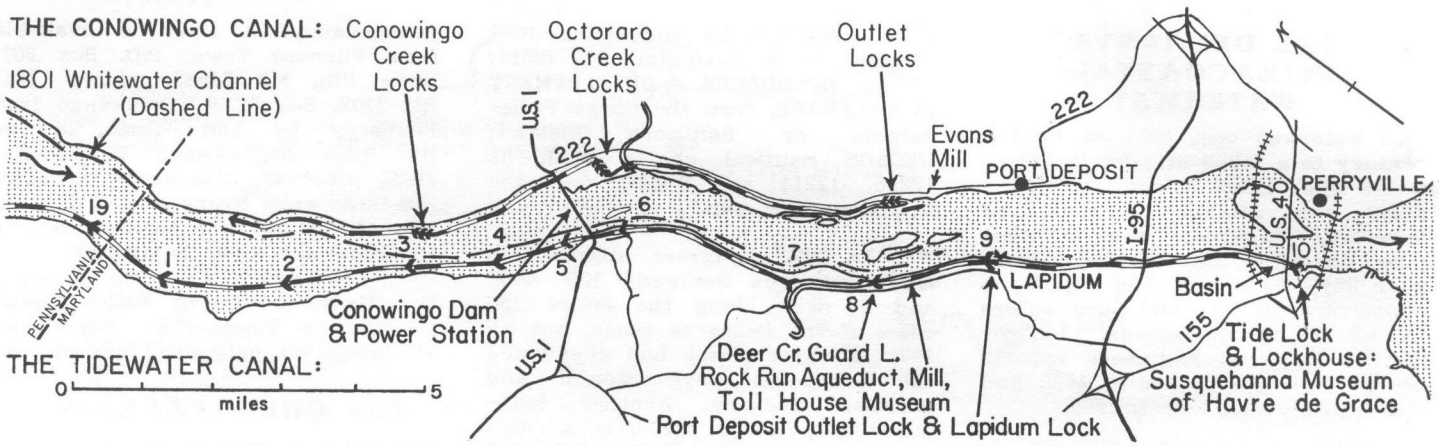
CHESAPEAKE BAY MUSEUMS

The major WATERWAY MUSEUMS around the Chesapeake Bay are THE CHESAPEAKE BAY MARITIME MUSEUM, St. Michaels, MD, (410) 745-2916; THE CALVERT MARINE MUSEUM, Solomons, MD, (301) 326-2042; and THE MARINERS MUSEUM, Newport News, VA, (804) 595-0368.

Other museums listed by the Alliance for the Chesapeake Bay include THE BRANNOCK MARITIME MUSEUM in Cambridge, MD; THE DELTAVILLE MARITIME MUSEUM in Deltaville, VA; THE JEFFERSON PATTERSON PARK AND MUSEUM in St. Leonard, MD; THE ST. CLEMENT'S ISLAND-POTOMAC RIVER MUSEUM in Colton Pt., MD; and THE WATERMEN'S MUSEUM, Yorktown, VA.

For more information see THE NAVAL INSTITUTE GUIDE TO MARITIME MUSEUMS OF NORTH AMERICA (including canal museums), by Robert H. Smith, from "C" Books, P.O. Box 176, Del Mar, CA 92014.

THE CHESAPEAKE BAY & SUSQUEHANNA RIVER PUBLIC ACCESS GUIDE with useful coverage of the Bay is available at marinas, or write Program Open Space, 2012 Industrial Dr., Annapolis, MD 21401.



Three eras of navigation on the lower Susquehanna: the 1801 whitewater channel, the 1802 Conowingo Canal, and the 1840 towpath canal.

THE TIDEWATER CANAL

The 42½-mile SUSQUEHANNA & TIDEWATER CANAL, completed in 1840, was an interstate project with 27 lift locks, 2 guard locks, 4 dams, 5 culverts, and 6 aqueducts. Three-fifths of it, called the SUSQUEHANNA CANAL, was in Pennsylvania, and the remaining 15 miles, called the TIDEWATER CANAL, was in Maryland.

Until the S&T closed in 1894-1900 it carried mule-drawn coal and lumber boats around the 230-foot fall of the Susquehanna, following the west bank from Wrightsville PA down to the Tide Lock at Havre de Grace, MD on the Chesapeake Bay. From there, steam tugs towed canal boats to Philadelphia and Baltimore.

As originally proposed in 1823, the S&T was to continue cross-country to Baltimore, but that part was never begun. (See AMERICAN CANALS, May 1983, pp.4-5.)

A tour of the canal logically begins at the SUSQUEHANNA MUSEUM OF HAVRE DE GRACE, in the Lock-Tender's House beside the HAVRE DE GRACE TIDE LOCK. Follow the signs to the Historic District and look for the museum signs. The museum is open 1-5 on Sundays from April through October or by special appointment, but the lock outside is accessible year-round. Through volunteer efforts the lock-house has been furnished in period style, and the lock and its swing bridge restored. For an illustrated flyer write the museum at P.O. Box 253, Havre de Grace, MD 21078, phone (301) 939-5780.

The lock chambers on the S&T were 17 by 170 feet, designed to take a pair of canal boats or a log raft; the standard paired boat was 65 feet long. Each lock had a third pair of gates, in the middle, to take single boats when desired.

The TIDE LOCK AT HAVRE DE GRACE was 4'8" wider than the rest, so that larger vessels could be lifted from the Bay into a 35-acre boat basin, much of which has been adaptively re-used as a shad breeding pond. The Tide Lock was also unusual in having two extra pairs of gates in the middle of the chamber, making four pairs altogether. This is a most impressive lock, made of Port Deposit granite. When the lock walls were repaired in 1988, it was discovered that the facing stones were dry-laid, but backed by a mortared wall. Don't miss the lock's 1839 inscription.

From the museum one can make an interesting circle tour by driving up the Tidewater Canal, across Conowingo Dam, and down the Old Susquehanna Canal. From the museum, take Rt.155 west almost to I-95, then north on Lapidum Road to the river in SUSQUEHANNA STATE PARK, crossing Stafford Road at the canal bed. To the left, almost at right angles to the canal, is the PORT DEPOSIT OUTLET LOCK, which allowed boats to cross the Susquehanna River to Port Deposit.

Walk north up the road or the towpath to LOCK 9 (LAPIDUM LOCK), a stone lock lined with wood. Note the recesses for extra gates. Along the towpath is the bed of a railway which ran up to Conowingo Dam and was used in its construction. Now this towpath would make an ideal hiking trail along more than eight miles of river and canal, from Havre de Grace up to Conowingo Dam. The towpath from Lapidum to the dam is already part of the MASON-DIXON TRAIL (Info: 1225 Rosedale Ave., Bellefonte, DE 19809).

Drive north along the canal to ROCK RUN, where a 1794 GRIST MILL, the owner's MANSION overlooking it, and the JERSEY TOLL HOUSE for the first Susquehanna River bridge have been restored in Susquehanna State Park. The Toll House museum is open weekends and holidays May - October from 11-6 and by appointment, phone 836-4565. There was once a stop gate in the canal at the toll bridge crossing. Stop at the creek so you don't miss the curved wing walls of the canal's ROCK RUN AQUEDUCT.

Continue north for 0.5 mile to the DEER CREEK GUARD LOCK (LOCK 8), partially buried at the mouth of Deer Creek. A towpath bridge crossed the creek near where the railway bridge is now.

A dam across the mouth o Deer Creek created a mile of slack-water, along which boats were towed up to DEER CREEK LOCK (LOCK 7), which is not visible, probably buried now.

Continue north on Stafford Road, right on Shuresville Road, and Right on Shures Landing Road to the river below CONOWINGO DAM. SHURES LANDING LOCK (LOCK 6) is buried under the road near the boat landing (the canal bed is filled in, burying a water pipe to Baltimore). When it was built in 1929, Conowingo Dam inundated the other five locks on the Tidewater Canal, so there is nothing else to be seen of the canal in Maryland. The S&T in Pennsylvania will be described in a future guide. Canal sights there include the head of the canal in Wrightsville; Lock 2 Park, 6 miles south; Lock 12 Historic Area; and Lock 13, 0.5 mile below Lock 12.

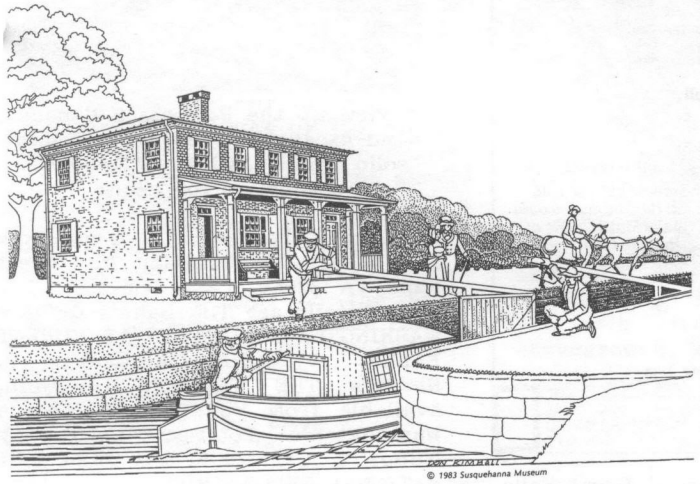
Drive up to the impressive dam and power house, where there is a refreshment stand for the park; and drive back up the hill and right on Shuresville Road to US 1 and the CONOWINGO DAM VISITOR CENTER. Tours of the dam are provided on weekends, and on weekdays by appointment; call (301) 457-5011.

Before there were any canals

on the Susquehanna, rafts and arks ran the rapids. Latrobe's map shows a channel for these whitewater craft, opened in 1801, closely following the west bank from the present Conowingo Dam down to tidewater. It would be exciting to launch an ark or batteau here at Shures Landing to try out the old whitewater channel.

For more details see "The Susquehanna and Tidewater Canal," by W.H. Shank in AMERICAN CANALS (February and May 1988, reprinted in THE BEST FROM AMERICAN CANALS IIII:35); THE AMAZING PENNSYLVANIA CANALS by W.H. Shank; and "Havre de Grace Lock House" by Muriel Ewing, THE TILLER, December 1983, pp.6-7.

For sale in the Lock House museum are "Navigation of the Lower Susquehanna River," by Ellsworth B. Shank (Harford Historical Bulletin, Fall 1986); "A trip Into Yesteryear and A Tale of Grandpa's Life Aboard a Canal Boat," by Eddie Dwyer; and a history of Havre de Grace with a chapter on the canal. Information on a walking tour of Havre de Grace is available from the City Clerk, City Hall, 121 N. Union Avenue, Havre de Grace, MD 21078, phone (301) 939-1800.



The S&T Tide Lock and Lock House, now restored, at the Susquehanna Museum of Havre de Grace. (Drawing by Don Kimball, courtesy of the museum.)

THE CONOWINGO CANAL

The Conowingo Canal was the first canal on the Susquehanna, designed to make the river navigable from the Pennsylvania line down to the Chesapeake Bay and Baltimore. Originally called the SUSQUEHANNA CANAL, it was later known as the PORT DEPOSIT or CONOWINGO CANAL (not to be confused with the Conewago Canal above Wrightsville PA).

This early canal was chartered in 1783, completed in 1802, and bankrupt in 1817 after the expenditure of more than $150,000. Hezekiah Niles, Editor of the Baltimore EVENING POST, remarked that "more money than water is being poured into the Port Deposit Canal." But it seems to have stayed in operation as late as 1845, until it was replaced by the Susquehanna and Tidewater Canal across the river.

Designed for rafts and arks navigating the river, the Conowingo Canal ran for nine miles along the east bank down to Port Deposit. The nine lift locks were not scattered along the canal, but were grouped in threes, each with a 12 x 80 foot lock chamber.

The upper four miles of canal, and the FIRST SET OF THREE LOCKS, were inundated by the dam in 1926. To follow the rest of the canal, drive across Conowingo Dam on US 1, then right (S) on US 222.

The SECOND SET OF THREE STONE LOCKS is remarkably preserved 0.6 mile below Conowingo Dam, just upstream of and parallel to a power line which crosses Rt. 222. Permission must be obtained at the Conowingo Dam Visitor Center to visit the locks, which are on power company land. The locks descend toward the river, then the canal crossed Octoraro Creek in the slackwater just above a stone dam, the remains of which can still be seen 0.2 mile below the Rt. 222 crossing at Octoraro.

A mile down the road from Octoraro, at a historic marker for "The Proprietors of the Susquehanna Canal," the canal bed is visible along the road. Continue past the ca. 1790 UNION HOTEL, which dates from Conowingo canal days.

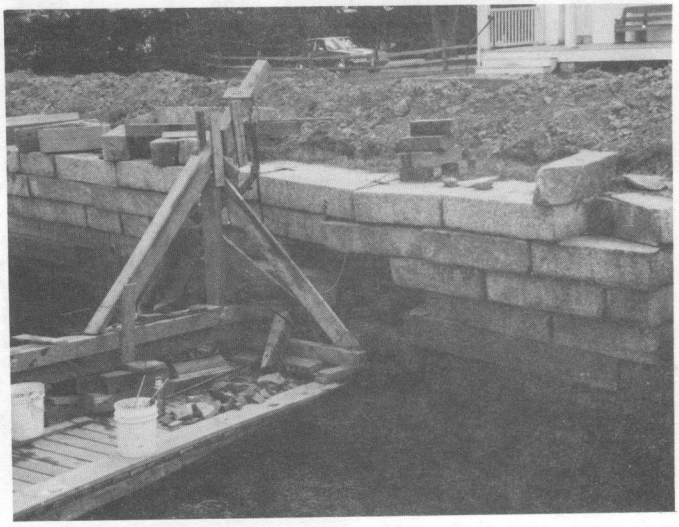
The final set of three locks, now probably buried, was about 0.2 mile beyond the intersection with Canal Road, where there are ruins of a mill. The canal ended about 0.4 mile downstream, where boats re-entered the river.

From here, US 222 continues past picturesque EVANS' MILL, ca. 1725, into equally picturesque PORT DEPOSIT, built of its famous stone.

For details see "The First Susquehanna Canal," by Robert S. Mayo and William H. Shank, AMERICAN CANALS May 1977, pp.6-7, (reprinted in THE BEST FROM AMERICAN CANALS I, p.10). Details of Latrobe's 1802 map of the Susquehanna, showing the sluice navigation as well as the Susquehanna Canal, are reproduced and discussed in THE ENGINEERING DRAWINGS OF BENJAMIN HENRY LATROBE, pp.75-109.

THE MARYLAND CANAL

Never begun was the Maryland Canal, the Baltimore branch of the Chesapeake & Ohio Canal, a 17-mile canal designed to carry the trade of the C&O directly to Baltimore by way of Brookville in Montgomery County (Tanner p.159). As it turned out, the B&O Railway did the job instead.



Repairing the walls of the S&T Tide Lock in 1988. These facing stones had been dry laid with a mortared backing. (Photo courtesy of Dale E. Woomert of the Susquehanna Museum of Havre de Grace)

Many thanks to Dale E. Woomert, PE, and E.B. Shank of the Susquehanna Museum of Havre de Grace; W. H. Shank, PE; and Dr. Darwin H. Stapleton for help with this section.

THE PATOWMACK NAVIGATION

The Patowmack Navigation and its Great Falls (or Patowmack) Canal, could well be America's most important early canal. George Washington was the first president of the Patowmack Company in 1785 and was personally involved in its construction. Even more significantly, it was an interstate project, and the interstate negotiations during its planning led to the Mount Vernon Compact and the U.S. Constitution.

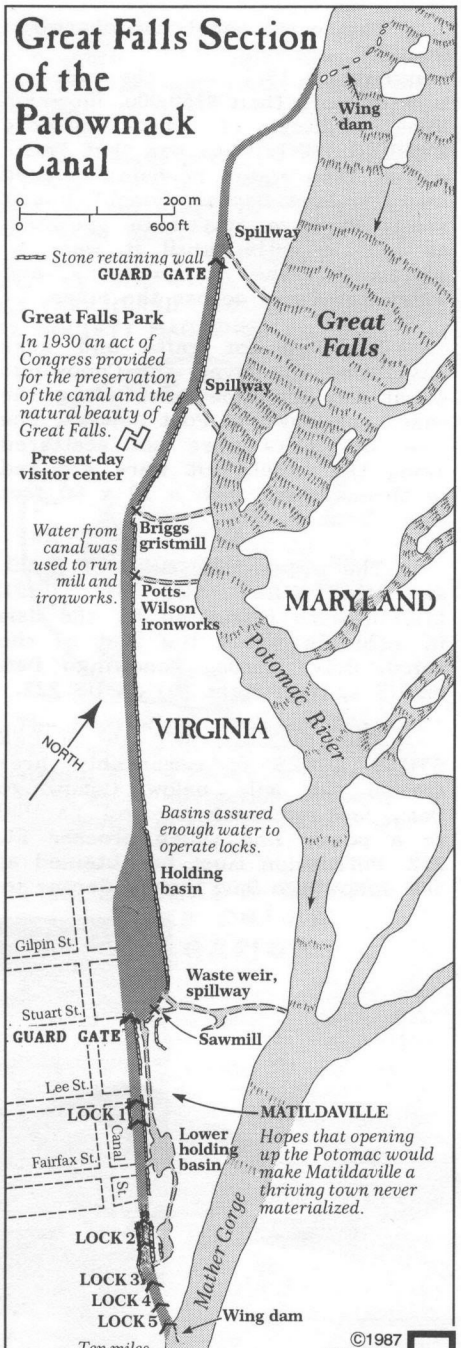
By the time Alexander Gallatin made his Report on Roads and Canals in 1808, the Patowmack Navigation was a huge system over 400 miles long on the Potomac and its branches, designed for white-water boats: batteaux ("sharpers"), arks and flatboats.

According to John Mason's report to Gallatin, the Potomac had been made navigable for 218 miles up to the mouth of the Savage River on the NORTH BRANCH; the SHENANDOAH, for 200 miles (154 by modern measurement) up to Port Republic; the MONOCACY, for 40 miles to Pipe Creek; and the CONOCOCHEAGUE for 24 miles. Other branches, including the SOUTH BRANCH, PATTERSON'S CREEK, the CACAPON and OPEQUAN, may also have been navigated.

The Potomac basin's extensive network of rivers needs to be carefully explored for sluices, wing dams and other signs of navigation. Some wing dams have already been found on the Monocacy and Potomac, so more are certainly to be found on these other streams as well.

On the Patowmack Co.'s system, there were canals only on the Potomac and the Shenandoah. On the Potomac there were five major canals bypassing rapids, at Little Falls, Great Falls, Seneca Falls, Shenandoah Falls, and House's Falls.

A batteau in a lock, on The Great Seal of the Patowmack Company. (Columbia Historical Society)

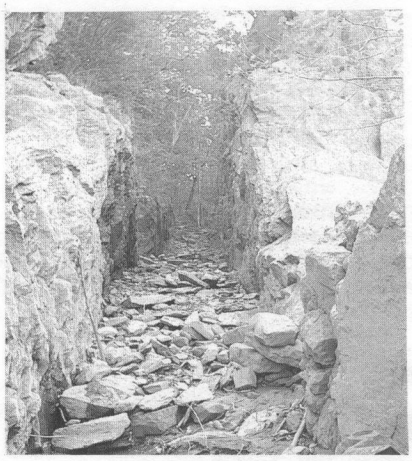


The Patowmack Canal at Great Falls, from the June, 1987 NATIONAL GEOGRAPHIC, Courtesy of the National Geographic Society. Until part of the canal is restored for a working batteau, few visitors will realize that one of America's most important canals is buried here.

THE GREAT FALLS CANAL, also known as the PATOWMACK (or Potomac etc.) CANAL AT GREAT FALLS, is easily the most impressive of them all. It is now the centerpiece of GREAT FALLS PARK, VIRGINIA, operated by the National Park Service, four miles west of the Washington Beltway on Rt. 193. The park is open daily during daylight.

Here beside the Potomac's impressive GREAT FALLS is an excellent visitors center with a diorama of the canal and other exhibits. The mile-long canal, built between 1785 and 1802, had two guard gates and a flight of five lift locks, two of them in a deep cut hewn and blasted out of bedrock.

Unfortunately, the canal and its stonework were neglected over the years. The canal is dry and silted in so few visitors know it is there; and the lock walls are falling down. Continued public pressure will be required to see that funding is made available to continue the NPS stabilization program, and to rewater the canal down to Lock 1 so it can be recognized as a canal again and be navigated by a batteau for demonstrations and rides.



A view up the Patowmack Canal's hand-excavated Deep Cut through solid granite, which delayed its completion for years.

For a flyer write to Great Falls Park, 9200 Old Dominion Dr., Great Falls VA 22066, (703) 285-2966. For more details see T.F. Hahn's GEORGE WASHINGTON'S CANAL AT GREAT FALLS, VIRGINIA; Alexander C. Brown's THE PATOWMACK CANAL, available from VC&NS; and "George Washington's Potomac Canal" by Wilbur E. Garrett in the June 1987 NATIONAL GEOGRAPHIC.

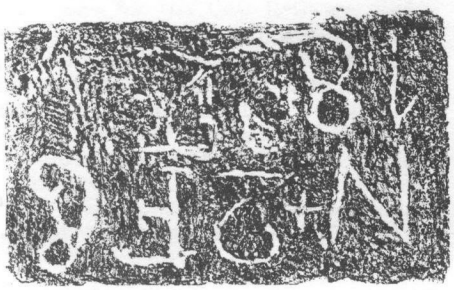
The canal at Great Falls was only one of five cuts carrying batteaux around the worst rapids on the Potomac. The only other one with locks was the LITTLE FALLS SKIRTING CANAL along the Maryland shore, 2.2 miles long with three wooden locks, completed in 1795 and rebuilt with stone in 1815. The C&O Canal was built on top of much of it from C&O mile 3.14 to 5.02. Remains of two locks are visible above the footbridge over a stream west of Fletcher's Boat House. This was the first canal begun on the Potomac, going back to an abortive start by John Ballendine in 1774.

THE SENECA CUT is a 3/4-mile sluice lined with stone walls, still visible and canoeable for most of its length, on the Virginia side opposite Seneca Creek. Canoe access is from the Maryland side. The cut, and a batteau, made the cover of the June 1987 NATIONAL GEOGRAPHIC.

THE SHENANDOAH FALLS CANAL or "LONG CANAL" was a mile-long cut on the Maryland side opposite Harper's Ferry. It was built over by the C&O Canal (see Hahn's TOWPATH GUIDE for mile 61.57). There was a path beside the cut for boatmen to walk on while dragging their boats up the swift water.

HOUSE'S FALLS CANAL was a 50-yard cut on the right bank five miles above Harper's Ferry. There were also a large number of other sluices and wing dams for batteau navigation, which need to be more completely mapped.

Many thanks to Dr. Tom Hahn and Charles W. Mayo for help with this section.



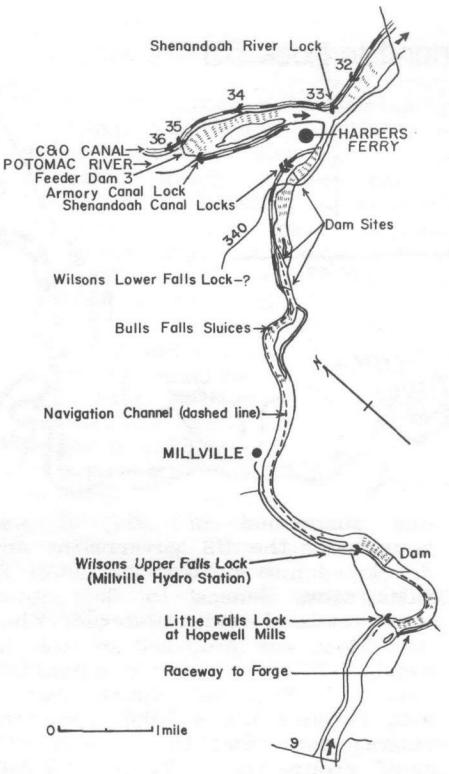
A rubbing of the "Mystery Stone" (now buried) in the wall of Lock 2 on the Patowmack Canal. The date (upside down) appears to be 1802 but the rest needs deciphering.

THE SHENANDOAH NAVIGATION

George Washington's Patowmack Company was the first to improve the Shenandoah. By 1808 the river bed had been cleared for batteau, raft and flatboat traffic for 154 miles, from Port Republic on the South Fork down to Harper's Ferry. When the water was right, boats could start 13 miles further above Port Republic, at Bridgewater, originally called Bridgeport.

The New Shenandoah Company, organized in 1815, renewed the works by 1823 and also opened up about 13 miles of the North Fork to Strasburg after 1825. The last boats traveling any distance on the Shenandoah came down from Rileyville on the South Fork in 1889.

On the whole Shenandoah Navigation system, covering nearly 200 miles, there were only five locks, and they were all on the last



Locks and Dams on the Shenandoah Navigation

seven miles above Harper's Ferry and date back before 1800, to the Patowmack Company's time. These were (going downstream) Little (Little's) Falls Canal and Lock; a lock in Snyder's Mill race (built over by Millville Hydro Station, still operating) on Wilson's Upper Falls; Wilson's Lower Falls Canal and Lock; and two Lower Locks on the Shenandoah Canal in Harper's Ferry.

The only Shenandoah River lock left today is the one at LITTLE FALLS. From Charles Town take Rt. 9 to the river, then left along the river road for 1.7 miles to a park maintained by Potomac Edison of West Virginia. Follow the woods trail downriver to the impressive ruins of Hopewell (or Newcomer's) Mill. The lock beside it originally had a lift of 8 feet and a 12 x 100' chamber, reduced somewhat in size about 1880. This important site, the last of the Shenandoah locks, has been deteriorating badly in recent years and needs tree root clearing and stabilization.

Walk downriver to see the remains of a stone HAULING WALL hugging the cliff. Here boatmen could tow their boats from the bank up through the swift water of Little Falls. The path now disappears into the pond of the Millville Hydro dam.

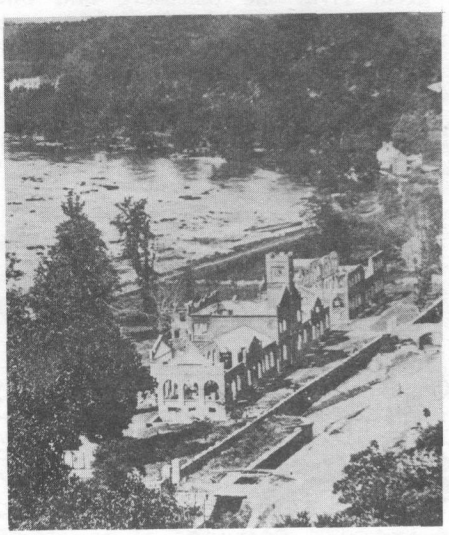
Nothing remains of the locks on THE SHENANDOAH CANAL, in HARPER'S FERRY NATIONAL HISTORICAL PARK, which made an island of Virginius Island, once a maze of industrial sites operating on water power. The ruins of the Shenandoah Pulp Factory now cover the Lower Locks site. (On the other side of Harper's Ferry is another canal, along the bank of the Potomac. This ARMORY CANAL was a power canal and still has a lock at the entrance which made it accessible to boats.)

The rest of the Shenandoah has not been examined carefully for signs of navigation. Many canoeists navigating popular Bulls Falls probably use the old batteau sluices there. Elsewhere on the river there must be many wing dams and sluices, and perhaps even remains of wooden chutes in old mill dams. There may also be a sunken boat. We'll have to find one if we ever hope to build an authentic replica of a Shenandoah or Potomac flatboat ("gundalow"), or batteau.

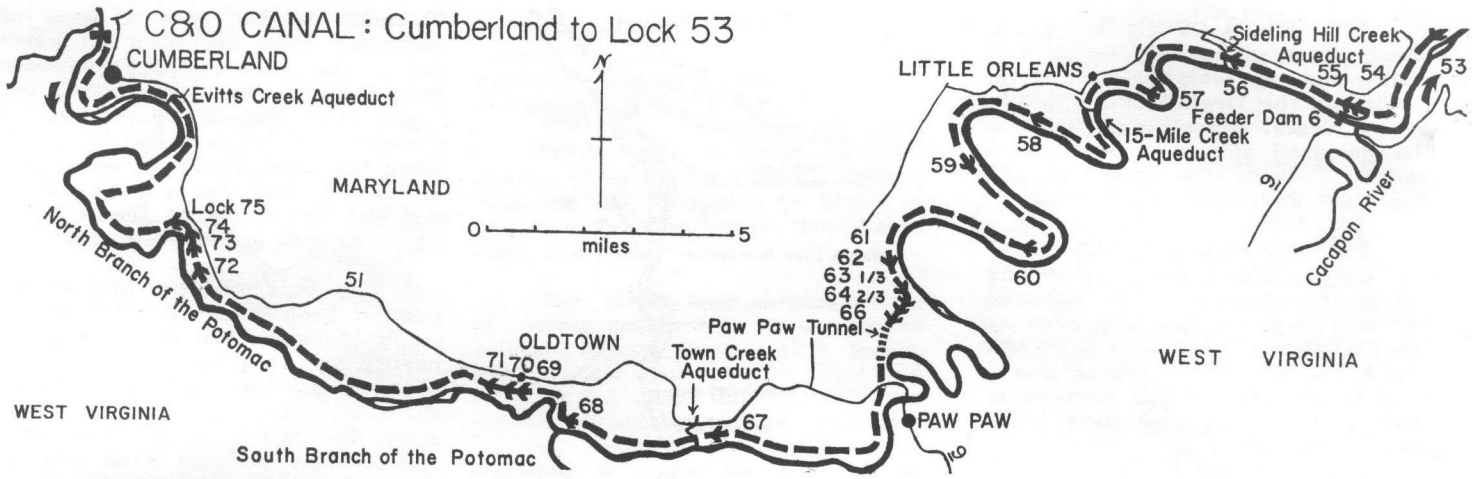
For more details see THE SHENANDOAH RIVER canoeing guide by Matacia and Cecil, P.O. Box 32, Oakton VA 22124. The Shenandoah in Clarke County, VA, is now a State Scenic River. Contact: Friends of the Shenandoah, Rt. 1, Box 5052, Front Royal, VA 22630.

See also Hahn's TOWPATH GUIDE TO THE C&O CANAL; John W. Wayland's HISTORY OF ROCKINGHAM COUNTY, VA., Chapter 26, (1912); Report of John Mason to the Secretary of the Treasury, 1808; and Report of the Chief of Engineers, US Army, 1880, pp.661-677.

Many thanks to Dr. Tom Hahn for help with this section.



The Shenandoah Company's Locks (right) at Virginius Island in 1865, beside the ruins of the U.S. Rifle Factory. Today, the only lock remaining on the Shenandoah is at Little Falls, and it needs stabilization. (Photo courtesy of Harper's Ferry National Historical Park)



THE CHESAPEAKE & OHIO CANAL

Through happy circumstance and dogged effort the C&O Canal, all 184½ miles of it, is not today a railroad, a highway, or a line of private landholdings, but the CHESAPEAKE AND OHIO CANAL NATIONAL HISTORICAL PARK, a protected corridor along the north bank of the Potomac River from downtown Washington to Cumberland, Maryland. This is America's national canal park, enjoyed by thousands of visitors, from urban Washington to rural western Maryland, through environments ranging from populated restorations to isolated wilderness.

Built in 1828-1850, the C&O Canal was designed for mule-drawn canal boats, entirely replacing the old Patowmack Navigation of Washington's time. Both the C&O and its great rival the Baltimore and Ohio Railroad had groundbreaking ceremonies on the very same day - July 4, 1828. President John Quincy Adams chose to attend the C&O ceremonies but in the end the B&O owned the canal and used it to ship coal to Alexandria, the Potomac's deepwater port.

Fourteen years after the canal was abandoned in 1924, it was bought by the US government and developed into a park. The lower 22 miles from Seneca to Georgetown were restored and rewatered. When in 1954 it was proposed to use the canal route for a scenic automobile parkway, Supreme Court Justice W.O. Douglas led a hike along the entire route, and the canal's citizens' group, the CHESAPEAKE AND OHIO CANAL ASSOCIATION (P.O. Box 366, Glen Echo MD 20812) was founded. It took 17 years of public pressure and lobbying to designate the canal a National Historical Park, assuring its preservation.

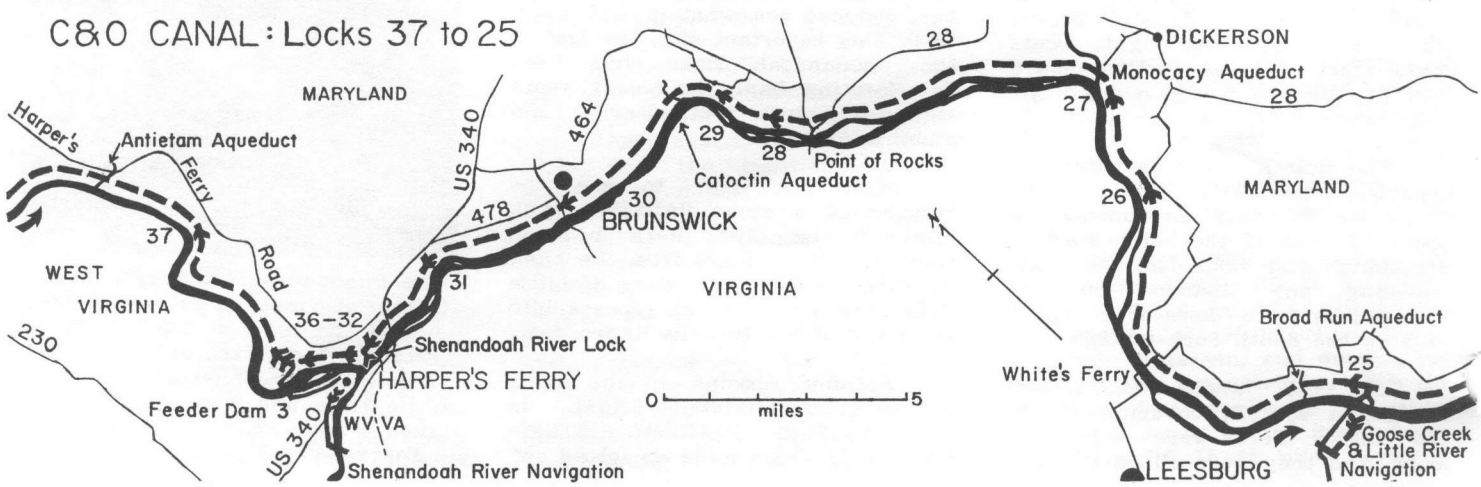
Today one may hike, cycle, ride horseback and sometimes canoe in the canal past its 74 lift locks, 11 stone-arch aqueducts (among the best in the nation), 241 culverts (don't fail to look for a few), 7 dams, and guard locks, lockhouses, waste weirs and other works, camping along the way in designated areas.

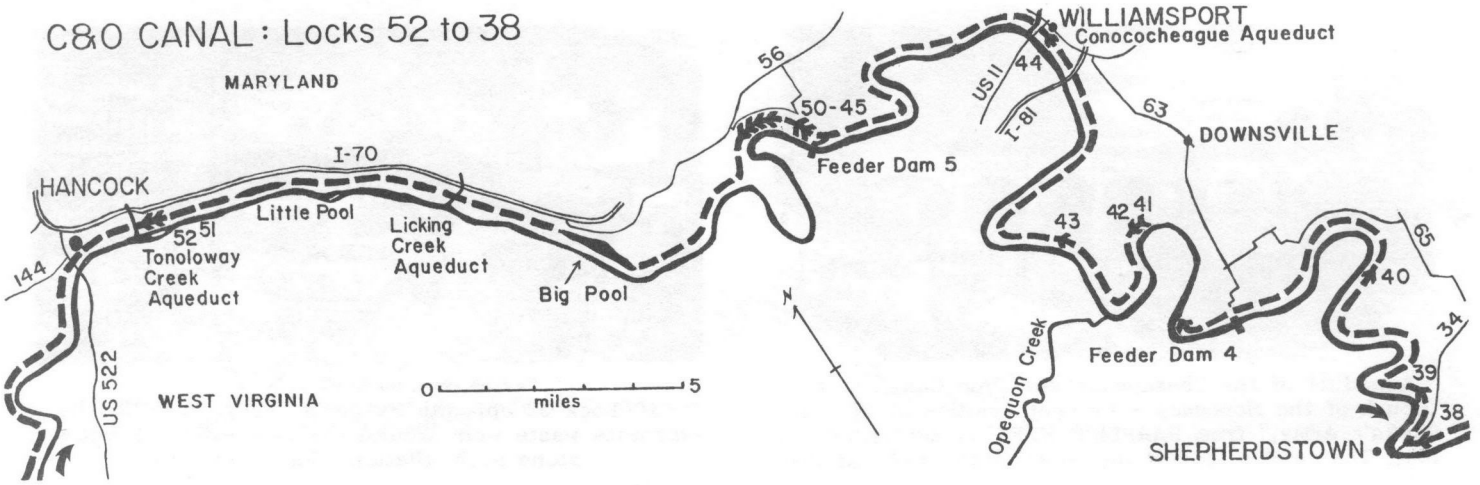
Along the nearly 200 miles of this canal park are far too many points of interest to detail here. Use Dr. T.F. Hahn's excellent TOWPATH GUIDE, his THE CHESAPEAKE AND OHIO CANAL: PATHWAY TO THE NATION'S CAPITAL, which includes a section on selected sites to visit; the C&O CANAL OLD PICTURE ALBUM, and C&O CANAL BOATMEN, all available from the American Canal and Transportation Center, Box 310, Shepherdstown WV 25443. A colorful set of five strip maps of the eastern half of the canal is available at $6 ppd. from The Interstate Commission on the Potomac River Basin, Suite 300, 6110 Executive Blvd., Rockville MD 20852.

Of particular value is the Park Service's new official handbook, CHESAPEAKE AND OHIO CANAL, an 111-page, well-illustrated book covering the canal's history, engineering and historic sites, available at NPS shops or $4.50 ppd. from Superintendent of Documents, P.O. Box 371594, Pittsburgh, PA 15250-7954 (ask for S/N 024-005-01076-9).

There are a number of other books on C&O Canal history and life, including Walter S. Sanderlin's classic THE GREAT NATIONAL PROJECT (1946) available from University Microfilms; and Elizabeth Kytle's HOME ON THE CANAL.

For flyers on the canal write to C&O Canal National Historical Park, Box 4, Sharpsburg MD 21782, (301) 739-4200. The public information numbers at Great Falls are (301) 299-2026 and 299-3613.





HIGH POINTS
ALONG THE C&O CANAL NATIONAL HISTORICAL PARK

Good guide books are available for this canal so only the high points are listed here, in order going west:

Canoe and bike rentals at Thompson Boat center at the canal's TIDE LOCK (Mile 0) on Rock Creek in Georgetown. The name "Watergate" probably goes back to an early flight of steps to the water where dignitaries were welcomed, rather than to the Tide Lock. From here the canal is watered for 22 miles to Seneca, handy for exploration by canoe.

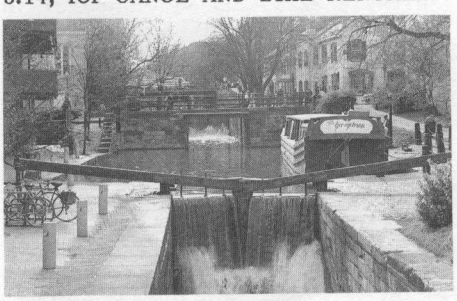
Flight of FOUR RESTORED LOCKS in Georgetown; mule-drawn CANALBOAT RIDES through a lock at Thos. Jefferson Street (mile 0.53), where there is a NATIONAL PARK SERVICE OFFICE AND CANAL BOOKSHOP in one of the canalside buildings. Boat rides operate from mid-April to mid-October, closed Mondays and Tuesdays. For a recorded message on boat trips call (202) 472-4376.

North abutment remaining of the ALEXANDRIA CANAL AQUEDUCT to Virginia, at mile 1.07, just west of Key Bridge. Interpretive marker.

From Georgetown west to Great Falls, the canal is followed by Canal Road, which becomes the Clara Barton Parkway (take MacArthur Boulevard instead when necessary due to rush hour traffic routings).

Very little remains of the GEORGETOWN INCLINED PLANE at mile 2.26, completed in 1876 to carry boats down to the river, easing congestion through the locks. It was not very successful.

Fletcher's Boat House at mile 3.14, for CANOE AND BIKE RENTALS.



The NPS tour boat GEORGETOWN on the Georgetown Flight in 1983.

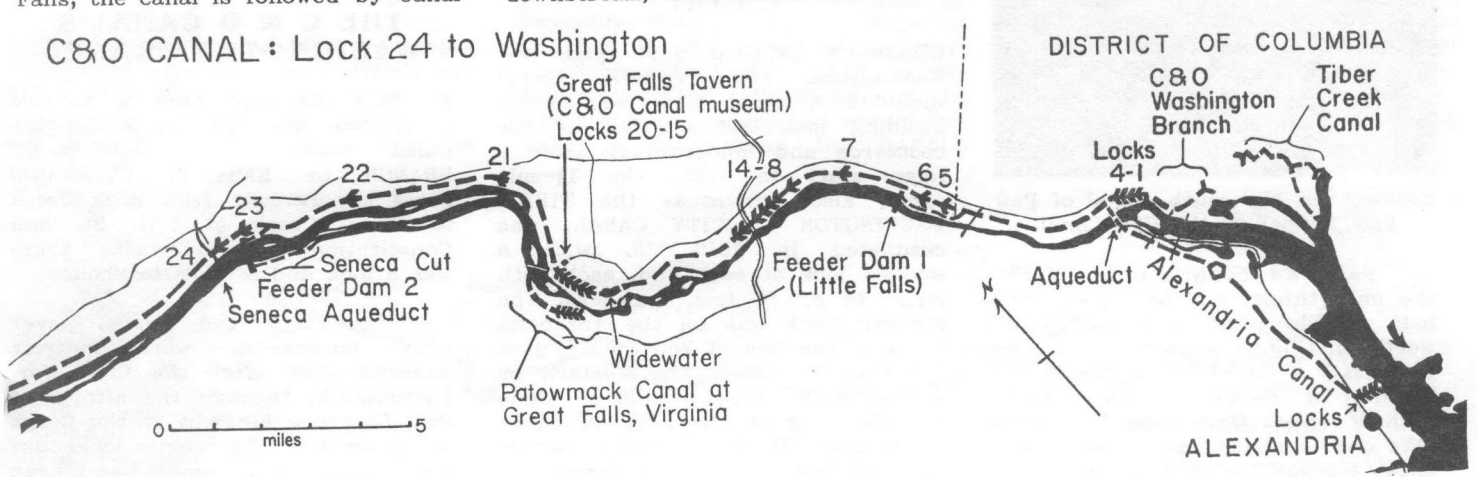
GREAT FALLS TAVERN MUSEUM (11710 MacArthur Blvd., Potomac, MD 20864, (301) 299-3613) at mile 14.3 at the end of MacArthur Boulevard (directly across, but a dozen miles by car or foot from Great Falls Virginia). NPS C&O CANAL MUSEUM and bookshop in restored 1828 tavern; six locks within a mile downstream; mule-drawn CANALBOAT RIDES through a lock (in season: see Georgetown). For a recorded message on boat trips call (301) 299-2026. Just down the canal at mile 13.45 is WIDEWATER, renown for its outstanding scenic beauty.

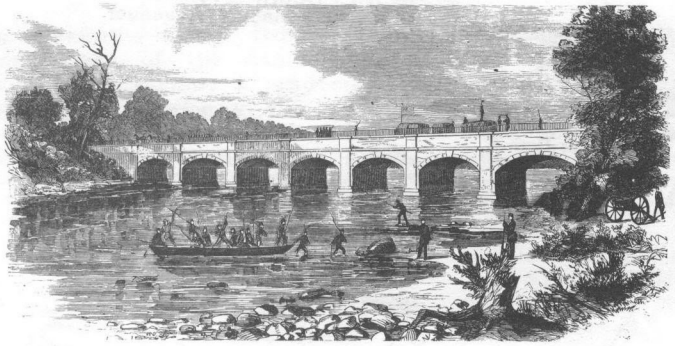
LOCK 24 combined with three-arched SENECA AQUEDUCT (mile 22.8), at end of Riley's lock Road in Seneca. Downstream at mile 22.1 is the feeder dam and inlet lock watering the 22 miles of restored canal to Georgetown.

MONOCACY AQUEDUCT (mile 42.19), with seven arches, the longest of the canal's 11 aqueducts. From Dickerson, take MD 28 N, L on Mouth of Monocacy Road for 1.2 mi., then L fork 0.1 mi. to the parking lot. Hahn considers this "one of the finest canal features in the United States."

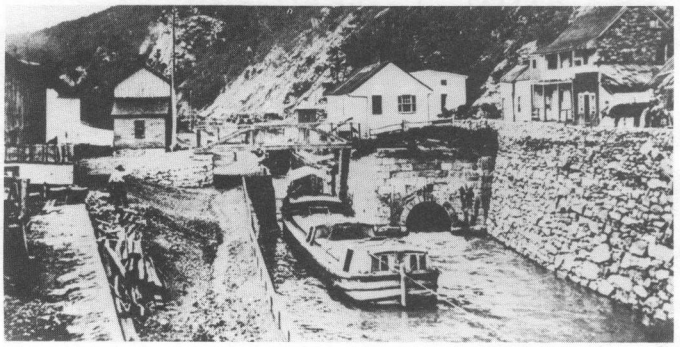
CATOCTIN CREEK AQUEDUCT (mile 51.53), accessible from Lander (mile 50.89), once three arches, considered the most beautiful on the canal.

HARPER'S FERRY NATIONAL HISTORICAL PARK, across the river in West Virginia at mile 60.66. Restored Civil War era town, site of John Brown's Raid. Canal beside Potomac was a navigable mill race for the US Armory; canal on the Shenandoah, forming Virginius Island, powered industries there and had two locks (now gone) for





"Aqueduct of the Chesapeake and Ohio Canal, at the Mouth of the Monocacy - Present Position of General Banks's Army," from HARPER'S WEEKLY, September 14, 1861. The canal's longest aqueduct, with seven arches.



C&O Lock 33 opposite Harper's Ferry, in 1876. The elaborate waste weir around the lock exited through a stone arch. (National Park Service)

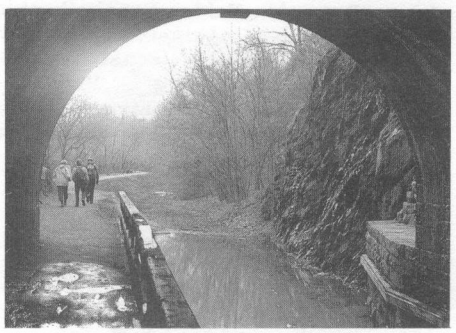
flatboats traveling down the Shenandoah (q.v.).

ANTIETAM AQUEDUCT (Mile 69.36), with three arches. At end of Canal Road 2.8 miles S of Sharpsburg. A branch canal up the Antietam was actually begun, leaving signs still visible to explorers, but so far no lock remains have been found there.

FEEDER DAM #4 beside restored winch house (mile 84.4). Take Dam #4 Road SW from Downsville for 5.5 miles. The winch house holds a huge flood gate which can be dropped to plug the canal during floods. The inlet lock from the dam's pond is not here but 1.2 miles upriver.

CONOCOCHEAGUE AQUEDUCT, three arches, at mile 99.8 in WILLIAMSPORT, an interesting "canal town," home of the Williamsport C&O Canal Club. The canal is being rewatered here from below Lock 44 to Cushwa Basin.

HANCOCK MD (mile 124.10), an important canal and railway town, has a new NPS VISITORS' CENTER at 326 E. Main St., (301) 678-5463, and a newly watered canal.

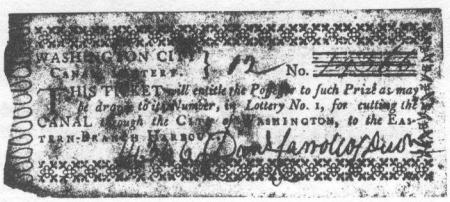


Looking out the south portal of Paw Paw Tunnel on the C&O Canal.

PAW PAW TUNNEL (mile 155.78), the only tunnel on the canal, over half a mile (0.58 mi.) long, well worth hiking through along the towpath. A flashlight is handy for looking at details in the brick-arched tunnel. Only wide enough to take one canal boat at a time, it was once blocked for several days by two stubborn captains who met in the middle and had to be smoked out! The tunnel is down the canal from US 51, opposite Paw Paw WV.

Full-scale replica of a CANAL FREIGHTER at Lock 75 (mile 175.6), on Rt.51 south of Cumberland, built by a volunteer organization, C&O Cumberland (Box 1378, Cumberland MD 21502). Major focus of the C&O CANAL BOAT FESTIVAL every July.

C&O CANAL VISITORS CENTER, (301) 722-8226 (closed Mondays) in the WESTERN MARYLAND STATION CENTER at Canal and Baltimore streets in CUMBERLAND, the western terminus of the C&O Canal. There is great potential here for an urban canal and industrial history park. A shuttle bus for hikers and bikers is available from Cumberland to Paw Paw and points between, on summer weekends; call (301) 722-6360/2820.

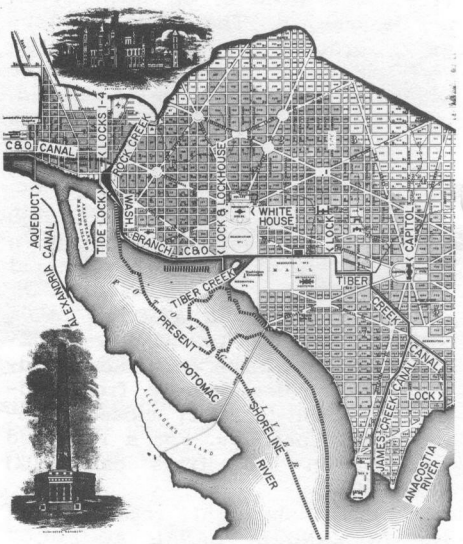


This 1796 Lottery ticket helped finance the building of the Washington City (Tiber Creek) Canal.

THE TIBER CREEK CANAL

L'Enfant's original 1791 plan for Washington, the "Federal City," included a canal for transporting building materials as well as for commerce and landscaping. After a false start in 1785, the 1½-mile canal, also known as the TIBER, WASHINGTON or CITY CANAL, was completed in 1810-1815, with a wooden lock at each end, each with large 18 by 90 foot chambers. The Eastern Lock was on the Anacostia River at the foot of 2nd St. SE, just south of N Street. The Western or Tiber Creek Lock, rebuilt of stone in 1816, was at the head of Tiber Creek near 6th St. NW and Constitution Avenue. Old photographs of the Capitol show the Tiber Creek Canal in the foreground.

There was also a branch, perhaps never completed, along James's Creek to the old Navy Yard at the mouth of the Anacostia. One of Jefferson's unfulfilled dreams was a huge dry dock at the end of the James's Creek Canal which could be drained to mothball warships.

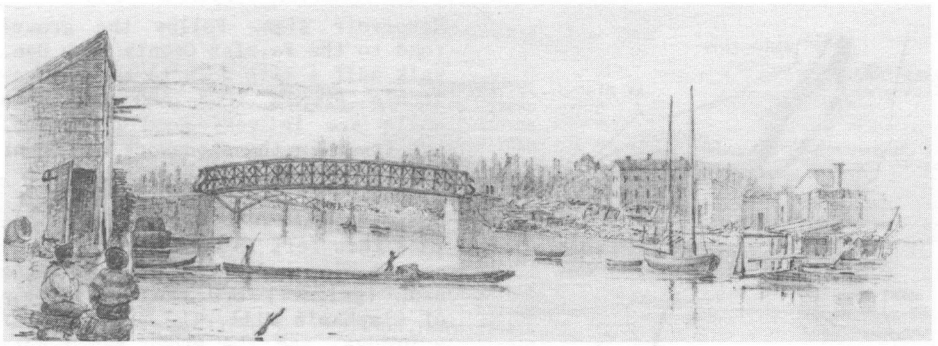


The Federal City's Canals in 1855. The dotted line in the Potomac shows the city's present shoreline.

THE C & O CANAL'S WASHINGTON BRANCH

In 1833 the C&O built a 1.2-mile connection over to the Washington Canal called the WASHINGTON BRANCH or EASTERN EXTENSION along the Potomac from Rock Creek to Tiber Creek at 17th St. and Constitution Avenue where there was a lock and a stone lockhouse.

The city's two canals, never very successful, were entirely covered over after the Civil War. Fortunately, through the efforts of Col. Theodore Bingham of the Corps of Engineers the stone lockhouse was preserved, and has been



A remarkable view of a Potomac batteau on the Washington City Canal, sketched by Seth Eastman on September 21, 1850. Can the site be pinpointed? (M. and M. Karolik Collection of American Watercolors and Drawings, 1800-1875, courtesy of the Museum of Fine Arts, Boston)

"adaptively reused" as a public convenience on the Mall.

For details see THE ENGINEERING DRAWINGS OF BENJAMIN HENRY LATROBE, D.H. Stapleton ed., Yale Univ. Press 1980 and "Tiber Creek to Murder Bay: Failure of the Washington Canal," by Ernest H. Schell, AMERICAN CANALS May 1978, pp.4-5+ and THE BEST FROM AMERICAN CANALS I:56. Many thanks to Dana Dalrymple, Dr. T.F. Hahn, and David M. Johnson for help with this section.

THE ALEXANDRIA CANAL

In 1843 the Alexandria Canal Company completed a seven-mile eastern extension of the C&O to carry coal boats to Alexandria, the Potomac's deepwater port. The Alexandria Canal Aqueduct over the Potomac was one of the wonders of its day, 1100 feet long with 8 stone piers and a wooden trough. The north abutment, and its stone arch over Water Street is still intact on the C&O Canal immediately west of the Key Bridge, where there is an interpretive marker. The other piers were blown up by the Corps of Engineers in 1962 except the one on the Virginia shore, which was saved by the Arlington Historical Society.

Nothing remains of the canal bed, which roughly follows U.S. 1 and probably ran under the Pentagon, where there must be a top secret room in the canal! In Alexandria, it descended to the Potomac down a flight of four stone locks. The first three are covered over, but as a result of local efforts, the ALEXANDRIA CANAL TIDE LOCK was excavated, placed on the National Register, and made the centerpiece of the TRANS-POTOMAC CANAL CENTER developed by Savage-Fogarty Co., which also reserved floor and parking space for a canal and river museum. The lock should someday be made operable to put historic small craft on display to bring this important canal park back to life.

THE ALEXANDRIA WATERFRONT MUSEUM, (703) 838-4288/4554, is beside the Tide Lock at the foot of Montgomery Street in Alexandria, open Tues.-Fri. 11-4, Sat.-Sun. 1-4. For an excellent flyer on the Alexandria Canal, send $1 to the museum at 44 Canal Center, Alexandria, VA 22314. See also THE BEST FROM AMERICAN CANALS II:34 and III:35.

THE QUANTICO CANAL

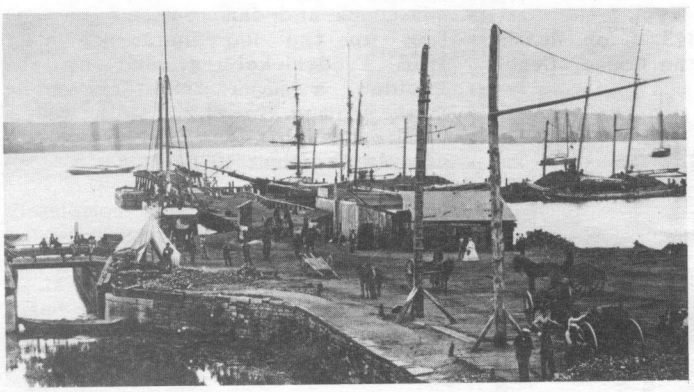
Dumfries, on US 1 at the head of Quantico Bay, was the largest place in northern Virginia at the time of the Revolution. It might have become the upper Potomac's deepwater port, instead of Alexandria, but eroding tobacco plantations up Quantico Creek began to silt up the bay. Merchants began to move to Alexandria.

In 1796 a "Quantico Navigation Company" was formed to raise money for a canal with locks through the mud flats up to Dumfries. Unfortunately, when the canal was almost finished, a storm caused the sides to cave in. Another attempt was made in 1825 when lottery tickets were issued to finance its construction. Evidently the canal was maintained over the years, for an 0.8-mile cut is shown on an 1871 Corps survey, but only a mud flat is visible today. Timbers, perhaps of a lock, are visible at low tide.

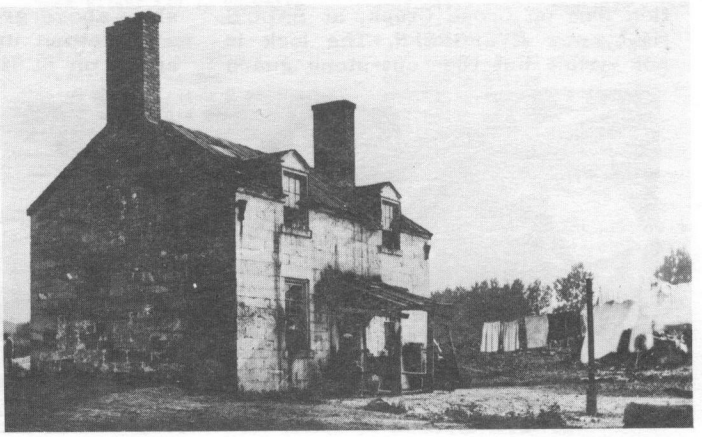
From information supplied by Mr. Pete Costello, Barbara Kirby and Dan King of Dumfries.

THE DRAGON SWAMP NAVIGATION

This was a 20-mile relatively straight cut through Dragon Swamp, from the New Dragon Bridge (Rt.603) at Mascot, down to the head of navigation on the Piankatank. Constructed in 1836-1840 by the Dragon Swamp. Navigation Company, it was designed for flatboats carrying cypress timber out of the swamp. The company hoped to make money from local traffic once the main timbering operations were over, but everyone preferred to use the Rappahannock River, only 8 miles away. Today the canal is still used by canoeists enjoying the swamp wilderness. It deserves to be designated a State Scenic River.



The Alexandria Tide Lock, as it was during the Civil War when the canal was disused. Both gates are open and a bridge has been placed across the lock. Now it should be a floating dock for historic watercraft. (U.S. Signal Corps Photo, Brady Coll., National Archives)



The C&O's Washington Branch lockhouse is still at 17th & Constitution Avenue. Is the lock still underground? (Lib. of Congress, ca. 1860)

THE GOOSE CREEK & LITTLE RIVER NAVIGATION

The Goose Creek and Little River Navigation Company was organized in 1832 to construct a 20-mile lock-and-dam towpath navigation up Goose Creek from the Potomac, with a 5-mile branch up Little River to Aldie. Work began in 1849 but the arrival of railways stopped everything in 1854 with 12 miles complete, involving 9 dams, 9 stone locks, and four canals with stone guard gates.

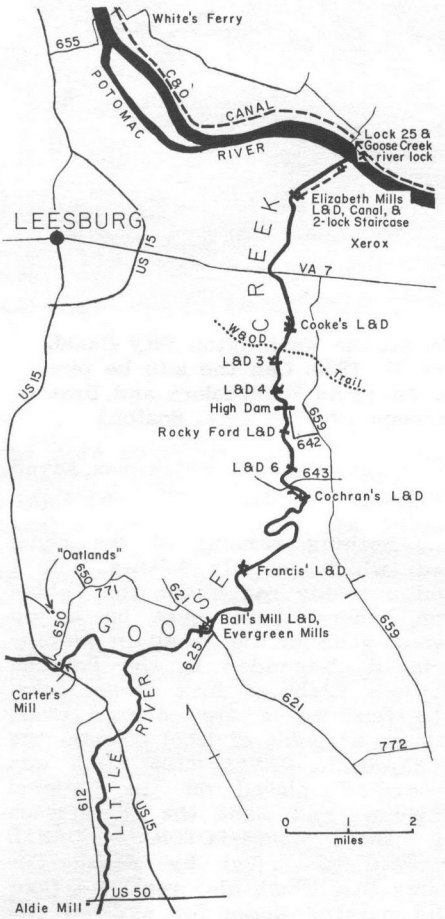
At this point, the contractor, to be paid, had to show that his works were navigable, so he hauled the navigation's only boat through the locks and dragged it over sandbars to the head of navigation where it still lies. This boat, ordered from a boatbuilder in Cumberland MD in 1850, is square-ended, built like a sand barge, 39 feet long, 3½ feet deep, and about 11 feet wide, to fit the navigation's peculiar lock size - half the length of a C&O Canal lock.

AN AUTOMOBILE TOUR
OF THE GC&LR NAVIGATION

A survey of the navigation properly begins at the intended head of navigation at ALDIE, on US 50, the Little River Turnpike. Here is the restored MERCER'S MILL, and the home (private) of CHARLES FENTON MERCER, the first president of the C&O Canal Co. and a supporter of the Goose Creek project.

Drive six miles north on US 15 to OATLANDS, home of GEORGE CARTER, the first president of the GC&LR Navigation Company. Oatlands is open to the public, being cared for by the National Trust.

From Oatlands go back south on US 15, L on Rt.650, straight onto Rt.771 (bears R after 0.4 mi.) and R on Rt.621 to the river. Just upstream was the uppermost navigation dam on Goose Creek, at BALL'S MILL, now EVERGREEN. The lock is not visible but the cut-stone guard gate in line with the rubble of the dam is one of the best preserved on the navigation.



Locks & Dams on the Unfinished Goose Creek & Little River Navigation

Cross the bridge on Rt.621, L on Rt.772, L on Rt.659, and L on Rt.643 to the river. The old Murray's Ford Bridge is visible upstream. Just upstream of it, on the left bank, was COCHRAN'S LOCK AND DAM, now almost completely flooded by the High Dam a mile downstream. The lock walls 11½ feet apart barely show above ground level.

Return up Rt.643, L on Rt.659, and L on Rt.642 at the Goose Creek Reservoir sign. Follow the gravel road to the Fairfax County High Dam. Walk half a mile down to the navigation's FOURTH LOCK AND DAM. The walls are in very good condition, but trees in the stonework are about to topple them into rubble.

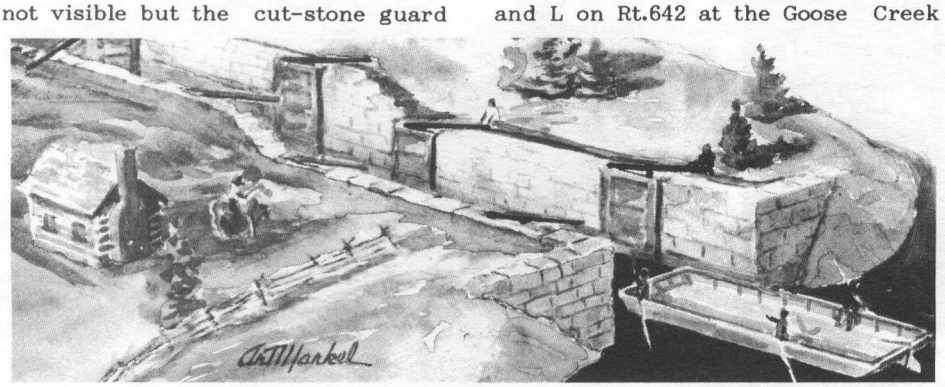
Return to Rt.659, turn left, crossing the W&OD hiking trail, to VA 7 then left to Goose Creek.

A mile below Rt.7 on the right bank (private) are the foundations of Clapham's Mill, the abutments of a bridge, and the stone guard gate of a mile-long canal to CLAPHAM'S LOCK, the gem of the navigation. This is a beautiful two-lock staircase, of excellent cut-stone masonry. The architecture is unique; it is actually two locks joined together, for the contractor, either through ignorance or a change of plan, installed gate recesses for an entirely useless pair of gates, forgetting that the lower gates of one lock served as the upper gates of the other.

Clapham's canal and lock will be preserved in Potomac Park at an International University being developed by Xerox Corporation, which has its training center here. The lock wall needs to be rebuilt where it was knocked down by a dead tree some years ago.

Across the Potomac from the mouth of Goose Creek is the GOOSE CREEK RIVER LOCK, a 2-lock staircase built by the C&O in 1838 to lift GC&LR boats into the C&O Canal. The C&O directors must have been a bit disappointed when the only canal boat on Goose Creek went up to Evergreen and stayed there forever!

For details see THE GOOSE CREEK SCENIC RIVER ATLAS, by W.E. Trout, III, available from VC&NS.



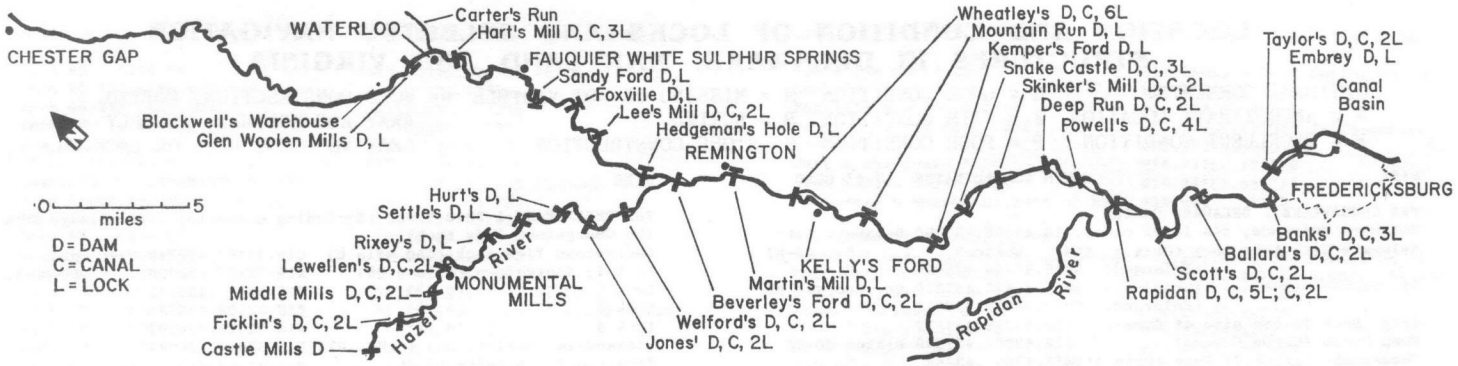
The only canal boat to travel the length of the GC&LR was the company's test boat in 1854. Here the crew is attempting to work the unique two-lock staircase, which now needs stabilization. (1990 painting by Art Markel)

THE RAPPAHANNOCK NAVIGATION

The Rappahannock Company was organized in 1816 to construct a 50-mile lock-and-dam batteau navigation up the Rappahannock valley from Fredericksburg, and up the Rapidan, a major tributary. The first attempt in the 1830's was a failure, resulting in the completion of only the first 10 miles.

The navigation was completely rebuilt in 1845-49, this time reaching the goal of Carter's Run, with 25 stone locks, 22 wooden locks, 20 dams, 15 miles of canal, and a basin in Fredericksburg. No work was ever done on the Rapidan.

The navigation cannot be said to have been a success, for the most favorable financial statement the Company ever made was in 1857: "no receipts or expenditures this

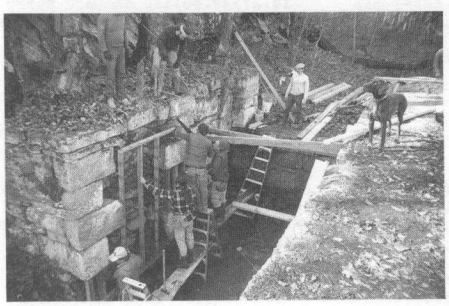


Locks and Dams on the Rappahannock and Hazel River Navigations

year"! It was officially abandoned in 1855 but was maintained for a time by two farmers along its route.

The canal into Fredericksburg still carries water, having been used for hydroelectric generation and water supply, and it is now a city park with a canal trail. The river is popular with canoeists, and has been designated a State Scenic River from its headwaters down to Fredericksburg. Almost all of the navigation's stone locks and elaborate embankments are owned by the City of Fredericksburg.

The only known remains of a batteau used on the river were saved by Randy Carter in the 1950's and are now on display in Warrenton's Old Gaol Museum, open from the middle of April through October from 11-4 Wednesday through Saturday, (703) 347-5525.

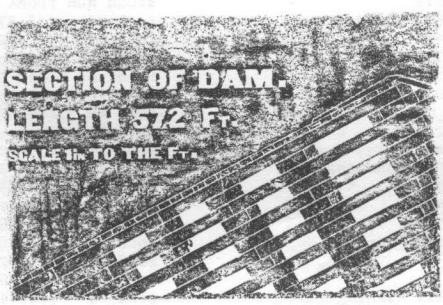


Lock 9 on the Rappahannock, built into bedrock, is on the National Register. It badly needs restoration.

In recent years, Fredericksburg has come to appreciate its industrial past. Interpretive signs describe the mills and mill races; a two-mile cycling trail has been established beside the navigation canal; and both are used as foci for parks.

The cycling trail makes a bicycle the best way to tour Fredericksburg's canals and mills, making a 4-mile circle trip down the navigation canal, and back past the mills on roads overlooking the river. Bicycles can be rented at the Rappahannock Outdoor Center at the Fall Hill Road bridge over the Rappahannock Canal, (703) 371-5085. To get there, go west on Fall Hill Road from US 1 in Fredericksburg to the river and follow it to the left almost to the canal. Here one can also rent canoes to explore the river and (if it ever becomes legal) the canal.

Walk or cycle 1/2 mile up the towpath to Embrey Dam, built in the 1930's. The picturesque stone lock against the bluff dates from the original 1855 dam here. The lock should be restored for excursion boats and for batteaux navigating down the river into downtown Fredericksburg, via the canal.



This engineering drawing in stone is a cross-section of Fredericksburg's 1855 dam. (From a stone rubbing)

The Canal Park Trail is two miles long, from the dam to Princess Anne Street. In canal days, boats could go as far as a turning basin now filled in, at Canal Street. The water was used to power mills near the river along Caroline Street.

At the end of Canal Park Trail, keep straight to Caroline Street and turn left past the mills and interpretive signs along the river to the starting point. A flyer on the mill tour is available in the Fredericksburg Visitors Center.

The rest of the navigation is best seen by canoe, except the impressive canal at Kellys Ford. Noteworthy sights include Snake Castle Rock, locks 14, 13, the Rapidan Canal (on the National Register) and the other canals and locks from there down to Fredericksburg.

A number of the canals are along the right bank, making a good route for a future riverside hiking trail. Lock 9 on the Rapidan Canal is in danger of collapse and needs to be stabilized and restored.

THE HAZEL RIVER NAVIGATION

Once the Rappahannock Navigation was a going concern, 21 miles of another tributary, the Hazel River, was made navigable in 1850-54 up to Castle Mountain by the Hazel River Navigation Company, involving 8 dams, at least 12 locks (one of stone), and about two miles of canal.

The Rappahannock was never very successful as a navigation, so its branch the Hazel fared even worse. The Hazel river even changed course after a flood, requiring some more canal building!

Like the upper Rappahannock, the Hazel navigation sites are not easy to find without a map. The easiest to find is Hurt's lock and Dam, 0.1 mile upstream of the Rt.625 crossing. A rapids marks the dam site, and an 80-foot long pile of stones along the right bank was the river wall of the lock; the other wall must be under the river bank.

For more details on the Rappahannock and Hazel see THE RAPPAHANNOCK SCENIC RIVER ATLAS by W.E. Trout, III, available from VC&NS; and "The Rappahannock Canal" by Donald S. Callaham, M.A. Thesis, The American University, 1967. Robert A. Hodge, 417 Pelham Street, Fredericksburg VA 22401 has mimeographed this important work to make it available at cost, $2 ppd.

The citizen's group concerned with the Rappahannock system is Friends of the Rappahannock, P.O. Box 1093, Fredericksburg, VA 22402, (703) 373-3448.

Many thanks to Councilman Gordon W. Shelton, who was instrumental in establishing the Canal Park Trail and marking Fredericksburg's mill sites.

LOCATION AND CONDITION OF LOCKS AND SELECTED NAVIGATION STRUCTURES IN DELAWARE, MARYLAND AND VIRGINIA

OPTIONAL COMMENTS: G = GOOD CONDITION M = MISSING OR NOT VISIBLE W= WOOD CONSTRUCTION, ROTTED
* = APPROXIMATE LOCATION F = FAIR CONDITION B = BURIED AWAY ABOVEGROUND, USUALLY
E = EXCELLENT CONDITION P = POOR CONDITION S= STONE CONSTRUCTION LEAVING STONE FILL OR BACKING.

SITE	UTM CO-ORDINATES	7-½' QUAD
THE CHESAPEAKE & DELAWARE CANAL:		
Delaware Entrance, sea level canal,	18.45160.437900	Delaware City
Delaware City Tide Lock (Orig.)	*SM buried?	" DE-NJ
(Enlarged)	SG18.44950.438094	"
St. Georges Lock (Original)	SM18.44425.437810	St. Georges DE
(Enlarged)	SM18.44425.437815	"
Orig. Buck Tavern site at Summit	*18.43752.437677	"
Pump House (Corps Museum)	E18.43064.437540	Elkton MD-DE
Chesapeake City Lift Lock (Orig.)	*SM18.4303 .43755	"
Tide Lock (Original)	*SM18.4303 .43755	"
Chesapeake City Lock (Enlarged)	*SM18.43034.437552	"
THE UNFINISHED C&D FEEDER CANAL:		
Elk River Aqueduct	SM18.42954.438990	Newark West
Road bridge over feeder	G18.42952.438964	" MD-DE-PA
Summit Cut	18.43252.438585	Elkton MD-DE
Lock	M18.43360.438475	"
Terminus on intended C&D Canal	18.4346 .43826	"
THE THOROUGHFARE	18.45490.435985	Taylors Bridge DE-NJ
THE CANAL ON DUCK CREEK	18.45210.435560	Smyrna DE
THE NASSAWANGO FURNACE CANAL:		
Furnace, head of canal	18.45884.422838	Snow Hill MD
Lock, lower end	18.45936.422780	"
THE TIDEWATER CANAL (With milage from Wrightsville PA):		
Lock 1 (28.6)	*I18.39394.439562	Conowingo Dam
Aqueduct	*I18.39408.439480	" MD-PA
Lock 2 (30.0)	*I18.39482.439405	"
Lock 3 (31.5)	*I18.39704.439182	"
Lock 4 (32.5)	*I18.39765.439094	"
Lock 5 (33.4)	*I18.39894.439013	"
Lock 6 (34.3)	*M18.39957.438966	"
Lock 7 (36.3) into Deer Creek	*M18.40040.438674	"
Guard Lock (8), Deer Creek (37.4)	SG18.40138.438523	Aberdeen MD
Rock Run Aqueduct	SG18.40180.438476	"
Lock 9 (38.7)	SE18.40298.438364	"
Port Deposit Outlet Lock	SE18.40308.438354	"
Tide Lock (10), at Havre de Grace	SE18.40607.437885	Havre de Grace
Lock House museum (42.4)		MD
THE CONOWINGO, PORT DEPOSIT OR OLD SUSQUEHANNA CANAL:		
Head at Love Island	*I18.39530.439578	Conowingo Dam
Three Locks at Conowingo Creek	*I18.39740.439284	" MD-PA
Three Locks at Octoraro Creek	SE18.40034.439072	"
Dam on Octoraro Creek	18.40052.439028	"
Three Outfall Locks	*M18.40240.438610	Aberdeen MD
THE PATOWMACK NAVIGATION (for batteaux):		
Little Falls Canal Locks (three)	P18.31770.430975	Washington W DC-MD-VA
Guard gate (?) at Dam	*18.31577.431290	Falls Church
Great Falls Canal Locks 4 & 5	P18.30530.431770	" VA-MD
Lock 3	P18.30527.431776	"
Lock 2	E18.30521.431778	"
Lock 1	E18.30513.431789	"
Guard Gate	G18.30512.431802	Vienna VA-MD
Guard Gate	P18.30466.431890	"
Head of Canal	18.30468.431919	Seneca MD-VA
Seneca Cut, foot	G18.30030.432495	"
head	G18.29802.432597	"
Shenandoah Falls Canal, foot	*18.26444.435652	Harper's Ferry VA-MD-WV
head	*18.26272.435758	Charles Town
Armory Canal Lock	P18.26291.435706	" WV-VA-MD
House's Falls Canal	*18.2632 .43615	Harper's Ferry VA-MD-WV
Head of Batteau Navigation, at Savage River	17.66616.437171	Westernport WV-MD
THE MONOCACY, mouth	18.28812.434420	Poolesville
Navigable for 40 miles		MD-VA
Head of Nav.? at Pipe Creek	18.30332.438615	Woodsboro MD
THE CONOCOCHEAGUE, mouth	18.25715.438711	Williamsport
Navigable for 24 miles		MD-WV
THE SHENANDOAH NAVIGATION:		
Shenandoah Canal Locks (2)	M18.26378.435589	Harper's Ferry VA-MD-WV
" " Dam & Head Gates	*W18.26265.435503	Charles Town
Wilson's Lower Falls Dam & Canal	*G18.2622 .43544	" WV-VA-MD
" " " Lock	?	"
Bulls Falls Sluice	* 18.2614 .43542	"
Wilson's Upper Falls Lock	M18.2600 .434948	"
Little Falls Lock	E18.25931.434948	"
Head of Nav., S Fork, Port Republic	17.6917 .42408	Grottoes VA
Head of Nav., N. Riv., Bridgewater	*17.6765 .42496	Bridgewater VA
Head of Nav., N Fork, Strasburg?	*17.729 .4319	Strasburg VA

SITE	UTM CO-ORDINATES	7-½' QUAD
THE CHESAPEAKE & OHIO CANAL (Excluding culverts, with mileage from the Georgetown Tide Lock):		
Georgetown Tide Lock (C&O mile 0)	G18.32151.430748	Washington W
Lock 1, Georgetown (mile 0.38)	E18.32157.430790	" DC-MD-VA
Lock 2 " (0.42)	E18.32147.430792	"
Lock 3 " (0.49)	E18.32138.430794	"
Lock 4 " (0.54)	E18.32129.430795	"
Alexandria Canal Aqueduct (N,1.07)	E18.32043.430793	"
Inclined Plane ruins (2.26)	P18.31869.430838	"
Potomac Canal, Little Falls Locks	P18.31770.430975	"
Inlet Lock 1 at Dam 1	18.31605.431200	"
Lock 5 (5.02)	E18.31605.431208	"
Lock 6 (5.40)	E18.31591.431259	"
Lock 7 (7.0)	E18.31467.431482	Falls Church
Lock 8 (8.33)	E18.31277.431558	" VA-MD
Lock 9 (8.70)	E18.31224.431574	"
Lock 10 (8.79)	E18.31210.431575	"
Lock 11 (8.97)	E18.31182.431575	"
Lock 12 (9.29)	E18.31133.431578	"
Lock 13 (9.37)	E18.31119.431576	"
Lock 14 (9.47)	E18.31105.431574	"
Lock 15 (13.45)	E18.30561.431778	"
Lock 16 (13.63)	E18.30558.431809	"
Stop Gate (13.83)	18.30544.431840	"
Lock 17 (13.99)	E18.30529.431840	"
Lock 18 (14.09)	E18.30524.431872	"
Lock 19 (14.17)	E18.30525.431881	"
Lock 20, Great Falls Tavern (14.30)	E18.30526.431900	Rockville
Lock 21 (16.64)	E18.30582.432245	" MD-VA
Lock 22 (19.63)	E18.30192.432500	Seneca MD-VA
Lock 23 & Dam 2 Inlet Lock (22.12)	E18.29852.432658	"
Lock 24 (22.80)	E18.29748.432681	"
Seneca Aqueduct	E18.29744.432680	"
Goose Creek River Locks (30.64)	18.28620.433066	Sterling VA-MD
Lock 25 (30.84)	18.28619.433097	"
Broad Run Trunk (31.94)	18.28520.433241	"
Lock 26 (39.37)	18.28654.434063	Poolesville
Lock 27 (41.46)	18.28778.434346	" MD-VA
Monocacy Aqueduct (42.19)	18.28830.434430	"
Point of Rocks Pivot Bridge (48.20)	18.28087.434999	Point of Rocks
Lock 28 (48.93)	18.28023.435090	" MD-VA
Lock 29 (50.89)	18.27935.435368	"
Catoctin Creek Aqueduct (51.53)	18.27850.435422	"
Lock 30 (55.00)	18.27322.435440	Harpers Ferry
Lock 31 (58.01)	18.26890.435654	" VA-MD-WV
Lock 32 (60.23)	18.26562.435605	"
Shenandoah River Lock (60.62)	18.26500.435600	"
Lock 33 (60.70)	18.26493.435615	"
Lock 34 (61.57)	18.26395.435708	"
Feeder Dam 3 (62.27)	18.26280.435750	Charlestown
Lock 35 (62.33)	18.26287.435756	" WV-VA-MD
Lock 36 (62.44)	18.26273.435756	"
Lock 37 (66.96)	18.26441.436287	Keedysville
Antietam Aqueduct (69.36)	18.26359.436650	" MD-WV
Shepherdstown River Lock (72.65)	*18.25910.436858	Shepherdstown
Lock 38 (72.80)	*18.25899.436876	" WV-MD
Lock 39 (74.00)	*18.26046.436960	"
Lock 40 (79.41)	*18.26092.437415	"
Feeder Dam No.4 (84.40)	*18.25686.437522	"
Inlet Lock No.4 (85.62)	18.25532.437628	Williamsport
Lock 41 (88.90)	18.25602.437956	" MD-WV
Lock 42 (89.04)	18.25585.437944	"
Lock 43 (92.96)	18.25369.438064	"
Lock 44 (99.30)	18.25735.438635	"
Conococheague Aqueduct (99.80)	18.25715.438711	"
Feeder Dam 5 (106.80)	18.24910.438799	Hedgesville
Inlet (Guard) Lock 5 (106.80)	18.24908.438803	" WV-MD
Lock 45 (107.27)	18.24880.438875	"
Lock 46 (107.42)	18.24872.438896	"
Lock 47 (108.64)	18.24700.438920	"
Lock 48 (108.70)	18.24694.438912	"
Lock 49 (108.80)	18.24685.438898	"
Lock 50 (108.87)	18.24682.438889	"
Big Pool Stop Gate (112.40)	*17.75694.438813	Big Pool WV-MD
Licking Creek Aqueduct (116.04)	17.75320.439300	Cherry Run MD-WV-PA
Lock 51 (122.59)	17.74434.439737	Hancock
Lock 52 (122.89)	17.74394.439743	" WV-MD-PA
Tonoloway Creek Aqueduct (122.96)	17.74381.439744	"
Lock 53 (129.96)	17.73672.439258	"
Lock 54 (133.96)	17.73260.438933	Great Cacapon
Guard Lock 6 at Dam 6 (134.06)	17.73242.438938	" WV-MD
Lock 55 (134.06)	17.73244.438943	"
Lock 56 (136.21)	17.72922.439065	Bellegrove
Sideling Hill Aqueduct (136.56)	17.72874.439092	" MD-PA-WV
Lock 57 (139.22)	17.72647.438955	"
15 Mile Creek Aqueduct (140.90)	17.72432.438913	Paw Paw WV-MD
Lock 58 (143.96)	17.72272.438865	"
Lock 59 (146.56)	17.72043.438750	"
Lock 60 (149.69)	17.72295.438442	"
Lock 61 (153.10)	17.71815.438450	"