

A Timeline for Baltimore City Water

1712 Local government at this time was transferred from Old Baltimore on the Bush River to Joppa on the Gunpowder River.

Joppa, at this time was a town of four streets, a church, courthouse, tavern, stores, a few houses (there were 40 plotted lots), and great stone wharves which reached into the Gunpowder River for the tobacco fleets. Joppa was a major tobacco port with a harbor finer than its rival, Old Baltimore, located on the Bush River to the north.

1714 Mr. Principio Onion acquired 100 acres at the mouth of Little Gunpowder Falls where it entered the Gunpowder River and built the Principio Onions, Nottingham, and Kingsbury Iron Works.

1735 Completion of Risteau's Fancy on Glen Arm Road near Cromwell Bridge.

1767 James Watt designed another steam driven pump to drain mines. This engine was the first double action steam engine.

1767 Local government at this time was relocated from Joppa to the new Baltimore location on the Patapsco river. New Baltimore on the Patapsco river had the best harbor, so Joppa on the Gunpowder river began to die.

1768 Many mills were constructed to grind grain, saw wood including Jerusalem Mill, This mill is a grist mill on the Little Gunpowder Falls that is still standing and is now a National Park Service site.

1775 William Hoffman built a number of paper mills. When the Continental Congress moved to Philadelphia (and later to York, Pennsylvania) his mills were major suppliers of paper such as the paper used for continental money. One mill remains today, Federal Paperboard in White Hall, built on First Mine Branch, a tributary of the Big Gunpowder river.

1776 The signing of the Declaration of Independence, and start of the Revolutionary War.

1776 At this time public fountains were the main source of water for fighting fires, and the city required each householder to provide leather buckets to be used to form fire brigades. 1807 Water began to flow in the wooden pipes of the Baltimore Water Company to serve the fountains.

1777 The Jenifer house that still stands at 2200 Cromwell Bridge Road was completed. This house is part of the 100 acres surveyed in 1719 and owned by Samuel Stansbury and called Long Island Farm. The organization incorporated as the Hisotric Long Island Farm, Inc. is working to preserve this historic house and land.

- 1787 What was known as the Baltimore Community was governed by special commissioners that were entrusted with the enforcement of a law setting forth a means of extinguishing fires. These special commissioners served until 1797 when the Maryland General Assembly created Baltimore City.
- 1790 John Ridgley's Hampton Mansion was completed. This mansion is still standing at 535 Hampton Lane, and is maintained by the National Park Service.
- 1797 The Maryland General Assembly created Baltimore City. The City Commissioners appointed by the Mayor were charged with the responsibility to lay pipes (wooden pipes were made in bound sections like a barrel) for the distribution of water from Carroll Run. However, in 1799 the work was stopped by property owners objecting to having the pipes crossing their property.
- 1800 Baltimore City petitioned the General Assembly for authority to introduce water into the community and in December 1800, this power was granted.

Water sources consisted of 4 wells at the following locations:

- Calvert and Camden Streets
- Charles and Saratoga Streets
- Eden and Pratt Streets
- Market Place below Baltimore Street.

- 1801 Where Harford Road crosses the Big Gunpowder Falls, Levi Hollingsworth built the Gunpowder Copper Works. This rolling mill manufactured copper sheets for the navy and the Capital Dome in Washington DC.
- 1805 A house that was built on land given by Catherine Amos to her son Amos and his new bride Catherine Worthington. This land was surveyed as Guy's Good Fellowship Farm. The house has been modified through the years, but still exists at 2000 Cromwell Bridge Road.
- 1808 Baltimore City began to purchase the Baltimore Water Company and its wooden pipes.
- 1810 Baltimore City started to build a dam across the Jones Falls to create Lake Roland as a source of water for Baltimore City. The dam across Jones Falls was completed in 1812 and Lake Roland was formed. A drought in the fall caused concern for adequacy and a temporary connection to the Gunpowder Falls was considered.
- 1832 Construction was begun on Glen Ellen, by Robert Gilmore, based on the design of Sir Walter Scott. An architectural gem with carved window casings, some of which were relocated to the Cloisters on Falls Road. The Gilmore land became Loch Raven reservoir in the early 1920's, and Glen Ellen was knocked down to prevent vandals from living in the remains.

- 1854 Baltimore City completed the purchase of Baltimore Water company for \$1,350,000. Between 1854 and 1862 the new Baltimore City Water Department constructed the new Jones Falls supply consisting of a dam at Lake Roland and transmission lines to the Hampden and Mt. Royal reservoirs. Later improvements included the construction of Druid Lake, Western Pumping Station, and western High Service reservoir, all in Druid Hill Park.
- 1854 The start of the Civil War
- 1858 Harry Gilmore, a confederate that owned a large tract of land on what is now the shore of Loch Raven Reservoir, attacked and burned the bridge where the railroad crossed the Gunpowder River at Magnolia.
- 1860 A temporary 36 inch diameter cast iron pipe was laid from Gunpowder Falls to Roland Run a tributary of Jones Falls to supplement water levels in Lake Roland as needed.
- 1861 Construction started on a masonry dam across Gunpowder Falls. This dam formed the original Loch Raven Reservoir, and is now the lower basin of Loch Raven Dam.
- 1864 The lower Loch Raven dam was completed with a pump house on the west side, and a picnic area on the east side. The crest of the spillway of the lower Loch Raven dam is at an elevation of 170 feet MSL (above Mean Sea Level) and the bottom is at an elevation of 160 feet MSL.
- 1865 As the lower dam was being constructed, a seven mile long, 12 foot diameter tunnel was built on a straight line from the pump house to Lake Montebello. Seven miles of this tunnel was unlined through 5 miles of solid rock and two miles at the Loch Raven end was lined with brick. Building this tunnel was an enormous construction feat considering that only steam power, manpower, and mule power was available.
- 1881 On tunnel completion in 1881, the story is that, a black tie party was held in the tunnel to celebrate. Data is recorded on a stone monument located near the southwest corner of the lower masonry dam. For a map showing this underground tunnel select the Information tag on the home page.

For a technical discussion on how this tunnel was used to move water from the lower Loch Raven basin to Montebello using a balanced flow system based on a nominal elevation at each end of 195 MSL, select the Information tag on the home page.

This 1881 water tunnel is still in existence today. The segment from Baltimore to the pumping station on the side of Cromwell Bridge Road, where the tunnel crosses under Cromwell Bridge Road, is still in use to carry water from the Montebello Water Treatment Plant to a well at the pumping station. The pumping station then pumps water from the well to the Towson Reservoir on Burke Avenue via a 42 inch diameter pipe.

Land on the east side of the lower Loch Raven basin was accessed by a suspension bridge that was located above the lower dam spillway, and from a dirt road and a 30 foot right-of-way from Glenarm Road that ran along the north edge the Hoover farm and was called Hoover Lane. It appears that the East side of the lower basin was built as a picnic areas for the enjoyment of the public. A picture hung in the lobby of the Baltimore County Councilmen offices clearly shows this suspension bridge and the gate at the east end providing access to the picnic grounds.

It is interesting to note that there is no official requirement for discharge from this dam to maintain a minimum flow rate for Gunpowder Falls. Gunpowder Falls flow rate below the lower dam is primarily dependent on inflow from Mine Bank Run, Cub Hill Run, and other tributaries as it flows toward Chesapeake Bay. The only contribution of water to Gunpowder Falls below the lower dam is when the watershed provides more water than is sent to Lake Montebello, or the reservoir behind the dam is drained. A manually controlled valve taps water from the supply pipe from the upper Loch Raven Dam and a manually controlled gate at the lower dam allows draining the lower Loch Raven basin, but much of the lower basin is filled with mud and this mud should not be moved downstream.

- 1882 Thomas Edison built the first electric Power Plant in New York city to power a string of street lights.
- 1885 Gottlieb Daimler and Karl Benz built the first 4 cycle gasoline engines.
- 1904 A large fire destroyed a large portion of Baltimore.
- 1912 The City began work on Loch Raven Dam with a crest of 188 MSL
- 1914 Construction is completed for a new upper Loch Raven dam with a crest elevation of 188 feet above MSL. Also, the Montebello Water Treatment Plant #1 was completed, and the Jones Fall supply from Lake Roland was discontinued due to pollution.

This construction utilized a spur of the MA & PA (Maryland & Pennsylvania) railroad that was built in the 30 foot wide right-of-Way (ROW) formerly used to build the lower masonry Loch Raven Dam. The right-of-way was extended to the construction site of the new upper Loch Raven dam. Access to both sides was provided by a wooden trestle that crossed the Gunpowder Falls. Pictures of this spur line, the trestle, and the construction site are available for public viewing on line by browsing to the BCPL Legacy Web site and typing in the key words "Loch Raven Dam". This construction probably ended the use of the east side lower reservoir riparian bank use as a public picnic area accessed via suspension bridge over the lower dam,. However, the unpaved roadway that was created as the spur railway was removed provides access to the east side of both the upper and lower Loch Raven dams, and provides access for fire fighting equipment to protect the adjacent areas along the right-of-way.

The higher reservoir elevation provided by this new upper level dam enabled elimination of the Balancing Reservoir and pumping from the lower reservoir into the 1881 tunnel to Lake Montebello and Water Treatment Plant #1.

- 1918 Baltimore City annexed 50 square miles of adjacent land. This increase in the size of Baltimore city also increased the demand for water, so plans were made to raise the spillway height of the Loch Raven dam to enlarge Loch Raven reservoir even though this meant flooding a number of mills and homes.
- 1922 Completion of new construction on the upper Loch Raven dam raised the spillway elevation to 240.00 feet MSL. This increased the height of the upper dam by 62 feet. Sluice gates and a 10 foot diameter steel pipe were constructed to carry water directly from above the reservoir to the 1881 tunnel. The higher head of the reservoir allowed delivery of water by gravity alone to Lake Montebello which has a nominal elevation 225 MSL..
- 1928 The second Montebello Water Treatment Plant was completed.
- 1940 World War II begins.
- 1940 Construction of a new concrete lined 12 foot diameter tunnel from a point behind Sanders Corner restaurant at the intersection of Cromwell Bridge Road and Loch Raven Drive, to Lake Montebello was completed..
- 1946 Construction completed for a new 10 foot diameter PCCP pipe from Loch Raven Reservoir to the new tunnel entrance near Sanders Corner Restaurant at the intersection of Cromwell Bridge Road and Loch Raven Drive. At the same time the old steel pipe that provided water for the old 1881 tunnel was extended to the new tunnel entrance. Extending the old steel pipe enabled abandoning use of the 1881 tunnel and the old pumping station at the west end of the masonry lower Loch Raven Dam.
- A new well and pumping station was constructed where the old 1881 tunnel crossed under Cromwell Valley Road. The portion of the old 1881 tunnel between this new well and pumping station at the Lake Montebello end, became used to move water from the Montebello Water Treatment Plant to the new well. The new pumping station then moved this treated drinking water via a 42 inch diameter pipe to the Towson Reservoir for further distribution to Towson, and parts of Baltimore county. The portion of the old 1881 tunnel between the new pumping station on Cromwell Bridge Road and the end near formerly connected to Loch Raven Reservoir remains unused and abandoned.
- 1950 Korean War starts.
- 1953 Vietnam War begins.
- 1956 The Ashburton Filtration Plant was completed.
- 1969 A new 12 foot diameter tunnel and pumping station at Deer Creek provided an alternative source of water from the Susquehanna River which was tapped above Conowingo Dam. The tunnel connects to Lake Montebello. Maryland began buying land along the Hoover Lane right-of-way that provided access to the east side of the lower and upper Loch Raven dams. Undeveloped land (5.3 acres) that spanned the extension of Hoover Lane in the access road right-of-way was

- purchased from Frances B. Pottberg. by the Bureau of Forests and Parks.
- 1970 A pumping station is built on the north side of Cromwell Bridge Road where the old 1881, twelve foot diameter tunnel crosses under the road-, a little southwest of the intersection of Satyr Hill Rd. Water from the Montebello Water Treatment Plant is pumped to a well below the pumping station via piping installed in the abandoned section of the old 1881 tunnel. This pumping station takes water from the well and delivers it to the Gilford and Towson Reservoirs.
- 1971 In June 1972 hurricane Agnes brings flood levels to Gunpowder Falls. Water reaches levels very similar to those defined by the 100 year flood plain maps provided by the US Army Corps of Engineers (COE) and FEMA.
- 1973 More undeveloped land is purchased by the state for use by DNR (Department of Natural Resources) from Morgan Hoover. However, land on both sides of the 30 foot right-of-way remained in private hands until purchased as defined below:
1969 - 7.0 acres by the State of Maryland from Francis B. Pottberg
1973 - 63.1 acres purchased by the State of Maryland from Morgan Hoover.
This land is now leased from DNR by a local farmer who uses it to raise corn.
- 2002 Construction was begun to rehabilitate the upper Loch Raven dam to make it able to withstand an inflow of water to accommodate a design rainfall of 31 inches in a 72 hour period as mandated by the Corps of Engineers (COE) in the early 1990's

Intake chambers on the West side of the upper dam are filled via large sluice gate openings protected by vertical steel bars and a moving rake that keeps them relatively free of debris. Behind these screened openings are a number of 42" wide by 72" high manually actuated sluice gates.

The sluice gates are numbered from 1 thru 21, Gates 1 thru 14 control water thru the old 10 foot diameter steel pipe. The elevation of the lowest edge of these gates varies from 204 feet above MSL or 220 feet above MSL. Gate 15 was part of the 1914 first phase of construction. This sluice gate is now abandoned, but formerly controlled water to keep the lower Gunpowder Falls flowing via a 4 foot diameter reservoir drain line that is also abandoned. Gates 16 thru 21 control water thru the newer 10 foot diameter pccp pipe. The elevation of the lowest edge of these gates varies from 190 feet above MSL to 220 feet above MSL. Flow to Lake Montebello depends on reservoir elevation from 190 feet above MSL to a maximum of 240 feet above MSL at the crest of the spillway.

As long as the level of water in Loch Raven Reservoir is higher than the elevation of Lake Montebello (estimated as normally 225 feet MSL), water will flow through the pipes and new tunnel to Lake Montebello by the force of gravity. As the level of water in Loch Raven Reservoir falls, the level of water in Lake Montebello must be lowered, by pumping, to keep water flowing through the pipes and tunnel.

- 2005 Completion of the restoration of Loch Raven Dam.

Glossary of Terms and Abbreviations:

BCPL = Baltimore County Public Library

COE = US Army Corps of Engineers

DNR = Department of Natural Resources

Elevation = Distance in feet above MSL - Mean Sea Level

FEMA = Federal Emergency Management Agency

Invert = The elevation of the lowest wetted point on the surface of a pipe carrying liquid.

MSL = Mean Sea Level

PCCP = Pre-stressed Concrete Cylindrical Pipe