



Friends of the Old Croton Aqueduct

Newsletter
No. 38, Spring 2011

But How Did James Bremner Inspect The Aqueduct Tunnel In The 1840s?

Here, in Dobbs Ferry, Steven Oakes equipped with the latest safety equipment, and a rescue team standing by, is about to inspect the Aqueduct tunnel under the area where work will be done to correct the hazardous, steep-slope entrance to the trail. It's the exciting first step in the Friends' most recent big project and an indication that the work to reconfigure the slope, smooth out the rocky bits, build the staircase and construct the ramp

for wheelchair use will be underway before the start of the summer. Thank you to all those who contributed so generously to our campaign!

An inspection of the condition of the tunnel is mandatory before any work above it takes place. Today it's partly because the Aqueduct is a National Historic Landmark and, as such, must be protected from harm. Steven Oakes had to take confined space training, wear a hard hat with a light and carry an oxygen tank, a radio and air testing equipment to do the job.



Photo by M. Cain

Doesn't all this training and preparation make you wonder how James Bremner, the first Keeper in Dobbs Ferry, managed to carry out his duties? He had to inspect the tunnel for leaks and obstacles to water flow and supervise any work being done. Although the ventilators we see on the trail were open, there was only one per mile. Did he carry a gas torch? Even when some of the water was drained for repairs, he

would still have to slosh through plenty of it.

Steven, our former site manager, reported when he emerged safely that "there was a lot of poo and muck, probably the result of the sewage leak in Tarrytown" (now corrected, see the last newsletter). He also reported a small crack in the top of the tunnel where there is heavy traffic above. But the good news is that the area where our work will be done is in good condition, On to the next stage in the project!

— Mavis Cain

High Bridge Restoration Plans Presented

New York City's proposed design for the long-awaited restoration of the High Bridge was presented to the Landmarks Preservation Commission at a hearing on April 5, 2011. The entire set of drawings can be viewed on the city Parks Department's website, or click on the link on the home page of the Friends' website: www.aqueduct.org.

There was praise for most aspects of the design, including ramps to be added to make the bridge accessible to people with disabilities, preservation of historic materials like the original bricks on the walkway, and the care to be taken in work on all components of the historic Aqueduct bridge. However, two important elements of the plan—the lighting proposal and the eight-foot height and oppressive design of the safety fence—met with vehement opposition from those who testified, including Robert Kornfeld and Charlotte Fahn for the Friends. Nevertheless, the Commission voted its approval of the entire proposal.

The *Daily News* commented critically on the safety fence in an editorial on April 7. The paper also ran a news article on the subject in the same issue.

Review of the proposal by New York State preservation officials, the Section 106 process, is still underway. Links to the detailed comments on the plan submitted by the Friends to the state's Historic Preservation Office, as well as to the text of the *Daily News* items, can also be found on the home page of the Friends' website. For further information, contact Charlotte Fahn at czfahn@yahoo.com or 914-478-3961.



*The High Bridge, opened for a special event in 2007.
View is toward Manhattan. (Photo by C. Fahn)*

Those wishing to voice an opinion on the plans can address letters to Michael Bloomberg, Mayor, City of New York, City Hall, New York, NY 10007.

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Your tax-deductible contribution helps to protect and preserve the trail.

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Please let us know if you would like to volunteer.

The Old Croton Aqueduct in History and Culture

Ed Brody

IV. From the Decision to Build (1835) to the Aqueduct Opening (1842)

This continues our story from the Winter 2011 newsletter (Issue 37), which covered the period from 1802 to 1835.

After various proposals and failed challenges to the Manhattan Company, a cholera epidemic in 1832 finally shocked the city's leaders into action. The respected Major David Douglass was hired for a survey; he recommended damming the Croton River 41 miles north of New York and building a closed masonry aqueduct to bring water into the city. After much legal maneuvering, the City Council voted in April 1835 to proceed.

The setting

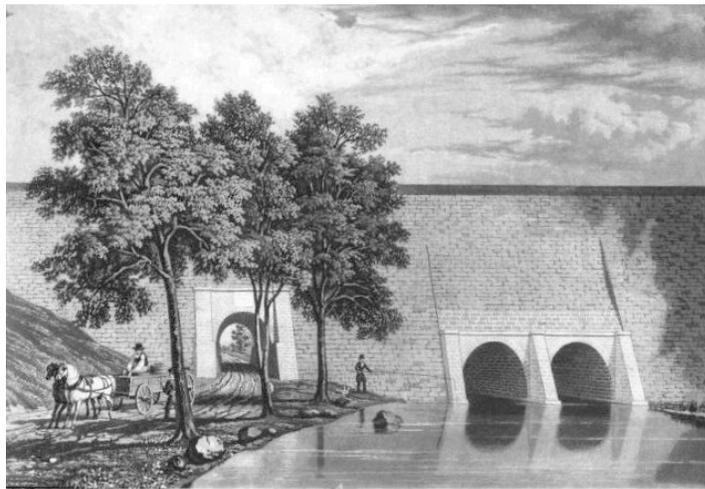
The decision to build the aqueduct came none too soon. New York City was expanding rapidly; its population would increase by 50 percent to 313,000 by the end of the decade, mostly as a result of immigration, and the city limits were now at 21st Street. But it still lacked basic sanitation. There were no sewers. Polluting industries were built near wells and refuse, ashes, dead animals and other detritus of daily living were just dumped in the street. Travelers to the city said the stench was so bad they could smell it from six miles away.

Westchester, too, was growing. By 1830 it had a population of 36,000 centered around Bedford in the north. The southern part was undeveloped except along the route of the future aqueduct. Farmers had acquired land along the Croton and Hudson Rivers and the river towns were taking shape. City people bought land along the Hudson, among them William Paulding, former mayor of New York City whose estate later became Lyndhurst.

Work starts

As mentioned in the last newsletter, a referendum putting the question of the Aqueduct to the voters passed in April 1835. The Common Council quickly authorized the first \$2.5 million of Water Company bonds – the total budget was \$5 million¹ – and in June appointed Major Douglass² as chief engineer to implement his recommendations. But things did not go as well thereafter.

For construction to start, contracts had to be bid out with detailed specifications and the requisite land acquired, which meant that detailed maps were needed, which, in turn, meant surveys and stakeouts. All this took time. Meanwhile, landowners along the proposed route protested, delaying the project further. They even



The Aqueduct at Yonkers. From "Illustrations of the Croton Aqueduct," 1843, Fayette B. Tower.

petitioned the State legislature to repeal its land acquisition act, claiming that the law allowed the city to take property from owners without their consent; it was "repugnant to the US Constitution." Further, they argued, the project was not entirely for the public good since it benefited only New York City whereas the canals which were being built benefited the whole state. The city was exceeding its natural limits, they said. New people should settle elsewhere. They interfered with, blocked, even assaulted surveyors and engineers and went to court to get a higher price for their land than the city was offering. Ultimately the city paid \$165,786 to some 200 people for 813 acres, about four times the amount in the original budget, with concessions for water rights, fences, and rights of way. Unused land reverted to its owners.

By October 1836, Douglass was behind schedule and still asking for more assistants and further study. The Water Commissioners now lost confidence in him and replaced him, somewhat acrimoniously, with John Jervis³. Jervis spent the winter completing the specifications and advertised for bids in February 1837 with completion planned for October 1839. But in March, the financial markets collapsed. The Great Panic of 1837, which lasted until 1842, made it harder to raise funds but also kept wages low. In April contracts for 10 of the eventual 99 sections of the Aqueduct were awarded and work started in May.

Problems

Initially there were 390 men, mostly unskilled Irish immigrants, plus their families. They earned 75¢ a day

(reduced to 50¢ in the winter) and lived in “shantees” along the work route. Northern Irish clashed with southern Irish. On the job drinking, an accepted practice among laborers, fueled fights. The Irish did not assimilate well; they were poor Roman Catholics while the locals were prosperous English and Dutch Protestants. These cultural differences exacerbated the conflicts.

In April 1838 workers went on strike for a wage increase to \$1.00/day, leading to riots, deaths, and prison sentences. In July, as the overall labor situation improved, wages were raised.

By April 1840 the labor force had grown to 4,206. But with the economy still in shambles, contractors tried to revert to the 75¢/day winter wage instead of the \$1/day of the previous two summers. Rioters moved down the line into Manhattan. The militia was called out, a Westchester posse was formed, the leaders were arrested and the 75¢ wage held.

Despite labor problems, changes of city administration, cronyism and management interference, Jervis pushed on. By the end of 1840 the Croton River dam was nearly finished, creating a 50-foot deep, 400-acre lake stretching five miles. But an 18-inch snowfall followed by a thaw and heavy rain swelled the river to flood stage. At 3am on January 8, 1841 the dam burst. Happily, people were alerted so only three died but every bridge, house and mill downriver was destroyed. The local newspaper acknowledged that this was an historic flood with similar problems elsewhere in the region. Jervis acknowledged partial fault and the city paid compensation. Jervis then designed a bigger, better dam and started rebuilding that April.



“Croton Water Celebration 1842.” Sheet music cover for the “Croton Ode,” sung at City Hall Park during the civic festivities on October 14, 1842, marking completion of the Croton Aqueduct. Artist unknown.

Opening

It was the first of its kind in the United States: a gravity-fed masonry structure running 41 miles. It was an immense labor: tunneling through ridges, bridging valleys and rivers while maintaining a gentle 13 inches per mile gradient, building a dam and two high-walled

reservoirs. It had taken five years instead of the anticipated two-and-a-half and the cost was \$12 million (with more to do) instead of \$5 million but the Aqueduct did open.

In June 1842 there was an official two-day inspection walk through the tunnel by lamp light. Two weeks later water started to flow and several daring souls floated down the tunnel in the dark for 22 hours on a flatboat.

Opening day was July 4, 1842. Some 20,000 people visited the Murray Hill distributing reservoir (at what is now the NY Public Library but was then a mile north of the city limits) to see the reservoir fill.

Allowing time for the water to reach homes and public fountains, the official celebration was held on Oct 14, 1842. The day was proclaimed a holiday. Church bells rang. Cannons were fired. There was a procession from Battery Park to City Hall. Copies of a special ode were

distributed and sung to music from a Rossini opera. Speakers hailed this wondrous accomplishment.

What effect would it ultimately have?

Footnotes

1. It is hard to convert this to today’s dollars as there were no taxes and much was made at home. In 1835 a laborer earned less than \$1/day. In 2005 he could earn 200 times that. Samuel Williamson, “Unskilled wage index,” (2007, Economic History Association, EH.net).
2. Sidney Horenstein, “Two 19th Century Engineers”, Newsletter, Summer 2008 # 30, discusses Douglass and Jervis.
3. Cornelia Cotton, “The Education of John Bloomfield Jervis,” Newsletter, Winter 2009/10, #34, has more insights into this extraordinary man.

Note: We relied on G. Koepfel, “Water for Gotham” (2000, Princeton University Press) and articles by R. Panetta and T. Harnik in “The Old Croton Aqueduct: Rural Resources Meet Urban Needs” (1992, Hudson River Museum of Westchester).

Walks and Tours

All walks and tours will be led by a member of the Friends of the Old Croton Aqueduct. Walks are free to all and (unless specifically noted) do not require prior registration. Check contact information for updates on schedule, weather, etc.

May 14, Saturday — Ossining Weir Tour. As part of NY State Heritage Weekend, descend into original 1842 brick water tunnel and learn its history. Meet at 10 AM at the Weir building on the Double Arch Bridge adjacent to the Joseph Caputo Community Center, 95 Broadway, just west of Rte. 9/Highland Ave. at junction of Croton Ave. (Rte. 133). Information: 914-762-4082

May 21, Saturday — Old Croton Aqueduct in Sleepy Hollow/Rockefeller State Park. Meet at 10AM in north parking lot of Sleepy Hollow H.S., Rte. 448, uphill (east) from Rte. 9. Walk north on Aqueduct. Detour into Rockefeller Estate, an area rich in history. Bring lunch. Reservation: 914-693-0529

May 28, Saturday — Old Croton Aqueduct in Yonkers to Untermyer Park. Meet at 10 AM at top of driveway of Hudson River Museum. Hike north for scenic views of Hudson River. Detour to Untermyer Park to learn its history. Reservation: 914-693-0529

June 11, Saturday — Ossining Village Fair Day Weir Tours. Tours from 10 AM to 3 PM. Descend into original 1842 brick water tunnel. Learn its history. Meet at Weir building on Double Arch Bridge adjacent to Joseph Caputo Community Center. (See May 14 above for more detailed directions). Information: Tom Tarnowsky, 914-862-4207

June 18, Saturday — Old Croton Aqueduct from Gerlach Park (Ossining) to New Croton Dam. Meet at 11 AM. Bring lunch and water. Explore scenic Croton Gorge Park at base of Croton Dam's spectacular spillway (5 miles roundtrip). Directions: from Rte. 9 in northern Ossining turn east across from Mystic Point sign onto Old Albany Post Rd., following road sign for Quaker Bridge Rd. as well. Continue on road one mile to green Gerlach Park sign on right. From entrance, turn left and continue to

parking area. Information: Charlotte Fahn, 914-478-3961 or czfahn@yahoo.com.

July 17, Sunday — Hastings Circular Walk. Walk entirely within interconnected suburban parks: Rowley's Bridge; Old Croton Aqueduct; Lenoir Preserve; and more. Meet at noon in northbound commuter lot of Hastings MetroNorth station. Information: Hal Kaplan, 914-376-3156 or kapco@optonline.net.

September 17, Saturday — Old Croton Aqueduct from Dobbs Ferry to Tarrytown. As part of the Hudson River Ramble, walk to Lyndhurst Estate and back (5.4 miles roundtrip). Admire architectural landmarks and Hudson River views. Learn Aqueduct history. Meet at 10 AM in N.E. corner Mercy College parking lot in Dobbs Ferry on Rte. 9. Information: 646-303-1448 or sak1221@aol.com

October 15 and 16, Saturday and Sunday — Open House New York Weekend Hikes. Explore the route of the Old Croton Aqueduct in separate hikes in the Bronx and Manhattan. Registration and walk details in September at: www.ohny.org. Send inquiries by email to: old.croton.aqueduct@gmail.com.



Members of a Columbia University graduate level studio class in historic preservation, at the Bronx end of the High Bridge after a walk along the Aqueduct from Jerome Park Reservoir on April 9. Liz McEnaney, the instructor, is fourth from left in the back row. The Aqueduct is the subject of the studio, with an emphasis on interpretation. Bob Kornfeld, Charlotte Fahn, Carl Oechsner, and Laura Compagni have provided assistance. (Photo by C. Fahn)

Goodbye Steve

Steven Oakes left us in February to take a job as Manager of the state's newest historic park, Walkway Over The Hudson. The pathway is built on an 1880s railroad bridge that joins Poughkeepsie on the eastern side of the river with Highland on the west. This is a promotion for Steve so although we're going to miss him we're happy he was selected for this exciting and challenging position.

Steve grew up in Dobbs Ferry so when he was appointed Manager of the Old Croton Aqueduct in 2007 he didn't have to spend time getting to know the trail. "I was happy to come back and find that it was basically as I remembered it," he said, "but of course you look at things differently when it's your job to take care of something."

"Early on, I decided that one of my priorities would be to protect the integrity of the basic structure. When the state took over the Aqueduct from New York City in 1968, there's no evidence that this was one of the duties of the park manager. As a result, drainage has become a major problem so as soon as we could we began to address this... it's a huge job. Many, probably more than half of the drainage structures are not functioning and some even seem to have disappeared. When there is a major downpour, sometimes sections of the road, by the Croton Dam, for instance, are washed out and because of blockages fetid water can come up over the trail."

"Another concern is the encroachments on the trail. Over time, people have built over the property lines so we began the task of reclaiming park space. Some encroachments are easy to spot; some are more subtle; and there are also the surprises where the trail narrows and then suddenly widens and residents often aren't aware of it. Sometimes you get the sense that you're invading someone's backyard because people were often allowed to build their houses with the back step on the property line."

"One thing I'm particularly happy about is that the Aqueduct is now a separate park. For a while it shared staff and other resources with the Rockefeller State Park Preserve. Another is that we were all trained on how to use the bucket truck so we could do our own tree work. That saved us money. It's nice to actually be able to 'do more with less'."

"I'll miss the Aqueduct park patrons. They really appreciate what we do. One man who often used to stop and talk said he had been walking the trail since the 1940s."

And we'll miss you Steve! Thanks for your dedication to the trail.

Encroachments 1852

*From the minutes of the Old Croton Aqueduct Board
of the City of New York, 1852.*

May 4, 1852

At a meeting of the Board held this day, all the members present.

The following preamble and resolutions were offered and approved unanimously: Whereas, The ownership of the lands contiguous to the line of the Croton Aqueduct is constantly undergoing changes, especially in villages, by sale or otherwise; and

Whereas, By every such transfer the difficulty of preventing encroachments on the grounds of the City and injury to the work is increasing; therefore

Resolved, That a proper regard for the interests of the City committed to the custody and control of this Department makes it absolutely necessary that the lines of the Aqueduct grounds be sufficiently denned to prevent trespasses upon them, and if required to protect them from injury; actually fenced in on both sides with convenient passages left across wherever it intersects lands belonging to an individual for farming and other purposes.

Resolved, That Alfred W. Craven, Chief Engineer and a member of this Board, proceed at his earliest convenience to make a personal examination of the whole line, and that wherever he finds trespasses by the erection of buildings the removal of them be required, and under the direction of this Board if necessary enforced; that where encroachments are made or making, from which injury to the works may result, fences on the line be immediately erected, and that all trees and shrubbery standing on the Aqueduct grounds, the roots of which are likely to reach and injure the masonry of the Aqueduct, be removed.

Resolved, That in enforcing these resolutions a due regard shall be had to the interests of the parties and their rights as owners of adjacent lands, and that in every case where a spirit of accommodation shall be manifested, these resolutions shall only be carried into effect where the public interest absolutely requires it.

Adjourned.

THEO. R. DE FOREST, Secretary.



Trailside / Spring 2011

The answer I seek

Ed Perratore

I cannot envision the first hike of the year as anything but tentative. Even without the January snows, aches from shoulder surgery and some persistent respiratory ailments, something is missing as I step onto the Old Croton Aqueduct Trail from Odell Avenue in Yonkers. And now it hits me: I don't yet feel I belong.

It might just be me. I live miles from the trail and tend to think of the snow blanketing it during the winter much like what needs clearing from my deck, driveway, steps and roof. It's the stuff of duty, nothing I voluntarily seek out. And though I can admire folks who not only hike but also ski the trail during the winter, this spring in particular I need some reminding that I'm a person who enjoys hiking, bicycling and even running.

So I look to the trail for a response to the unspoken question of whether I'm ready to hike again. My first impression of 2011 on the trail? Mud...defrosted snow. It coats my boot soles soon after I head southward and at first glance seems a sign. But it isn't. I realize, since I thought to change from the shoes I wear in the office, that my instincts are still there. It's something to build on.

Next, I look for the wildlife. So far south on the trail during a weekday lunch hour, I don't expect wild turkeys or deer. A few more steps away from Odell, though, the birds take up the slack—no robins yet but cardinals, chickadees, finches and others. I've only time to walk a half-mile down, then back, before returning to my desk. As it turns out, it might be enough. I pick up my stride past Ventilator #19, and the birdsong itself begins giving me the answer I seek.

The sun today is going in and out of the clouds. When it's out for a few minutes straight, I can feel its rays on my face and the birds show their appreciation; their calls pierce the very stillness of early spring. But when it's covered, the breeze picks up and chills my legs through the khakis. The birds mute the volume of their calls. Could I not be the only one feeling unsure?

It's true that we humans tend to interpret the actions of animals in ways that suit our purposes. What I'm sensing, however, is that in the same way birds belt out their songs the most cheerfully amid warm, sunny weather, so also do some of us save what we enjoy most for when we can appreciate it. And what do birds do all

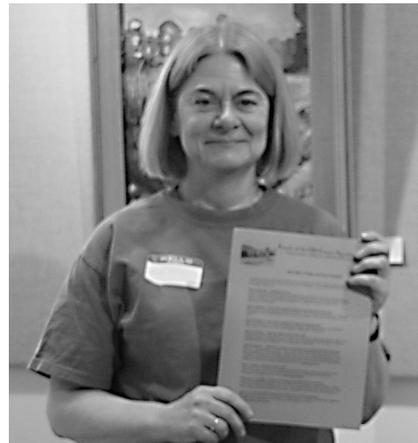
winter, after all, but struggle to stay alive? If any creatures should have a sense of duty come winter, it's not those that live indoors.

I reach my halfway point and turn back, but my lesson is not over. The sun comes back out, and I hear a bluejay's noisy call: *Eee-eeer! Eee-eeer!* I see him off in the distance to the east, up the slope from the river. Another joins the first. *Eee-eeer!* Then another, another, till I feel surrounded by perhaps six or seven, each with its own chorus of *Eee-eeer!* An ornithologist would tell me they were just calling for mates or trying to achieve dominance in the crowd. They're notorious bullies, I'd hear, nothing anyone should romanticize.

Still, it's enough for me. I might be late to Year 2011 of the Old Croton Aqueduct Trail, but the celebration is apparently in full swing. And for the contribution of humanity, by all who travel and help maintain this rich habitat, I suppose it isn't too presumptuous to feel that the invitation is always open.

For inquiries about Old Croton Aqueduct State Historic Park or to report trail conditions, call Park Manager Gary Ricci at 914-693-5259; mailing address: 15 Walnut Street, Dobbs Ferry, NY 10522.

Friends Annual Meeting, 2011



Sara Kelsey (Photo by E. Zazzera)

The Annual Meeting was held in the Irvington Library on April 10 at 2pm. A new board member, Sara Kelsey, was elected and the following were elected for an additional two-year term: Eileen Charles, Douglas Emilio, John Flack, Carl Grimm, Robert Kornfeld, Jr.,

Ildiko Viczian and Elisa Zazzera. A large and appreciative crowd heard a talk by Peter Aicher, professor of classics, University of Southern Maine. Author of *Guide to the Aqueducts of Ancient Rome* and a stimulating speaker, Prof. Aicher explored the extent to which Rome's aqueducts influenced the design, appearance and construction of the Old Croton Aqueduct.



New Aqueduct Trail Manager Gary Ricci, left, with Maintenance Assistants Tony Failla, center, and Jeff Litwinowicz, right. (Photo by C. Fahn)

Newsletter: Ruth Gastel, *Editor*. News items, reminiscences, and comments welcome: 914-479-1414 or ruthg@iii.org or by mail c/o the Friends.

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Friends of the Old Croton Aqueduct is a private, non-profit, volunteer organization formed to protect and preserve the Old Croton Aqueduct. The Friends work to raise public awareness of the Aqueduct and trail, and to secure the resources that will enable this historic greenway to remain unspoiled in perpetuity. *Address:* Keeper's House, 15 Walnut St. Dobbs Ferry, NY 10522-2109; *telephone* 914-693-4117, www.aqueduct.org

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