



Number 77

www.canalwatch.org

July 2021

Thanks to our new and renewing members for 2021:

The D&R Canal Watch
P.O. Box 2
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908-240-0488

www.canalwatch.org

<https://www.facebook.com/dandrcanalwatch/>

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Our Mission

The D&R Canal Watch is an independent, nonprofit organization working to engage the public in the protection of the environment and preservation of the heritage of the D&R Canal.

Canal Superintendent—\$2000+

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The East Millstone Bridgetender's Station—we're almost there!

As we noted in the May issue, the SHPO & DRCC permits were approved for the project. Final permits, via the Department of Community Affairs, were submitted for code review. Unfortunately, what we thought would be a simple process has turned into something more involved. Code review issued eleven questions/comments; some items were standard and could be easily remedied. Others require additional expertise. Among them are the need for a site

plan, structural analysis, and a flood control permit. All of this will require a further permitting expense of \$10,000 (\$5,000 of this amount is already pledged.). Construction funding for the project is already in place. **The Canal Watch and the state park are deeply grateful for the generous contributions of our friends and members in securing the conditions assessment and the engineering drawings.** Thank you for your future consideration as the board decides how to supply funding for the additional permitting costs.

Hello D&R Canal Enthusiasts!

Our first meeting to review the project for building a model of the D&R Canal took place on Saturday, July 17 at the Holcombe-Jimison Farmstead Museum in Lambertville – just in time for the first of several storms to roll in and knock out power! With what appeared to be a break in the weather, we first headed out to the site where the canal will be built. After a brief overview of the site by Michael Bird, we ran for cover as the next storm rolled in.

With still no power, those presenting did a great job of providing us with interesting and important information on the various project components; speakers included Tony Weber of the museum, Vicki Chirco of NJ/DEP D&R Canal State Park, Linda Barth of D&R Canal Watch, and Michael Bird, who is leading the model canal project. You can view the PowerPoint of Michael's presentation by clicking on PowerPoint on the email.

We are very pleased with the turnout for the meeting, especially given the weather, and the enthusiastic support. We did ask attendees to tell us what aspects of the project they would like to work on using a handout sheet. You will find this form attached to the email. If you were not at the meeting, please consider filling out the form and email it back to Kathy Manetas at kmanet@comcast.net or Michael Bird at michaelgbird@gmail.com. We will form small teams to work on the various categories sometime in the next month or so. You don't need to have experience! There are enough "experts" to guide you along or you may learn like most of us do – on the job.

Please feel free to contact any one of the following with questions regarding:

Project updates, boat building: Michael Bird, michaelgbird@gmail.com

Construction topics: Jim Lomax, jimlomax1@gmail.com

Electronics: Rich Freedman, richfreedman@gmail.com

Fundraising: Kathy Manetas, kmanet@comcast.net

I will be handling the overall group communications, for the most part, and will not inundate you with emails. I will write when I have important information to share on the project's progress. You will hear separately from the leaders of the various projects based on the feedback you have provided us on the "How Can You Help" form.

A pleasure working with you all,
Kathy Manetas



Lock for the canal project

Reports from the D&R Canal State Park and the New Jersey Water Supply Authority June and July meetings of the D&R Canal Commission



Park Superintendent's Report — The park is in the process of evaluating its policy on electronic bikes (ebikes). Staff has met with local dealers to see what information they give to those who rent ebikes. Renters cannot go above a certain speed.

On July 17 Michael Bird held a meeting to discuss the next steps in the creation of a mini canal model.

Also on July 17 a localized microburst along the feeder caused problems for park users. People were rescued from the canal and the Delaware River. Bulls Island secretary Marsha Appfel was commended for assisting in the rescues.

Park historian Vicki Chirco is researching the area at Port Mercer in order to create an interpretive wayside.

The youth conservation corps, sponsored by Isles, has cleaned litter, done trail maintenance, built picnic tables, and cleared out a vacant building. We are grateful for their help.

New Jersey Water Supply Authority report

The dredging is substantially complete; site restoration should be completed this year; tree replanting will be done next year. The contract has been awarded for work on the Landing Lane spillway; work will begin in August.

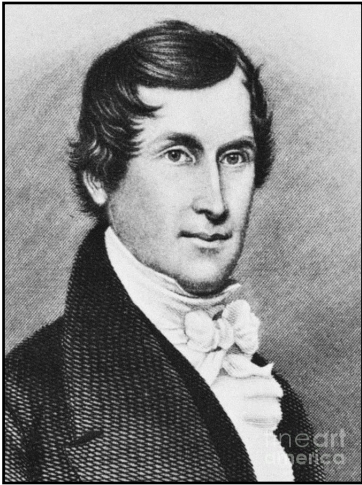
Hydrilla treatment began again in June. Underwater inspection of the South Bound Brook lock is on hold until the lock gate is repaired.

Commissioner Stout again implored the NJWSA to complete repair work on the embankment in Stockton. He was told that there is no update; the authority is still finalizing plans and filing for permits.

Canvass White “Cements” His Legacy

The Story of the Chief Engineer of the D&R Canal

by John Prieto



“It is proper that I should render a just tribute of merit to a gentleman who now stands high in his profession and whose skill and sound judgment, as a civil engineer, is not surpassed, if equalized, by any other in the United States. The gentleman who I refer to is Canvass White, Esquire...to this gentleman I could always apply counsel and advice in any great or difficult case.” So said Judge Benjamin Wright, lawyer, self-taught surveyor and chief engineer of the Erie Canal. Canvass White was an early assistant on the canal and became Wright’s protégé and would go on to become one of the greatest canal engineers in the country.

Canvass White was born in New York State in 1790 and studied mathematics, chemistry, mineralogy, and surveying. Before he completed his studies, he traveled to Russia to improve his poor health, brought on by chronic illness. White later served as a lieutenant in the U.S. Army in a volunteer regiment during the War of 1812; in the fighting to capture Fort Erie near Buffalo, he was severely injured.

In 1816, he secured a position with Wright, working as an assistant and taking levels on the Erie Canal. At the suggestion of Wright and New York Governor DeWitt

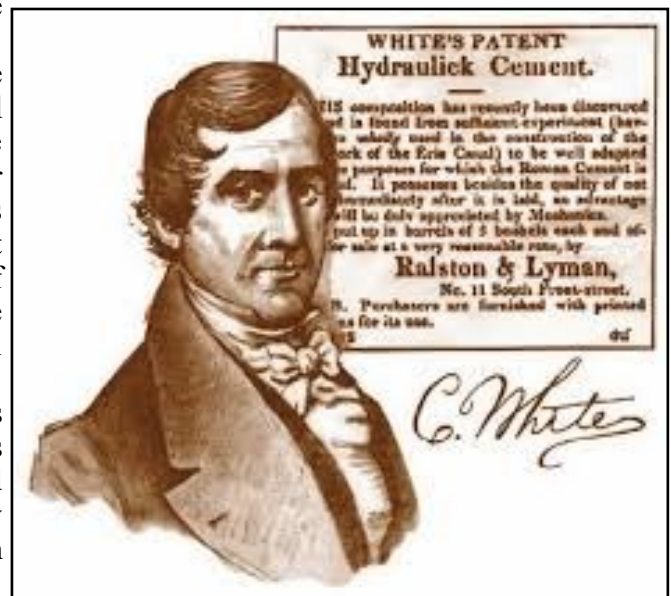
Clinton, White ventured to England to carefully study the construction and operation of its canals. He brought back with him modern surveying equipment, detailed drawings, and valuable knowledge of hydraulic cement.

As construction of the Erie Canal was underway in 1818, issues were developing with the mortaring. With his experience from the Inland Canal in 1792, Benjamin Wright knew that common lime mortar was not the solution. With his upbringing of self-reliance and his talent for invention, Canvass White began searching for and experimenting with local materials to solve the problem.

As construction on the canal’s middle section progressed, lime rock was ordered from Madison County in New York for the masonry. In the processing stage it was discovered that the lime did not “slack” and thus appeared much different than previous types. Experiments were thus conducted to see if it would produce hydraulic cement. There are varying accounts of exactly what happened next. One telling was that Canvass White brought in one Andrew Bartow, a local scientist, to process and mix it, which in the presence of Benjamin Wright and others proved the new cement to be waterproof. According to Bartow, his own experiments verified that hydraulic cement had indeed been discovered; Canvass White was not mentioned in his statements.

White continued experimenting and settled on a formula that was the answer to the problem. In 1820, White obtained a patent for his cement. The patent entitled him to receive four cents per bushel on the manufacture of the “waterproof cement.” Some 500,000 bushels were ultimately used during the construction of the Erie Canal. The canal commissioners, interested in the completion of the canal, had made a point of acknowledging no individual discoverer. White pursued payment for his cement from the suppliers but was rebuffed; White then sued a contractor for “infringement,” ultimately receiving some \$1,700 as judgment. When the defendant and other contractors sought relief, White agreed to sell his patent rights to the State of New York for \$10,000, much less than was originally due him. The State did not act on the offer, and after several years, White was never paid.

How was it then that the patent was in Canvass White’s name only? Years later it was found out that Bartow’s daughters had saved letters written between their father and White, detailing an agreement whereby White paid Bartow \$2,000 up front (with the patent in White’s name) with Bartow holding a 25 percent interest in future royalties.



With White having no success at securing payment, the issue faded away. Bartow went on to other ventures assisting with cement work. White also moved on, to many other positions and projects.

After his work as an engineer on the Erie Canal, by the mid-1820s White's career was far from over. In 1825 he was appointed chief engineer of the Delaware and Raritan Canal, where he organized preliminary surveys. He was then named chief engineer of the Union Canal in Pennsylvania, during which time he again became ill. He then departed to New York City to help scout sources for their water supply. Around this time he was solicited to take charge of the Schuylkill Navigation Company and was also a consulting engineer for the Delaware and Chesapeake Canal. He next built the Windsor Locks Canal in Connecticut as chief engineer. In 1827, he was appointed chief engineer of the Lehigh Coal and Navigation Company, where he oversaw the completion of the Lehigh Canal. He also became president of the Cohoes Company, which developed waterpower at Cohoes, New York. Among all these duties, White also found the time to be involved with other canal and railroad projects, such as the Camden and Amboy Railroad.

White was advised to retire to warmer climes and a month after arriving in Florida passed away in 1834. He was a pioneering canal builder and civil engineer at a time when engineering as a profession was just beginning. But his most lasting legacy may have been his ability to develop hydraulic cement and thereby launch other successful building projects for decades hence.

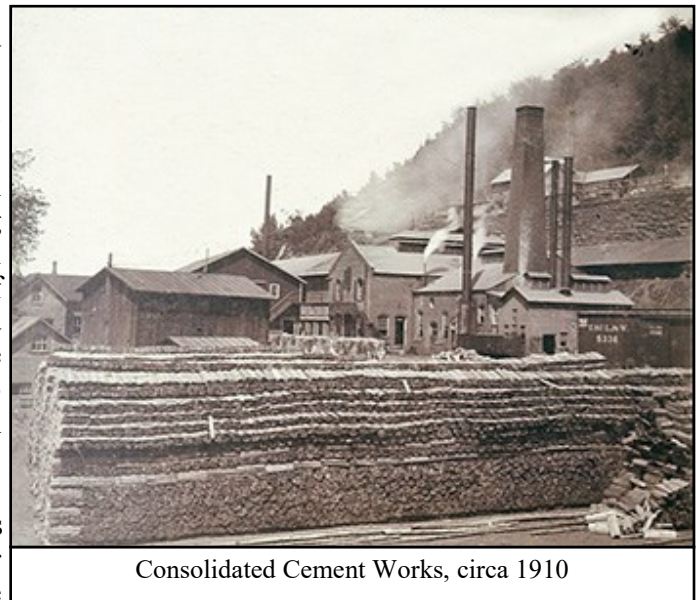
Thanks to the *Hudson Valley Magazine*, June 18, 2013 for this excerpt:

Ask any middle-schooler to name the important figures of the Industrial Revolution and, if she was paying attention in history class, she'll rattle off names like Eli Whitney, Robert Fulton, and Elias Howe. But even her teacher probably wouldn't include the name Canvass White. That's a serious omission, especially in these parts. Canvass White was almost singularly responsible for the success of such 19th-century engineering feats as the Erie Canal, the U.S. Capitol, the Brooklyn Bridge, the Statue of Liberty, Grand Central Station, and, according to one historian, the modern incarnations of New York City and Boston.

What do those things have in common? None of them could have been built without natural cement, and White was to cement what Whitney was to cotton and Fulton was to boating. Along the way, he helped make Rosendale both the eponym for and the center of the natural cement world.

In a technical journal article titled "An Overview of the History and Economic Geology of the Natural Cement Industry at Rosendale, Ulster County, New York," authors Dietrich Werner and Kurtis C. Burmeister tell how the early years of the 19th century "sparked a number of large-scale building projects, including the construction of regional canal networks. These canal projects required quantities of high-quality mortars unavailable in North America prior to the introduction of natural cement." Unlike other binding agents of the time, cement is able to harden under water. It is made from clay-rich dolostone or limestone, and the Hudson Valley was geologically blessed with large quantities of both.

Canvass White, more than anyone, used this resource to transform the nation and the lower Hudson Valley. As author Bill Bryson writes: "The great unsung Canvass White didn't just make New York rich, more profoundly, he helped to make America."



Consolidated Cement Works, circa 1910

Cement mixer

Canvass White (1790–1834) was born in the central New York county of Oneida. In 1817, he was an

engineer working on the Erie Canal; he went to England to study canal construction, and learned about natural cement. He earned his own cement patent back home and began the first natural cement factory, in Chittenango, in 1819.

The product proved so successful that White quickly expanded operations wherever he found limestone. And the area around Rosendale proved to have the best rocks around, which were unearthed when the Delaware and Hudson Canal was being dug in 1825. Those limestone deposits were vast: 22 feet deep, three miles wide, and extending 32 square miles between High Falls and Kingston. The cement turned out to be so good, the term “Rosendale cement” became interchangeable with natural cement, like Kleenex for tissues.

By then, the cement business was fiercely competitive. White and his partner and brother, Hugh, knew they couldn’t compete from faraway Chittenango. The Whites relocated to Whiteport, near Rosendale, in 1836, “a time of considerable growth in the natural cement industry,” according to Werner and Burmeister’s article.

By the early 1840s, 13 companies produced 600,000 barrels of cement annually. Thanks to the Delaware and Hudson Canal, Rondout Creek, and the Hudson River, these companies were able to ship concrete (cement) and import fuel more cost-effectively than inland cement producers. Rosendale cement eventually found its way to every major port on the Atlantic Ocean and was used in just about every significant construction project of the era. For example: From 1884 to 1886, Rosendale cement from the Widow Jane Mine was carried to Liberty Island, where it was used to build the base for the Statue of Liberty, the largest 19th-century concrete structure in the United States. Behind the granite walls of the statue’s pedestal, the foundation is comprised of massive concrete walls eight to 20 feet thick and 15 feet deep.



Rosendale Cement Works :
“The Cement That Built America”



In the final year of the 19th century, Rosendale’s cement industry peaked, producing nearly ten million barrels a year. But as the new century began, builders needed even stronger cement, and a new product called Portland cement rapidly became more popular. In just a decade, from 1900 to 1910, the two products essentially exchanged market share. Natural cement production in the U.S. shrank from ten million barrels annually to one million, while Portland cement production grew from one million barrels to more than 12 million by 1910. Natural cement held on for a while

as a specialty product, but in 1970, Rosendale’s Century Cement Manufacturing Company, the last natural cement works in North America, closed.

All in all, it had been a good run. Thirty-four different cement companies filed a property deed prior to 1900 at the Ulster County Clerk’s Office, says Gayle Grunwald of the Century House Historical Society. “This did not count unincorporated family businesses,” she says, of which there were probably many. During most of the 151-year span of the natural cement industry, Rosendale produced nearly 50 percent of all the natural cement manufactured in North America.

Link to the entire article: <https://hvmag.com/life-style/history/a-history-of-rosendales-natural-cement-industry/>

D&R Canal Watch Memorials are a thoughtful gesture

Often when friends or family members have passed away, people ask where they can make a donation that would be meaningful to the deceased.

If your loved one enjoyed exploring the canal or just found it a peaceful sanctuary, perhaps a gift to the D&R Canal Watch would be appropriate.

All of our funding is used to enhance the park and assist the staff in purchasing necessary equipment.



Have you seen a downed tree across the towpath or some other problem in the park?

If so, please contact the D&R Canal Watch at barth-linda123@aol.com or 908-240-0488.

Or you can report problems to the state park office at 609-924-5705.



TAX-DEDUCTIBLE GIVING TO THE D&R CANAL WATCH
Many people consider making charitable contributions for income tax purposes. Remember that the Canal Watch is a tax-exempt organization, so your contributions are tax-deductible.

D&R Canal Watch 2021 Membership Renewal Form

Membership year: January 1 to December 31

Nonprofit Org \$10 _____ Individual \$15 _____ Family \$25 _____ Organization \$40 _____
Supporter \$100 _____ Patron \$250 _____ Business member \$500 _____ Benefactor \$1000 _____

Name _____

Address _____

City _____ State _____ Zip _____

Phone(s) _____

Email address _____

Please send this form and your check, payable to the D&R Canal Watch, to D&R Canal Watch, P.O. Box 2, Rocky Hill, New Jersey 08553-0002. Dues can also be paid online at <https://canalwatch.org/join/>

For reasons of fiscal and environmental responsibility, newsletters will be posted on the Canal Watch website, www.canalwatch.org, and emailed to members for whom we have email addresses. If you require a paper copy, please check here _____.

Volunteers are needed to lead walks/trips. Do you have computer, photography, or design skills that you are willing to use for the organization? Yes ___ No ___
Try me ___ (circle your skill)



The D&R Canal Watch is asking for your support for our activities that protect, maintain, and promote the recreational, historical, aesthetic, and environmental qualities of the Delaware & Raritan Canal State Park. Over the past years, the Canal Watch has:

- Led history walks along both the main canal and the feeder, pointing out historic structures and Light Rail study tours
- Led history bike rides along the main canal and star-gazing events
- Sponsored bird watching walks along the main canal and bilingual nature walks
- Sponsored lectures on topics such as “The Role of the Delaware and Raritan Canal in the Growth of Trenton's Industrial Potteries,” “The Operation of the Joint Companies and the Interrelationship of the canal with the state’s first railroad,” “The Roebling Story,” “Photography Along the Delaware and Raritan Canal State Park: Treasure in Central New Jersey,” “Meet Ashbel Welch, the second chief engineer of the Delaware and Raritan Canal,” and Jim Amon on how the canal and the park changed during his tenure with the commission.
- Purchased gifts that the park budget could not provide. These include a digital camera, seven picnic tables, several benches, a laptop computer and software, a desktop computer, an LED projector, an inflatable screen for outdoor viewing of videos, a subscription to the Meetup website, a scanner, printer ink, a water testing kit, an external computer drive, lumber for canoe dock at Griggstown, folding tables and twenty chairs for Bulls Island, development of a new park website, and professional courses for the maintenance staff.
- Canal interpretive signage at locks and spillways
- Activities in 2009 marking the 175th anniversary of the opening of the Delaware and Raritan Canal. These included “Meet the Canal Authors Day” and “The D&R Canal: Yesterday, Today, Tomorrow,” by Richard Hunter” walks, bike rides, canoe and kayak rides, “Hands Along the Canal,” and proclamations from our legislature.
- Examination of Lock 9 to determine the feasibility of reopening the lock to navigation
- Post-flood cleaning of canal structures in Griggstown, Zarephath, and East Millstone
- Painting over graffiti in East Millstone
- Repair of shutters on the East Millstone bridgetender’s home
- Straightening and painting of the outhouse at the East Millstone bridgetender’s home
- Staffing the East Millstone bridgetender’s home during the village’s Canalfest in October
- A photographic exhibit of the homes of bridgetenders and locktenders.
- Services of an information technology consultant for the park’s computers
- Funded classes to certify maintenance staff in small motor repair, applying herbicides, etc.
- Contacted legislators and the governor’s office to keep the parks open and retain the commission
- Facilitated the mothballing of an empty bridgetender’s home by buying lumber and painting the windows.
- Installed Kaya-Arms on docks to facilitate entering and exiting kayaks
- Funding the park’s website and continued updating
- Paying the dues for the Meetup site used for announcing park activities
- **Paying for the conditions assessment and the engineering drawings for the East Millstone bridgetender’s station.**

Class of 2020-2023

Theodore Chase (Griggstown)
Tim Roth (Long Valley)
Jeff McVey (Lambertville)
Barbara Ross (Princeton)

Class of 2019-2022

Linda Barth (Somerville)
Robert Barth (Somerville)
Michael Kaplan (Griggstown)

Ellen Kaplan (Griggstown)
Pamela V'Combe (Trenton), activities chair

Class of 2021-2024

Tom Lederer (Princeton), publicity chair
Carl Hemmingsen, Bordentown
Marion Munk (Piscataway)
Wayne Petko (South Bound Brook)

EVENTS YOU MAY WISH TO ATTEND



undays at 3pm, August 1, August 8, August 22, August 29, September 1, September 22, and September 29

**Hardenbergh Hikes through History:
New Jersey's Artist and Ornithologist**

Wallace House & Old Dutch Parsonage State Historic Sites, 71 Somerset Street, Somerville, NJ 08876
wallacedutch@dep.nj.gov (908) 725-1015

Explore the Jersey Dutch roots of New Jersey's turn-of-the-century artist and ornithologist Gerard Rutgers Hardenbergh.

Artist and ornithologist Gerard Rutgers Hardenbergh depicted the wildlife and landscapes of the Jersey Shore at the turn of the twentieth century but his own roots in the Garden State stem back to the Jersey Dutch and the American Revolution.

This special historic houses tour goes indoors and outdoors at Wallace House & Old Dutch Parsonage to explore the Jersey Dutch origins of the Hardenbergh and Rutgers families, the academic tradition of New Jersey's colonial colleges that encouraged Gerard Rutgers Hardenbergh's ornithology, and the landscapes preserved in New Jersey State Parks & Forests today that inspired Gerard Rutgers Hardenbergh's art.

Complement this tour with visits to In Nature's Realm: The Art of Gerard Rutgers Hardenbergh on exhibit at Morven Museum & Garden, Princeton now through January 9, 2022 and Fine Feathered Friends: Birds as Mainstay and Muse on exhibit at New Jersey State Museum, Trenton.

To register and get FREE tickets, visit <https://www.eventbrite.com/e/hardenbergh->

[hikes-through-history-new-jerseys-artist-and-ornithologist-tickets-162955549435](https://www.eventbrite.com/e/hardenbergh-hikes-through-history-new-jerseys-artist-and-ornithologist-tickets-162955549435)

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Something for Everyone at Morven

The Hunt Continues! Due to Extreme Weather Scavenger Hunt deadline extended to July 31!

Every year, in honor of Independence Day, Morven hosts a free event to celebrate our American heritage at the home-turned-museum of Richard Stockton, a signer of the Declaration of Independence.

This year's celebration was different and now lasts even longer! The deadline has been extended, due to hot and wet weather, to July 31.

We invite you to participate in our Scavenger Hunt, in partnership with the **Historical Society of Princeton, The Princeton Battlefield Society, and Rockingham Historic Site**, and earn a commemorative gold coin!

Download the Scavenger Hunt at www.morven.org/july-4th-scavenger-hunt

(not a clickable link)

Bring your completed Scavenger Hunt to Morven's Museum Shop Wednesdays through Sundays from 10:00 a.m. to 4:00 p.m. and redeem for your commemorative coin!

Bugs & Butterflies Walk at Morven!

August 11 at 6:00 p.m.

\$10; Free for Members

Join Louise Senior, one of Morven's Horticulturists, for a lively walk through Morven's gardens in search of bugs and butterflies and learn more about their habits & habitats.

Adding to the evening's enjoyment, observe artists *en plein air* on the grounds on this special summer night.

Plus! **Ask a Horticulturist:** Do you have a gardening question - on veggies, flowers, or whatever is growing at your house - for Morven's Horticulturists? Email your questions to dlampertrudman@morven.org for possible inclusion in a future program