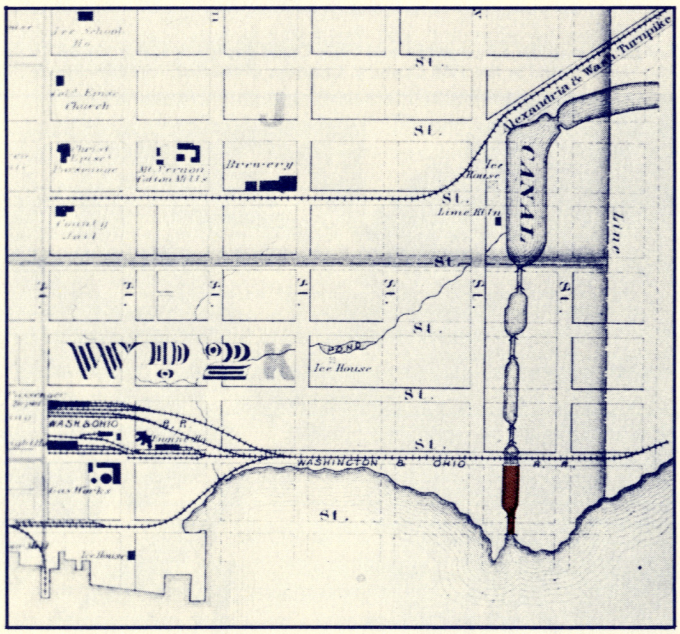
Alexandria Canal Lift Lock and Pool No. 1 on the Potomac River, Ca. 1861-1865. Courtesy of National Archives.

ALEXANDRIA CANAL



G.M. Hopkins City Atlas of 1877 shows the four lift locks and pools. Brown shading indicates area of archaeological investigation of the Lift Lock and Pool No. 1.

History of the Alexandria Canal

The Alexandria Canal played a short, but important, part in the history of commercial navigation on the Potomac River. Congress granted a charter to the Alexandria Canal Company on May 26, 1830. When completed, the Alexandria Canal crossed the Potomac River in an aqueduct bridge over 1,000 feet long between Georgetown and Rosslyn then ran on level ground seven miles to the edge of Alexandria terminating in a large basin. The Potomac Aqueduct Bridge, built under the direction of Major William Turnbull and Lieutenant Maskell C. Ewing, both of the U.S. Topographical Corps, was a large wooden trough supported by eight solid masonry piers, a major undertaking at the time. In 1845, the canal company completed the construction of the four lift locks at Alexandria which lowered canal boats approximately 38 feet to the Potomac River where they discharged their cargoes onto wharves or directly into sailing vessels.

On December 2, 1843, the Alexandria Canal was officially opened to trade and navigation and the first canal boat arrived at Alexandria. Business flourished for a while on the two canals, and, in 1850, the C & O Canal was completed to Cumberland, Maryland. From then on, coal

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from the western Maryland mines became the most important commodity to be shipped via the canals to the Potomac River wharves in Alexandria. Other typical products shipped by canal to Alexandria were wheat, corn, whiskey, corn meal, and flour; products shipped from Alexandria by canal included fish, salt, plaster, and lumber.

The shipments continued until the abandonment of the canal in 1886, which had been interrupted only by the Civil War because of the need to use the aqueduct for a bridge over which to transfer Federal troops and supplies. A break in the aqueduct in 1886 coincided with the demand for a toll-free bridge across the Potomac River. Thus the operation of the Alexandria Canal came to an end.

Other Potomac River Canals

In October 1784, George Washington sent a bill to Governor Harrison of Virginia proposing the Potomac Company and the James River Company to open navigation of the Potomac and James Rivers to the Ohio River. Out of the James River Company grew the James River and Kanawa Canal; out of the Potomac Company eventually grew the Chesapeake and Ohio Canal. These routes of navigation represented two of the four major efforts to connect the Atlantic Seaboard with the Ohio River System and the Great Lakes, the other routes being in New York and Pennsylvania.

After a joint act of incorporation by the States of Virginia and Maryland, George Washington became the first president of the Potomac Company when it was formally organized on May 17, 1785. At completion in 1802, the Potomac River was open to navigation in the high water season to the Savage River above Cumberland and on the Shenandoah a distance of 200 miles above Harpers Ferry to Port Republic. The major works were four locks at Little Falls, Maryland and five locks at Great Falls, Virginia. However, the Potomac Company was unable to cope with the difficulties of river navigation and was unable to provide a dependable route to the west at a time when the Erie Canal in New York was well underway. Consequently, Congress chartered the Chesapeake and Ohio Canal Company in 1825.

The company was empowered to construct a mainly cut canal along the Potomac River shore from tide water near the District of Columbia 341 miles to the Ohio River near Pittsburgh. When it was estimated that a 341 mile long canal would cost $22 million, some three or four times the cost expected, a compromise was struck. A 185 mile canal would be constructed from Georgetown to Cumberland at a cost of $4.5 million.

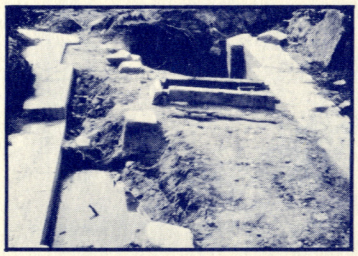
Because the C & O Canal was to commence near the head of tide water of the Potomac River about five miles above Georgetown and about twelve miles above Alexandria, residents of the latter city thought that they would have comparable access to the new canal as Georgetown and Washington. Alexandrians were naturally concerned shortly after the work of construction of the C & O Canal began in 1828, when businessmen of the City of Washington exerted their influence to have the C & O Canal extended through Georgetown to that city.

Since canal boats could not safely traverse the river from the terminus of the C & O Canal at Georgetown to Alexandria, Alexandrians had a valid reason to petition to build their own canal from the C & O Canal to Alexandria. Merchants and shipowners saw lost opportunities in the future shipment of coal and other products that would in time descend the C & O Canal, and in the manufactured products and other items that could be shipped up the canal from Alexandria.

Excavation of Lift Lock and Pool No. 1

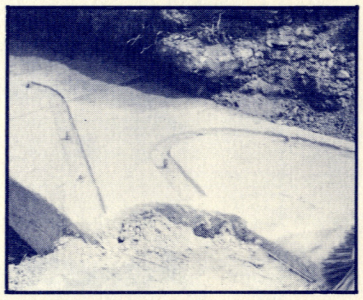
After more than 50 years of concealment, Alexandria Archaeology rediscovered the Lock in 1979 and nominated it to the National Register of Historic Places. This initial investigation demonstrated that one side of the eastern (River) end of Lift Lock No. 1 was in an excellent state of preservation.

The National Trust for Historic Preservation, Maritime Preservation Program, funded the 1982 phase of the Alexandria Canal Project. Working with Dr. Thomas Hahn, Alexandria Archaeology and the Department of Planning and Community Development set about to locate the rest of the Lock and Pool. The aim was to follow the River edge of Lift Lock No. 1 (often referred to as the Tidal Lock) to the west into the remnant of Pool (or, Tidal Basin) No. 1 while assessing the practicality of their restoration.



1. Lift Lock No. 1 after archaeological excavation in 1982 to determine its location and state of preservation.

On a blustery March afternoon the archaeological team, planners, and City crew assembled with shovels, rubber boots, and a backhoe to begin unearthing more of the Lock's eastern end. The first cut made by the backhoe through water-soaked soil exposed perfectly preserved coping stones. Following the stones in a westernly direction, the Lock's entire length (90 feet) and width (16 feet, 8 inches) were outlined.

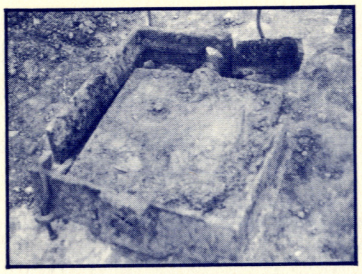


2. Recesses in the Lock Wall for iron straps which held a Lock gate.

Constructed of Aquia Freestone quarried above Key Bridge, the Lock's walls were 15½

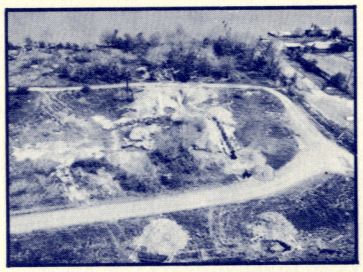
3. Thomas Hahn descending into the Lock to measure depth. Note excellent state of preservation of wall stones.

4. Uncovering the Pool No. 1 south wall which is composed of large, dry laid stones.



5. Iron wicket gate which regulated water flow through the lock gates was recovered during excavation of Lock No. 1.

feet deep. Descending into the Lock, Dr. Hahn determined that its floor was lined with wood planking. Environmental conditions provided by the high water table preserved several parts of the Lock gate which lay within the soil filling the Lock after its use. Some of one gate's horizontal cut timbers as well as two iron wicket gates which fit within the Lock gate and regulated the water flow



6. View of Lock and Pool No. 1 site looking toward the Potomac River from the Ramada Inn. Montgomery Street is on the right.

were found. The fill also contained a large amount of glass debris produced at the Old Dominion Glass Factory (ca. 1898-1927) once located where the Ramada Inn now stands.

By following the stones which flared out at the western edge of the Lock, the contours of Pool No. 1 were located as they extended to the railroad tracks.

How the Lock Worked

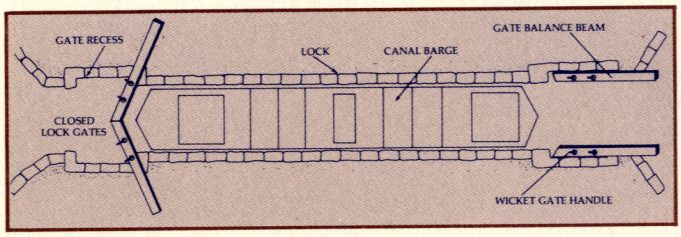
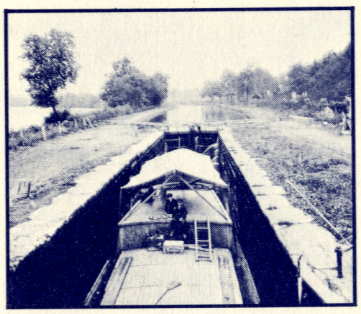


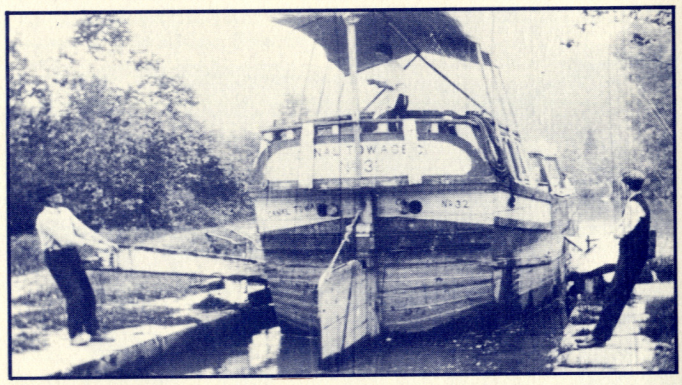
Diagram of typical Alexandria Canal Lock showing gates both open and closed.

Lift Lock and Pool No. 1 were part of a system of four locks at Alexandria's northern city limits which lifted canal boats 38 feet from the level of the Potomac River to that of the Canal. Lock No. 1 was the one from which barges entered and left the River. A boat entered the Lock from either end, passing the open gates, at one end of the lock. The barge probably was poled or towed by hand into the Lock, since no evidence of a mule towpath was revealed from the excavation. Each gate was then swung closed with a long beam attached to the top of the gate and serving as a handle. With both sets of gates closed, the Lock containing the barge was now ready for its water level to be adjusted. The water was raised or lowered by opening the wicket gates at the bottom of the gates at one end of the Lock to let water in or out. When the Lock's water level was equal to the water in the direction of travel the Lock gates were opened and the barge proceeded. This process was replicated four times in order to move one barge the distance from the Potomac River to Washington Street.



7. Lowering of a barge (Chesapeake and Ohio Canal).

8. Water entering lock through wicket gates (Chesapeake and Ohio Canal).



9. Boatmen opening lock gates as barge leaves lock (Chesapeake and Ohio Canal.)

Next Steps for Restoration

The Alexandria Tide Lock is located on waterfront property involved in a title dispute between private claimants and the United States Government. The court case was brought in 1973 by the U.S. Justice Department claiming U.S. Government ownership of all fill on the Alexandria Waterfront since 1791. Because of Lift Lock No. 1's historical importance, the court-approved settlement for this portion of the Alexandria Waterfront includes the stipulation that Lift Lock No. 1 and a portion of the adjacent pool will be restored as a focus for a waterfront historical park. A maritime museum is also expected to be located near the restored lock.

Two grants from the Maritime Preservation Program, National Trust for Historic Preservation allowed the City to undertake the excavation of the Tidal Lock and Basin, as well as produce this brochure. The Alexandria Archaeological Commission was instrumental in launching this project, while the Department of Transportation and Environmental Services and Archaeology Program volunteers helped see it through. Thanks also go to Thomas Hahn, Vivienne Mitchell, and Frederick Tilp for contributing photos and text for this brochure. Photo credits: Numbers 1-6, Alexandria Archaeology; Numbers 7-9, E.B. Thompson collection; National Park Service.

Brochure Prepared by Department of Planning and Community Development & Alexandria Archaeology, Office of Historic Alexandria.

Alexandria Canal Lift Lock and Pool No. 1 on the Potomac River, ca. 1861-1865. Courtesy of National Archives.

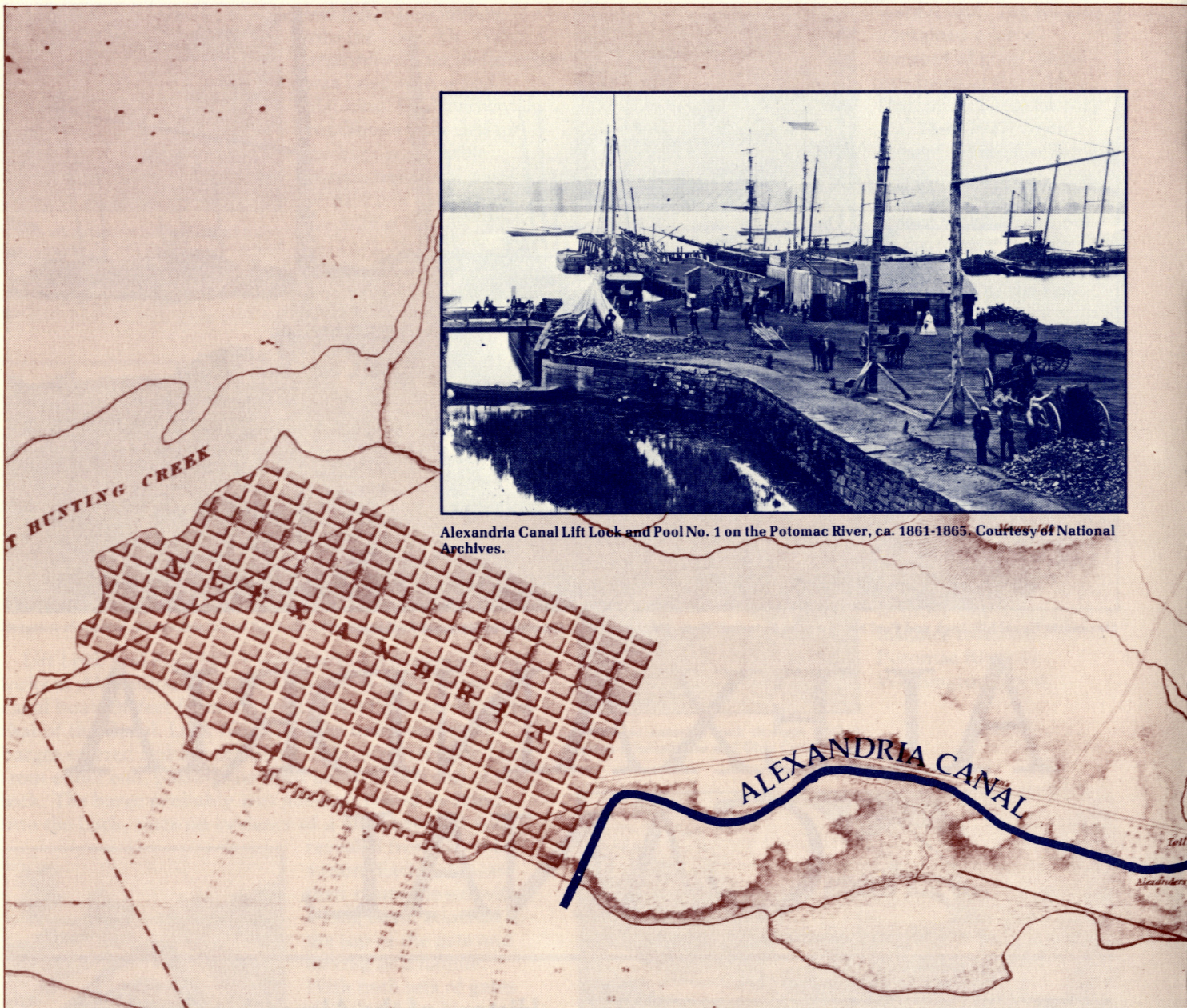
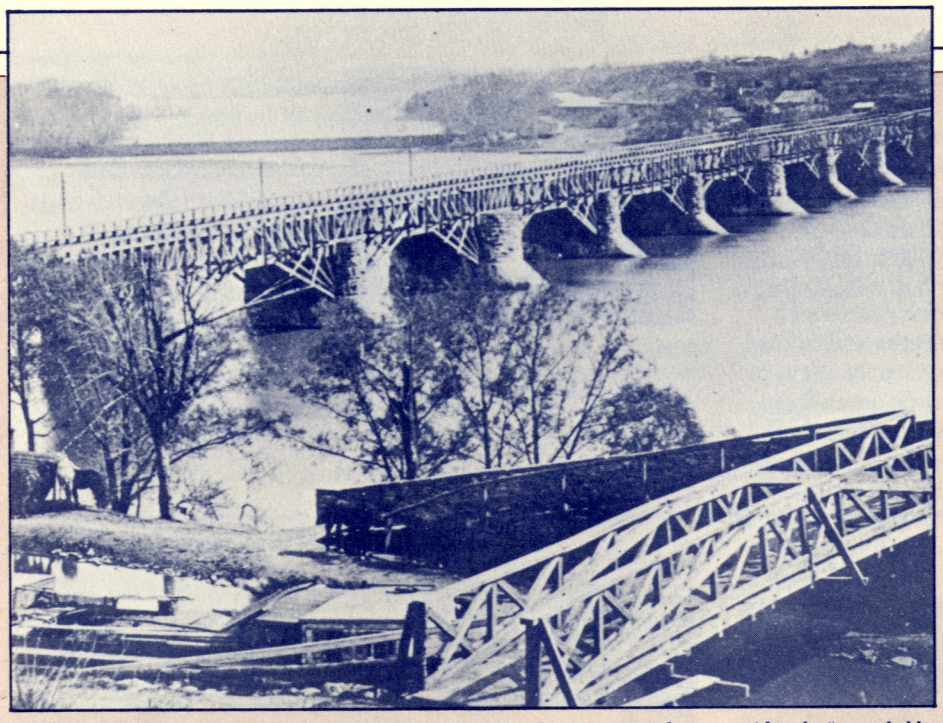


Chart of the head of navigation of the Potomac River prepared in 1838 by Lieutenant Maskell C. Ewing, the supervising engineer. The Alexandria Canal and Chesapeake and Ohio Canal, as of 1845, are shown in blue.

Towpath along the Chesapeake and Ohio Canal depicts a scene similar to that which v
Alexandria Canal in the 19th Century. Courtesy of the National Park Service. E.B. Thomp



The Aqueduct Bridge was constructed (1833-1843) at the cost of $6,000,000 and was considered a "remarkable engineering feat of the time".

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ALEX^A CANAL COMPANY OCT. 183

Compiled from the surveys of Lt. Col. Kearney. Majo

W.M.C. Fairfax M.C. Ewing Civ. Eng^rs

W. J. Stone Sc. Wash. D.C.

SCALE OF FEET

0 1 2 3 4

Alexandria and Georgetown Road

Arlington

Alexandria and Washington Turnpike

Turnpike

Columbia

Gen. Hunters

Gravel Point

ALEXANDER'S ISLAND

Georgetown Channel

Dry at Low Water

Long Bridge

TIBER MOUTH

President's H

as common along the

son Collection.

Bench Marks

Station	Notes	Height	Remarks
A	8'5	+5.520	Head oak stump
B	16	-12.527	55 varies ring to Colonade
M1	5	+9.867	Head oak oak tree
M II	33	+18.510	Head oak stump
M IV	51	+21.012	" Tree Rocky Run
V	58	+7.862	" Pin oak tree
M	106	+2.980	white oak Lent
N	116	-8.772	
C	119	-15.776	Hyper stump junction Rocky
E	135	+14.018	
Q	142	-13.798	Eye stump near Rocky
R	152	+9.012	Persimmon
S	170	+5.788	Persimmon stump
T	179	+5.516	Gum S of Rock Creek Canal
U	191	+3.408	Locust stump
V	207	+9.446	Cedar hole side
W	216	+18.170	
X	225	+26.620	Tall cedar for Lock of line
Y		+10.010	Lyre stump E of line W of line
Z	286	-15.474	D stump N of line
A	231	-24.578	W.O. oak N of line S. Rock
BB	235	+12.811	
C	246	+29.036	Ced. Lock canal
D	267	+15.893	Ced stump Lock of line
E	289	+2.030	Locust fence
F	298	-5.915	
G	305	+3.081	Ced. stump E line
H	323	+19.839	E Canal & Lock fence
I	346	+31.776	
J	357	+14.798	Rocky Lock cabin
K	379	+7.845	Ced. stump north of line
L	397	+26.031	Big oak Lock West of line
M	395	+10.476	
M1	416	+8.577	Near 24 Locust stump
M11	420	+4.125	S of Lock Lock Gate
M11		+12.839	

Page from Maskell C. Ewing engineer's field book showing bench marks.

Cover of Maskell C. Ewing's field book which recorded the progress of the Alexandria Canal survey and construction. Courtesy of the National Park Service.

Aqueduct Bridge at Georgetown brought barges from the Chesapeake and Ohio Canal (in the foreground) to the Alexandria Canal at Rosslyn, ca. 1868. Courtesy of Robert Truax Collection.