Vanguards of the Brandywine

Five generations of Irish Quakers milling on Brandywine Creek

L. Harvey Kirk III, at the
Univ. of Delaware Water Resources Center
Virtual meeting -- December 10, 2021 -- 10:00 a.m.

Title slide – Welcome!

This story begins in 1658 on the edge of the Moors in North Yorkshire, England, just 4-5 miles from the North Sea. Cooper Roger Kirk, Elizabeth his wife, and their five children are at a crossroads in their lives.

Roger & Elizabeth Kirk
In 1658, Roger was a Cooper at Ness Hagg, N. Yorkshire, England

Courtesy Bill Danby

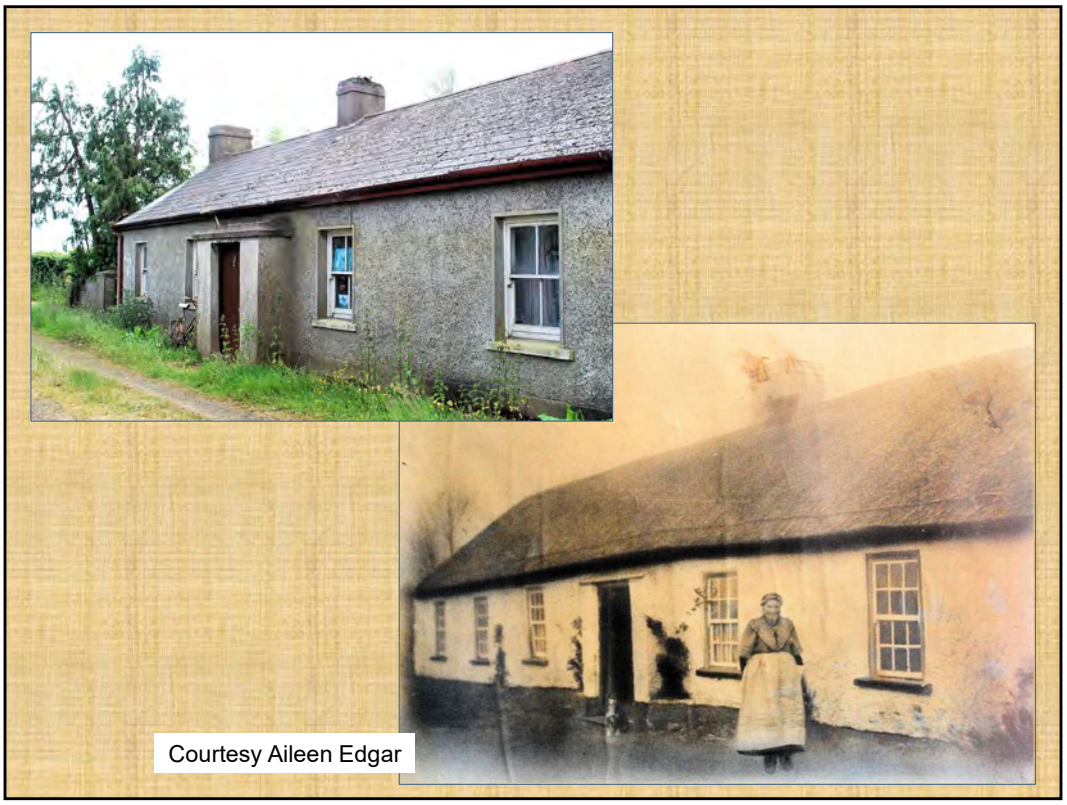
What matters most to them is their home and business. Their 34- by 20-foot, two-story combination dwelling and shop was constructed of sandstone blocks scavenged from a nearby old Norman castle. It is solid and there is enough of the storied English oak standing nearby to produce Roger's casks and barrels for years. But the estate on which they live is changing hands and rents are sure to rise. Also, they are in the middle of the longest, harshest winter weather that anyone can remember – it will be known thereafter as "the winter that had no end". Two more issues are of interest to them… the message of Quaker founder George Fox who was through these parts some months back, speaking of peace and an Inner Light from God. And there is news that a new plantation is opening up in the North of Ireland, a place called Brownlow's Derry. The rents are cheap and there is plenty of oak. Roger and Elizabeth are ready for a change.

The family decided to resettle in Ireland, at Lurgan in County Armagh, a spot about 25 miles southwest of what is now Belfast. Once there, Roger did join the Religious Society of Friends – the Quakers. Some of their children died too young, and the family suffered some persecution, but through their faith, hard work and industry, they overcame the hardships and generally prospered in Ireland.

Timothy & Kathryn Kirk

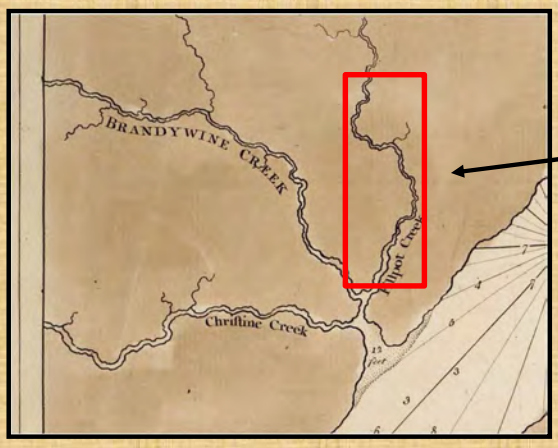
Timothy was also a cooper and lived nearby, perhaps in a starter home like this.

Roger and his son Timothy operated cooperages while another son, Alphonsus, was engaged in Ireland's linen industry, he as a weaver. Roger's and Timothy's homes are gone now. This photo was taken of an early dwelling on another long-held family farm. This structure was used as an animal shelter most recently, but it was probably once a home…



If so, it was replaced by one a few yards away, shown at top left, which earlier looked a lot like the one at bottom right. Timothy continually improved his lot and remained in Ireland, but his brother Alphonsus and a few friends in the local Quaker fellowship were ready to move on.

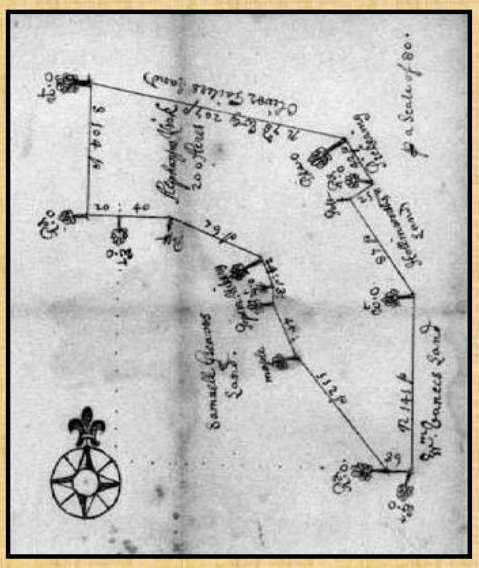
1682 - Valentine Hollingsworth
first emigrant from Lurgan, No. Ireland

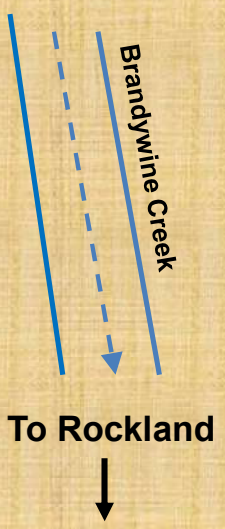


He settled on Shelpot Creek… a signer of William Penn's Great Charter, a member of the First Assembly of the Province of Pennsylvania and a Justice of the Peace in New Castle Co.

Valentine Hollingsworth was the first of the Lurgan Quakers to emigrate to America, taking advantage of the new lands in Pennsylvania that William Penn was offering up for settlement. In 1682 Valentine settled along Shelpot Creek on the lower Brandywine, somewhere in the area marked by the red box. Valentine called his land "New Warke", not Newark, but a variation on "New Work." He was a signer of William Penn's Great Charter, a member of the First Assembly of the Province of Pennsylvania, and a Justice of the Peace in New Castle Co. He hosted fellow Quakers and other Irish in his home.

1688 - Alphonsus Kirk (Gen. 1A)
200-acre tract near Centre Meeting.
A pioneer farmer and weaver





To Rockland

Following him were Alphonsus Kirk and a few others who came to America in 1688 and settled east of Centreville, just west of Brandywine Creek, shown in blue. Alphonsus bought 200 acres, some of which he farmed, and he continued to follow the weaving trade. Three of his cousins also came, but not immediately. One settled downstream at Wilmington, another in the Nottingham Lots in what is now Cecil Co., MD, and another on Conestoga Creek in Lancaster Co., PA.

The Bear Run Incident

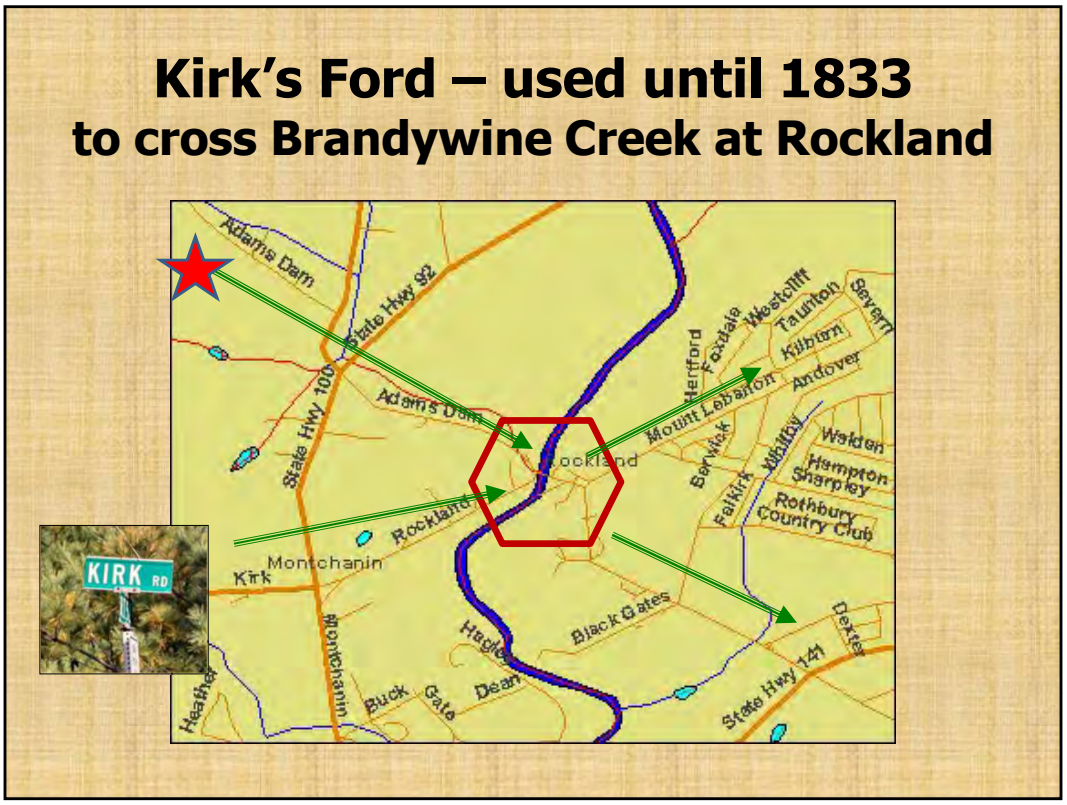
To current residents of Delaware, this land peppered with wealthy estates and golf courses may not seem much like the frontier, but this was once the edge of civilization. Life was not only hard, but adventurous. One warm winter's day after the family had butchered a beef, a bear attempted to get inside the house through the open upper part of a Dutch door. Wife and mother Abigail was home alone with her two youngest children, but she attacked the bear, repeatedly whacking his paws with a rolling pin until he backed off and she managed to close the door. The bear however, was not one to give up easily… he climbed up on the shed roof and tried to get inside through an open upstairs window. Fortunately, the roof collapsed under his weight. He wandered away, his bloody paws leaving a crimson trail in the snow. When Alphonsus came home he wanted to go after the bear, but his older sons were out hunting and had the family's only firearm. So Alphonsus took his axe and two dogs, and tracked the bear to a ravine in the NW corner of his property, now labeled on a map as – of all things - Bear Run. The white star marks the site just west of the Quakers' Centre Meeting House. There he and the dogs took on the bear in hand-to-claw combat. It was noisy and messy, but Alphonsus and his dogs prevailed. The yellow star marks the believed location of Alphonsus' home.

Eli – the warrior postman

He served a 30-mile-long RFD Route

Courtesy Kim Carrick

We'll call this pooch Eli… that's a good Quaker name. Loyal and courageous, he was probably a veteran of the Battle of Bear Run. Alphonsus' son William owned Eli, who stayed mostly with William after he married and moved to his own home in southern Pennsylvania. Eli had a habit of regularly running home to Alphonsus in Delaware – a 30-mile trip that required swimming the Brandywine. After staying awhile, the dog would run back to William. Eli repeated this 30-mile trip so often that the men fashioned a waterproof pouch and sent messages back and forth, using Eli as their long distance, dog-paddling letter carrier.



In the early days, Alphonsus and his neighbors forded Brandywine Creek at what is now Rockland Road. The creek is approximately 125 ft. wide here and fairly shallow – a natural crossing point. It wasn't too bad in good weather, but in winter, or if the creek were running strong, it could be dangerous, as well as uncomfortable. The area and the few buildings that were there came to be known as Kirk's Ford. After William Young built a papermill on the east side of the creek in the early 1800s, the area took on the name Youngstown. Now it is referred to as Rockland.

1833 Covered Bridge at Rockland

Repaired 1851 – Removed 1933

Courtesy Hagley Museum & Library

The crossing was improved in 1833 with the construction of a fine covered bridge, and it was repaired or rebuilt in 1851. It served the community and regional travelers for 100 years.

The Quakers' Centre Meeting was built on Alphonsus' land

Courtesy Religious Society of Friends

The Quakers' Centre Meeting was erected on Alphonsus' land… so named because it was centered halfway between the Friends' meetings on Shelpot Creek and Kennett Square, Pennsylvania. Alphonsus received five pounds, five shillings for approximately 6 acres of his property, with the promise that he and his descendants would receive in addition, one peppercorn per year in perpetuity. Shown is the original log structure that was built in 1710 and converted to an inclement weather shelter for horses when the current brick meeting house was constructed in 1795.

Centre Meeting House in 1880

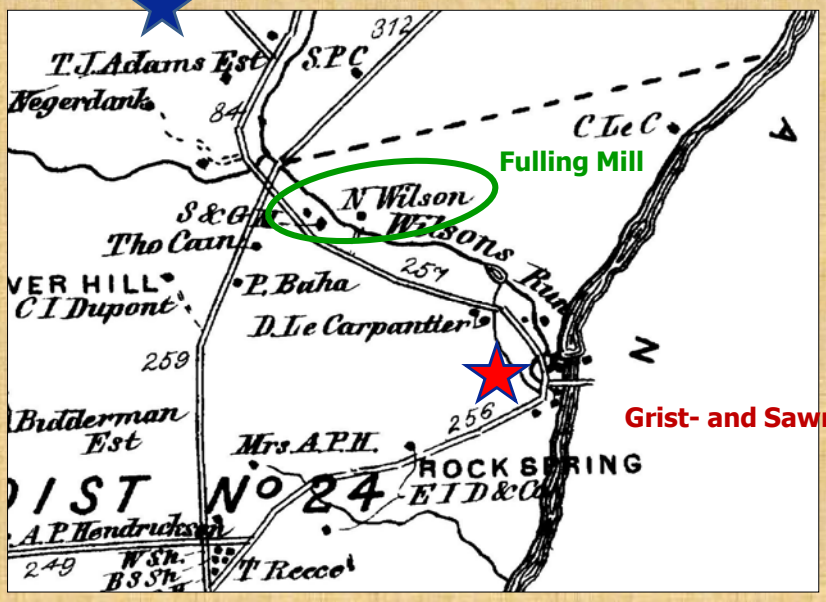
Courtesy Religious Society of Friends

This 140-year-old photograph is of the 1795 brick meeting house… the one that replaced the original log building. It still stands and is used regularly.

This is Centre Meeting as it stands today, with the Burial Ground in back and the old horse mounting block in front.

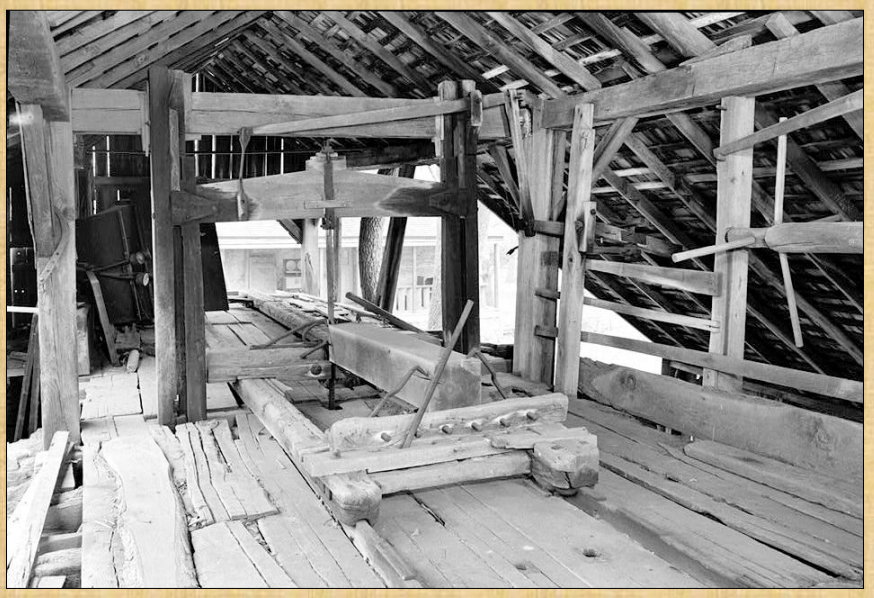
Adam Kirk (Gen. 2)

Grist, Saw and Fulling mills on Wilson's Run



The blue star shows where Alphonsus Kirk's family lived… the red star where his son Adam and neighbor John Gregg partnered in a grist- and sawmill enterprise, an operation mere yards from the confluence of Wilson's Run with the Brandywine. Adam soon bought out Gregg and operated the mills as the sole proprietor.

Old sawmill

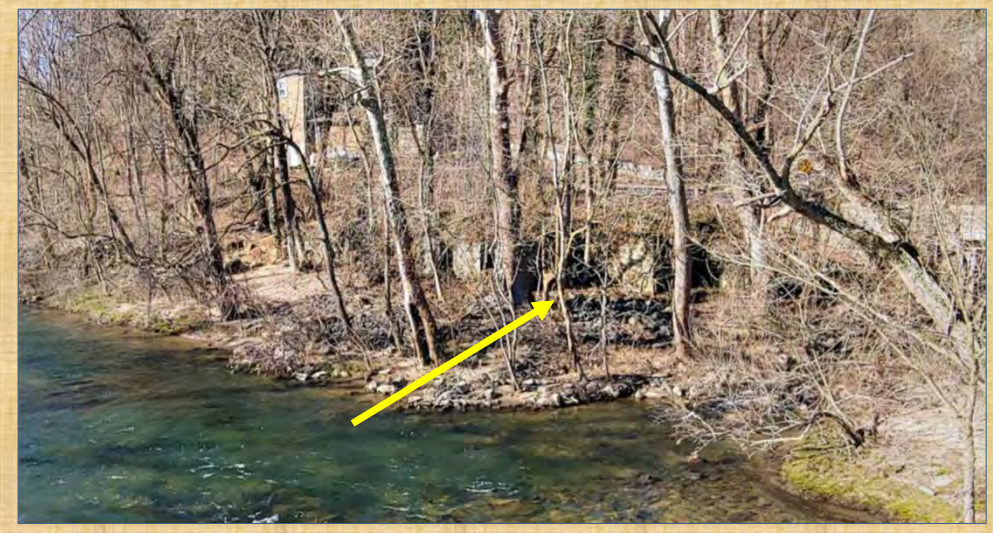


Courtesy HABS - Library of Congress

The sawmill may have looked like this in the inside. This one has a reciprocating blade that moves up and down.

Upstream was another water-powered mill used to full (or finish) woolen cloth to make a strong, sturdy, windproof material, prized primarily for winter clothing. The first fulling mill in Delaware was built just up Wilson's Run in 1733 by Jonathan Strange and later purchased by Adam Kirk to further enlarge his milling complex. In a fulling mill, the mill wheel drives vertical boards that that reciprocate up and down, repeatedly beating the woven woolen cloth in a liquid tub bath and thereby strengthening it. Fulling mills were a real labor-saving device. Fulling 25 pounds of cloth in the mill could take around 6 hours, about half the time required for one using his or her feet in a vat. After being fulled, the cloth was carefully rolled on rods to dry and re-rolled once a day until it was evenly dried. Often times it was also stretched on tenterhooks to reduce shrinkage.

Gristmill Foundation between the Brandywine & Rockland Road

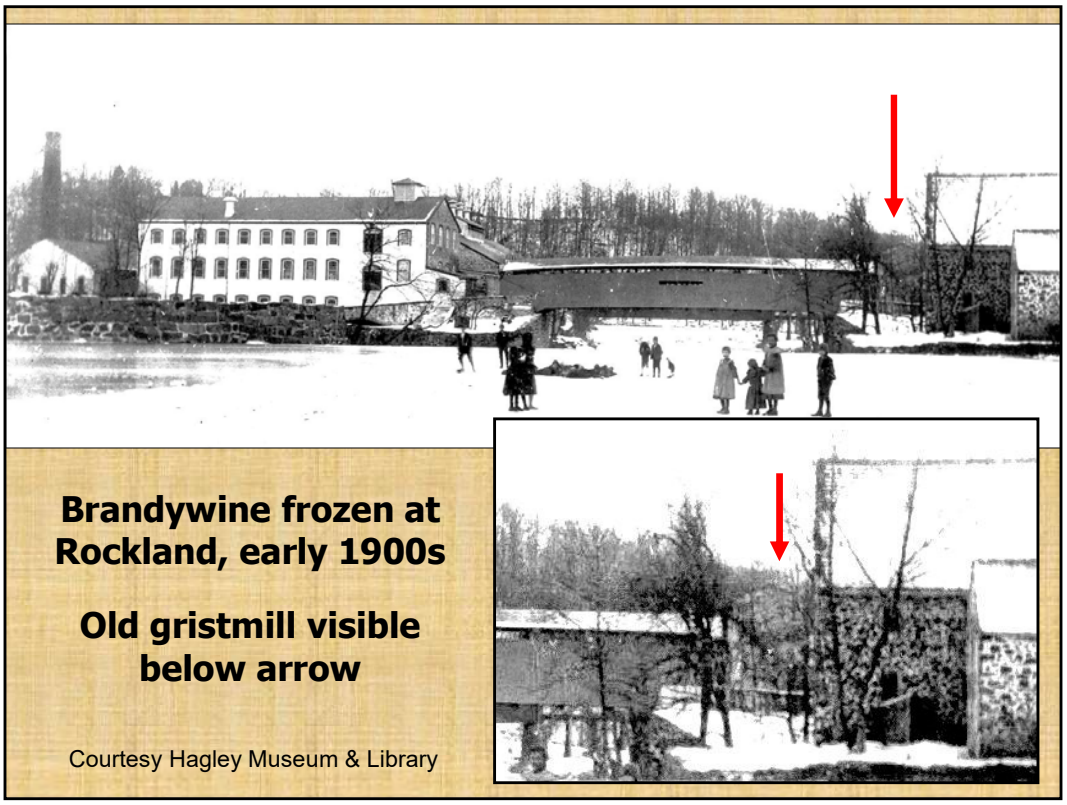


You can see in this photo that the gristmill was built quite close to Brandywine Creek…

1724 Gristmill Foundation

Wilson's Run in foreground

Despite its proximity to the creek, it and the nearby sawmill were powered by Wilsons' Run, seen in the foreground, with the mill race likely situated between the mill and the Run, or under the mill. The mill once stood 3-1/2 stories high. As far as I know, there are no good photos of the mill. However, …

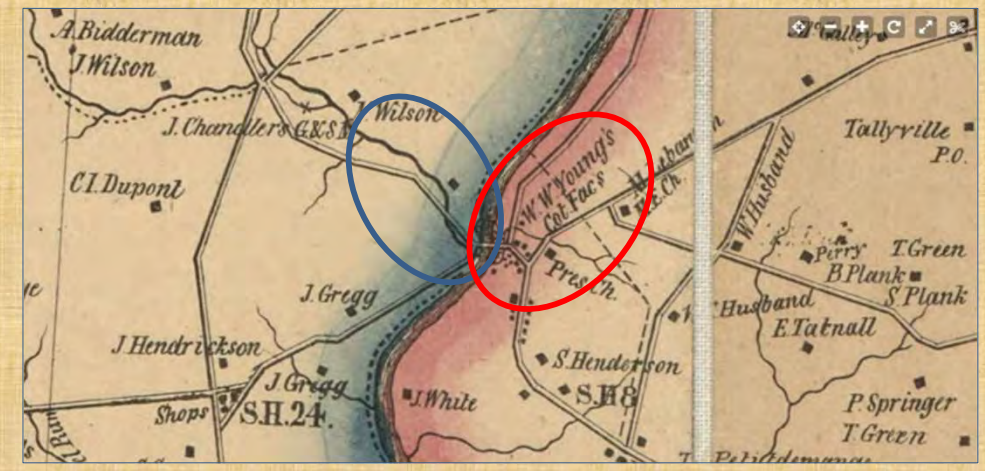


Here's a photo of people ice skating on the frozen Brandywine in the early 1900s. The old 3-1/2-story gristmill is barely visible in the background.

"Movers and Quakers"

In 1735, Alphonsus and Adam were two of 225 men who signed a petition requesting that King George II settle the border difficulties between Maryland and Pennsylvania. Then again in 1740, the two were among 100 men living near Willington (now Wilmington) who petitioned Thomas Penn to incorporate their settlement into a borough or a town.

Caleb Kirk (Gen. 3)
Expansion: buys land east of the creek; rents it to Wm. Young for papermill



Alphonsus' grandson Caleb inherited the family's property on the west side of the Brandywine and bought more land on the opposite side of the creek, some of which he rented to Scotsman William Young for the construction of a papermill. Young built a real complex here… the large mill, a church, a mansion house for himself, and housing for his workers.

Wm. Young's Papermill

1814 - Fire destroyed paper mill. Rebuilt as woolen factory
1822 - Flood washed away dye house. Rebuilt as cotton factory
1840s – Rockland Mfg. cotton factories went bankrupt

This is an old drawing of the papermill. The mill ran well for about 20 years, but in 1814 fire destroyed the works. Young rebuilt, this time as the Wallace Woolen factory, named after his son, William Wallace Young. More problems ensued. In 1822 a flood washed away the dye house and did other major damage. Young rebuilt again, this time as a cotton factory, but it never reached its potential, in part due to competition he faced from mills in New England. Young went bankrupt in the 1840s, his stock having been devalued by the State of Delaware to a penny on the dollar. In recent years the old mill was repurposed as condominiums. The September 2021 storm… the remnants of Hurricane Ida… flooded those condos with as much as 17 feet of water. About 200 units were damaged.

Young's Mill (cotton at this time) as Rockland Mfg. Co., c. 1830

Courtesy Library of Congress

This is Young's mill c. 1830. It was operating as a cotton mill at the time, having transitioned from paper and wool. The business was then called Rockland Manufacturing Company.

Caleb and Young built a dam across the Brandywine in 1797

Dam: 5-foot-high, 125-ft. long, made of locally-obtained blue granite; located 200 ft. upstream of the current bridge. Later raised to 7 feet. West one-third breached c. 1999 (Floyd)

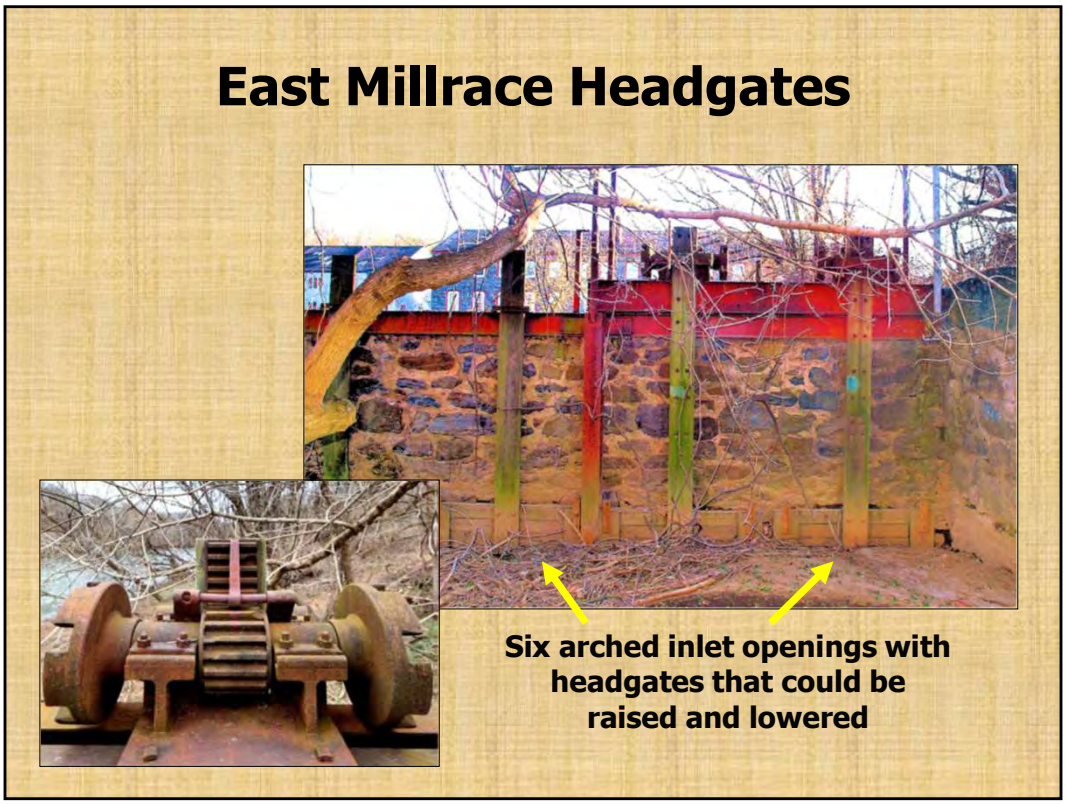
Shortly before Young built his papermill, he and Caleb Kirk constructed a stone dam across the Brandywine and built millraces to power industrial sites on all four corners of the crossing site. The dam was 125-ft. long, made of locally-obtained blue granite, and originally 5-feet-high. The crest was later raised to 7 feet. It is located 250 ft. upstream of the current Rockland Rd. bridge. The west one-third of the dam was breached about 1999, probably during Hurricane Floyd.

East Millrace

Island: 200 ft. x 34 ft. Race waterway: 34 ft. wide, once longer because it passed under the roadway to power the mill south of Rockland Rd (orange arrow.) Crest of dam marked by yellow arrow.

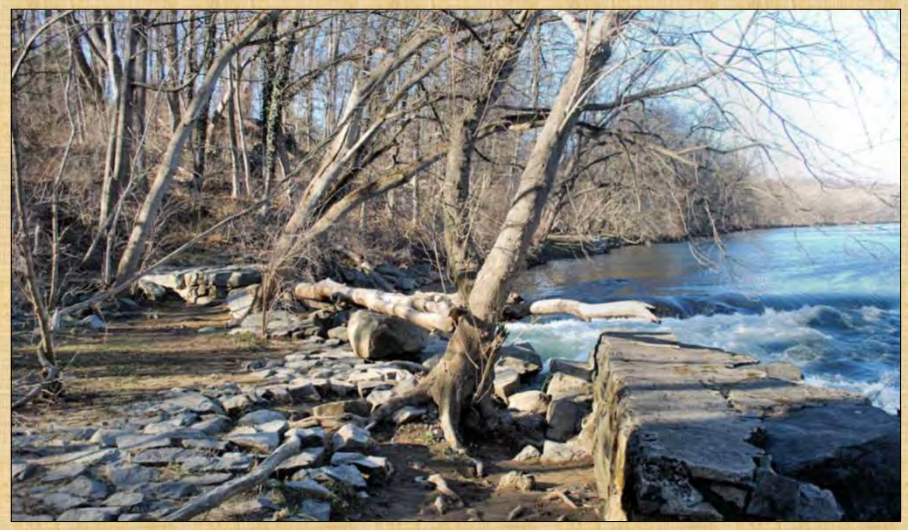
Courtesy Hagley Museum & Library

This is an aerial view of the east millrace… now 34 ft. wide and about 230 feet long, but this was probably not the race's original configuration. It was once even longer because it passed under Rockland Rd. in order to power the old paper mill (see the orange arrow.) The east bank mills (paper, wool and cotton) were in operation longer than those across the creek, so they were upgraded and better maintained. The crest of dam is marked by a yellow arrow.



This is the east race headgate. It may not be original, but it has some age on it. There are six arched openings with gates that can be raised and lowered. Two of the gates were modified so they could be adjusted by rack-and-pinion mechanisms. Sometime late in its career, the race's stonework was braced with a series of steel beams.

West Millrace



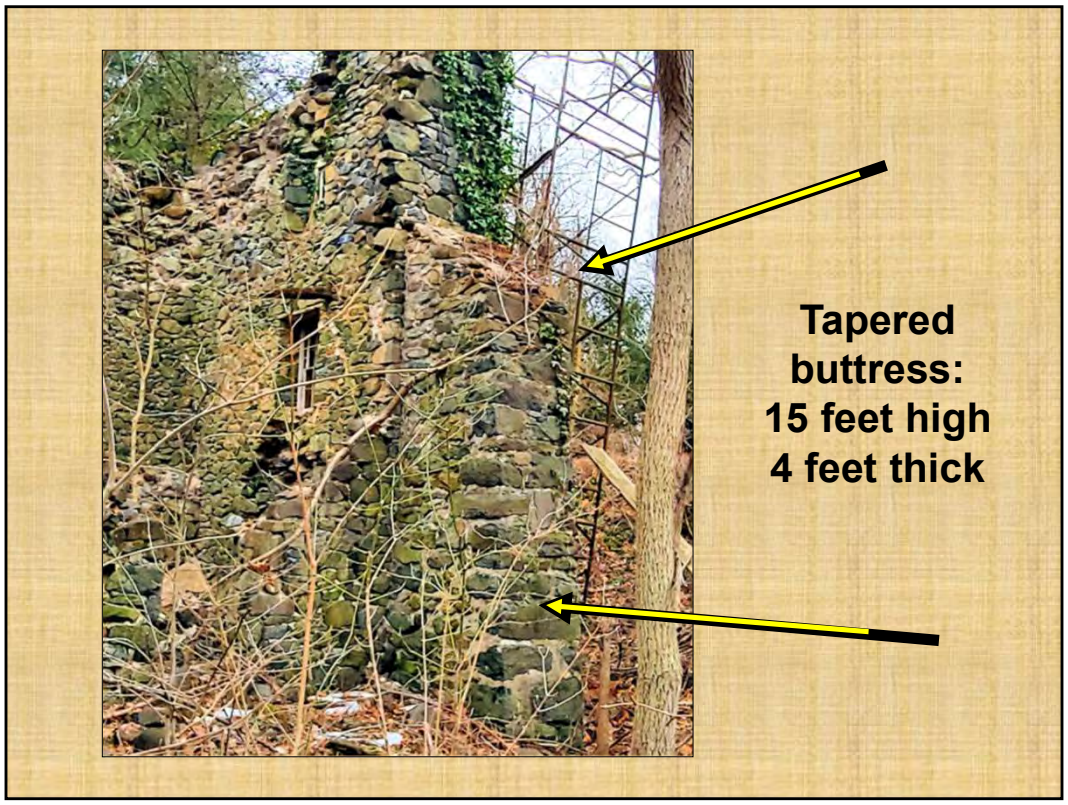
Similar to East Millrace, but headgate was damaged or closed off. Race has since silted in.

This is the west millrace, perhaps similar to the East Millrace, but probably simpler in design. Its headgate was damaged or closed off and the race has since silted in.

Rockland Bridge, West Millrace Channel

This arched waterway beneath the Rockland bridge aligns with the silted-in west millrace. It indicates either that the race was potentially active in 1933, or that the bridge engineers provided an extra channel for periods of high stream flow.

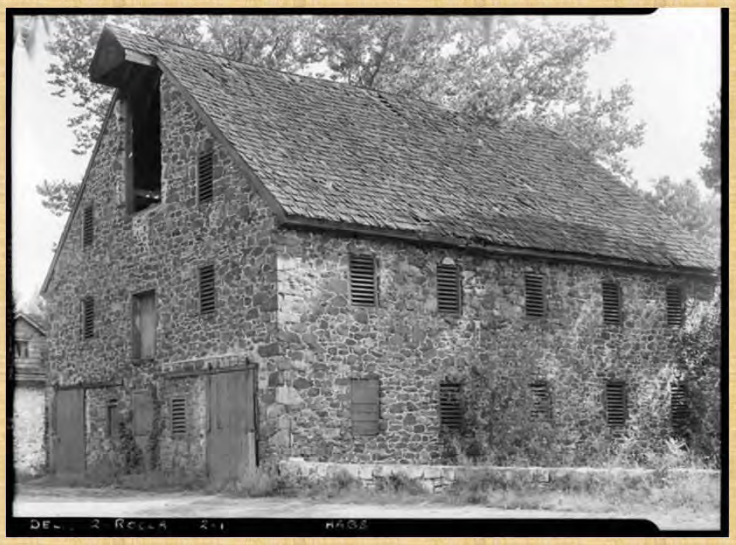
These are the ruins of the 1799 Heshbon cotton mill that Caleb Kirk constructed upstream on Wilson's Run. It is 83 ft. long by 21 ft. wide with two-foot-thick stone walls, two stories high on one side, and three stories high on the other.



The three-story side was braced by two stone buttresses which are still there and in good condition. After Caleb sold this property, Charles LeCarpentier converted the mill to a tin mill.

Old Kirks Mill - built 1803 by Caleb

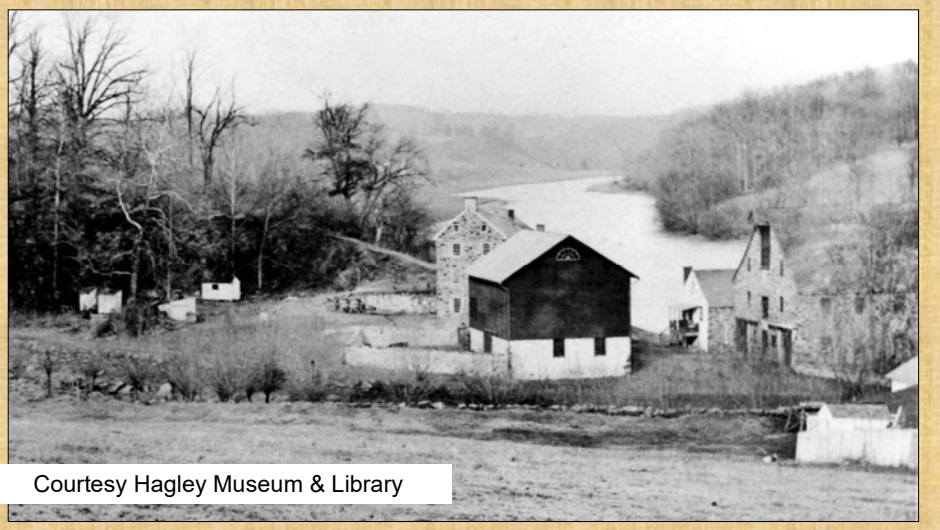
Gristmill powered by the West Millrace



Courtesy Historic American Buildings Survey, National Park Service and Library of Congress

The turn of the 19th century was a period of significant expansion. In 1803 Caleb built along the west race a beautiful stone gristmill that in the 1900s was declared an Historic American Building, pictured here in a Library of Congress photo. Sadly, the mill was taken down years ago.

Caleb's Mill Complex (1/2)

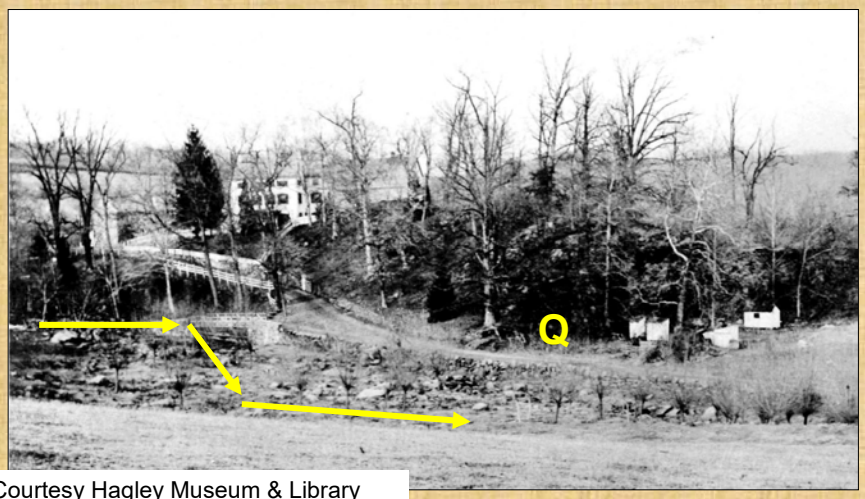


Courtesy Hagley Museum & Library

Shown are Kirk's Mill, a residence next door, a barn, and a three-story residence for worker housing

This photo shows the southern half of Caleb's landholdings along Wilson's Run. Shown are the stone mill, a residence (maybe the manger's home), a barn and a 3-story structure for worker housing. A long-time local resident says that at one time mill workers' houses were cheek-by-jowl thick along Rockland Rd., but hardly any buildings remain today.

Caleb's Home & Heshbon Mill (2/2)



Courtesy Hagley Museum & Library

Shown are Caleb's home, barn, and the Heshbon Mill The "Q" marks area believed to be the stone quarry. Note bridge over Wilson's Run.

This shows the northern half of Caleb's property. Shown are Caleb's home, the Heshbon cotton mill, a barn, the site of where I believe the dam stone quarry was, and an early Adams Dam Rd. bridge over Wilson's Run.

Caleb's 1797 Home, W. Elev.
Later owned by LeCarpentier and Green

Courtesy Hagley Museum & Library

This photo is of the west elevation of Caleb's Federal-style home, built in 1797. Under subsequent ownership it burned in 1881, but was rebuilt in 1885 using the same T-shaped floor plan and the original stone exterior.

Kirk / LeCarpentier / Green, E. Elev.

Courtesy Hagley Museum & Library

The east elevation. The home is included in the Rockland National Historic District.

The French Connection

c. 1812 to 1816… Caleb, his neighbor E.I. duPont and a few others bought the water rights to many properties fronting on Brandywine Creek.
The beginning of a decades-long business relationship and friendship between the du Ponts and Kirks

Courtesy Hagley Museum & Library

Between 1812 and 1816 E.I. du Pont, Caleb and a few others bought the water rights to long stretches of property fronting on Brandywine Creek, beginning with the four-way mill seat at Rockland. They recognized the potential for industrialization, constructed dams and mill races, and sold mill seat locations. This portion of a much larger map shows about three-dozen mill seats on the middle Brandywine… the consortium controlled most of them.

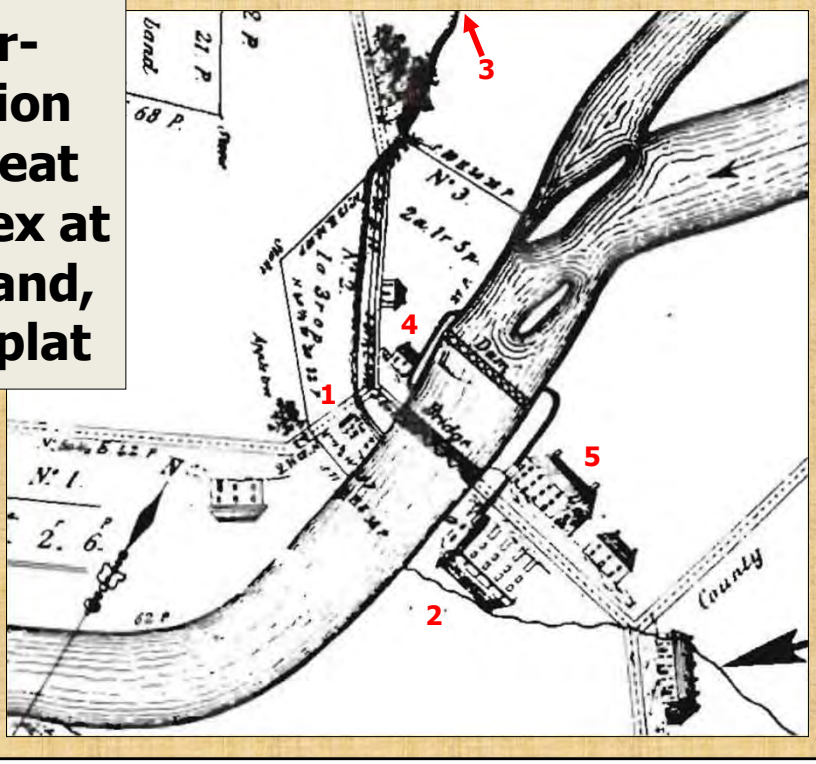
"Fathers of the Brandywine"

1814 cartoon depicting E.I. du Pont, Caleb Kirk, Neptune and neighbors

Courtesy Hagley Museum & Library

The Kirks and du Ponts were not only neighbors and business partners, but also good friends. Many of the other landowners along the Brandywine were jealous of the relationship between the two families. This cartoon indicates how Caleb – and later his sons Caleb, Jr. and Samuel – prospered right along with the du Ponts, and how their neighbors felt about the sweetheart deals that came to the Kirks via that friendship. Here we see E.I. du Pont carrying the god Neptune on his back… Neptune pours the waters of the Brandywine into du Pont's pocket and Caleb's wide-brimmed Quaker hat catches the overflow.

Four-position mill seat complex at Rockland, 1841 plat

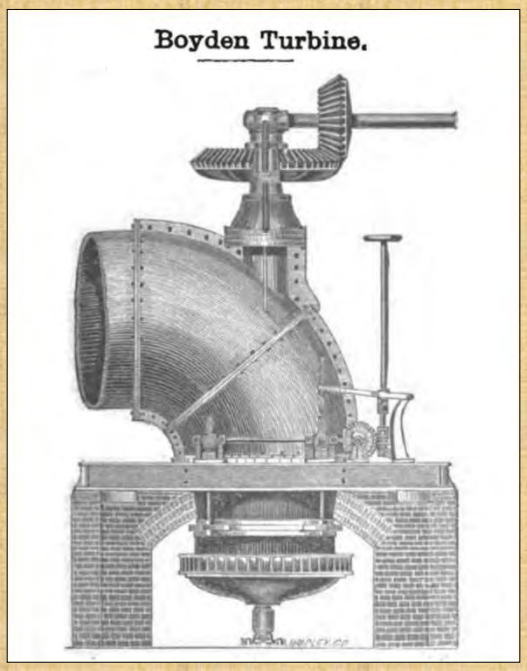


Courtesy Hagley Museum & Library

This map represents the 4-way mill seat venture at Rockland, as surveyed in 1841. For a while, William Young was part of the partnership, but his bad business luck eventually forced him to the sidelines. The mills are numbered in the order of their construction: Adam Kirk's 1724 gristmill and later an 1800s cotton mill; Young's 1798 paper mill, later his woolen mill; Caleb Kirk's c. 1800 Heshbon cotton mill; Caleb's 1803 stone mill; and Young's 1800s textile mill, later the site of the Doeskin toilet and facial tissue factory. Note that the west millrace served only one mill, but the east millrace served two. In 1825 Young bought the rest of Caleb's mill property on the west side of the creek and in 1841 he rolled everything into the new Rockland Manufacturing Company. Although he and his son eventually failed, that didn't stop them from trying to expand production and bump up efficiency by finding additional power to run more cotton spinning and textile weaving machinery.

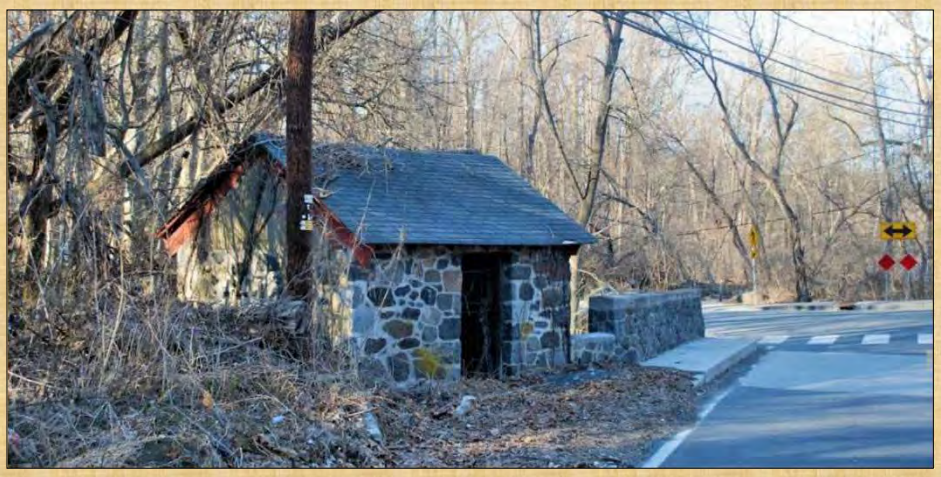
Turbine Power

One of the first water turbines in the U.S. was installed at a Rockland cotton mill in 1843, quickly followed by a second turbine at the DuPont powder mill just downstream



Turbines were mid-19th century mill engines powered by water flow… the next step up in power generation technology after the massive old water wheels. Water flowed down the inside of the turbine and exited out the bottom, spinning at high speed a horizontal wheel with angled blades. One of the first – probably the **very first** in the United States – was designed for and installed in 1843 at Young's cotton factory by an engineer named Morris. It was followed soon after by a second turbine at the DuPont powder mill downstream.

Rockland Rd. Turbine Bldg.



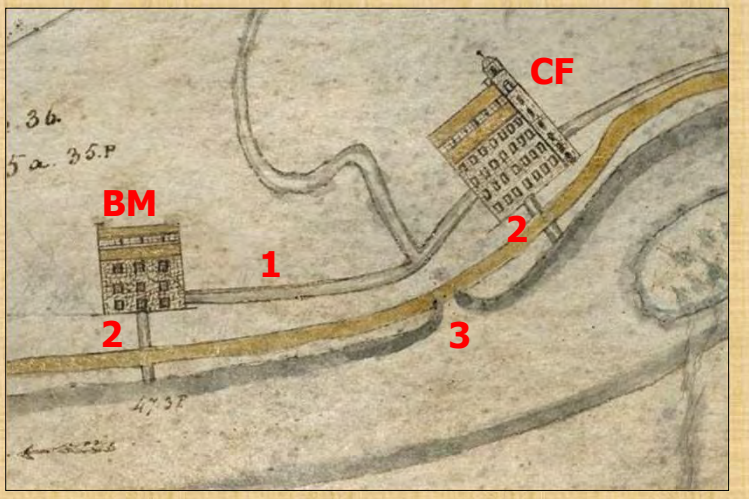
This little structure near the bridge at Rockland appears to be just a part of the landscape-friendly bridge design. One might think it is an old gate house, or perhaps some sort of water control device for the millrace. If you think the latter, you're close… In the now-vacant lot to the left a cotton mill once stood, one of the Rockland Manufacturing sites. Below the road level inside this structure is a turbine, perhaps the one - or a replacement for - the one Morris installed for Young. If it were not here, it was directly across the Brandywine. This "first" is a piece of Delaware industrial history that has never been properly recognized nor celebrated. I can see an historic marker placed here someday.

Samuel Kirk (Gen. 4) - Old Barley Mill

Courtesy Hagley Museum & Library

In 1813 Caleb's son Samuel and E. I du Pont jointly purchased a tract of land south of the Lower Hagley Powder Yard. The land included an operating cotton mill known as McCalls, later renamed the Henry Clay Mill. In 1825 the partners began construction of a barley pearling mill beside the cotton mill, with Samuel superintending the work. Most of the skilled labor was supplied by duPont employees assigned to the project, but some unskilled labor was needed. Jesse Taylor and his three hired hands dug the mill's head- and tailraces for 25 cents per cubic yard removed. This included a lot of rock that had to be blasted loose. After three weeks, Taylor had progressed far enough that Samuel was able to lay out the mill's foundation and tailrace.

Site preparation work & costs

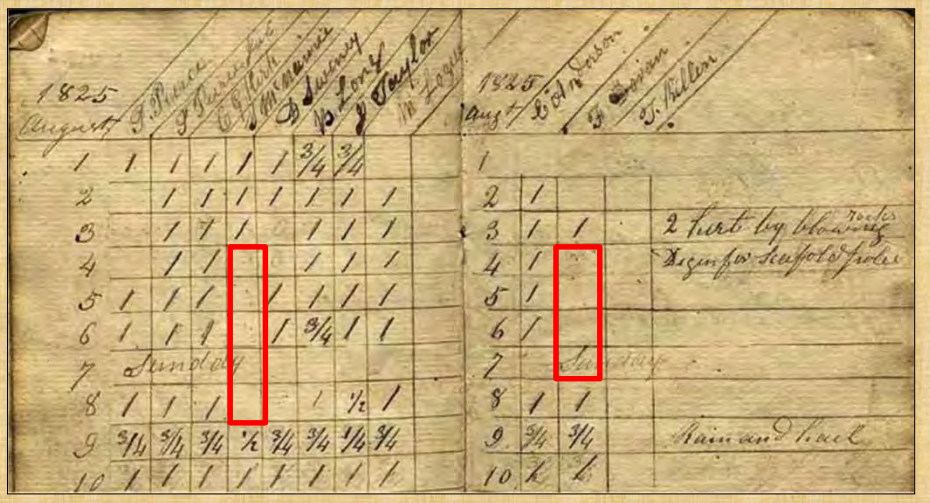


1 & 2 – Boring rock for blasting	343 feet @ $0.18/ft	$ 58.21
1 & 2 – Dig new head race & tail races	915 cyd @ $0.25/cy	$ 228.75
3 - Fill in discharge of Squirrel Run	6.5 days @ $0.625/day	$ 4.06
	Total =	$ 291.02

Courtesy Hagley Museum & Library

This slide shows the new Barley Mill site preparation costs. In 1825 the mill race ended at the Cotton Factory and Squirrel Run emptied into the Brandywine. Taylor's crew extended the race to the new Barley Mill site and filled in the discharge of Squirrel Run. Try doing **that** today without a hundred permits and a half-dozen environmental impact studies. They removed not only rock and soil, but also trees. In one case, Taylor wanted to take several saplings home to plant… Ever the penny-pincher, Samuel charged him 75 cents for the live trees he took… trees that otherwise would have died and been hauled away.

Mill Construction Records



Superintended by Samuel. Employed were his brother Caleb, Jr. and Caleb's son Hiram (G-5). Red indicates time lost due to blasting accident.

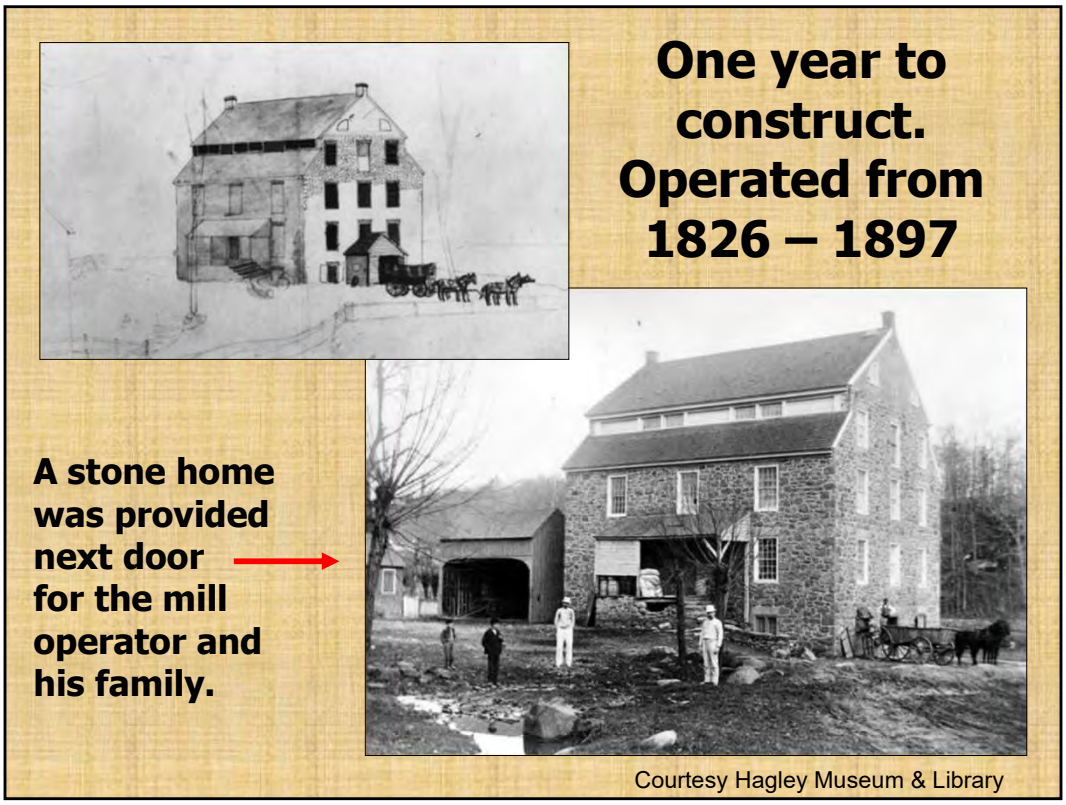
Courtesy Hagley Museum & Library

Construction of the Barley Mill required 15 months' work. Crews, which included at times Samuel's brother Caleb, Jr. and Caleb's son Hiram, varied from 3 to 15 persons, usually about six to eight men working six days per week. The pay was 67 cents per day, but men who furnished wagons or animals earned more, as much as $2.00/day. Samuel's work logs record one blasting accident, several workers drunk or drinking on the job, numerous hirings and firings, multiple contractors, the costs of materials used, cash withdrawals, wage payments, regular $30-$50 capital infusions from E.I. and A.I. du Pont, and Samuel's $5/week salary draws. One worker – a J. Fitzpatrick - fell ill and missed weeks of work. Fearing that he would be sent to the poor house, Samuel made a cash gift to his son to carry the family through.

Repairing the Hagley Dam

Courtesy Hagley Museum & Library

Before they started up the mill, the crew repaired the dam upstream. This photo was taken many years later, but it clearly shows the signature arch dam design, and how the flow of the creek was diverted so men could work in the dry.



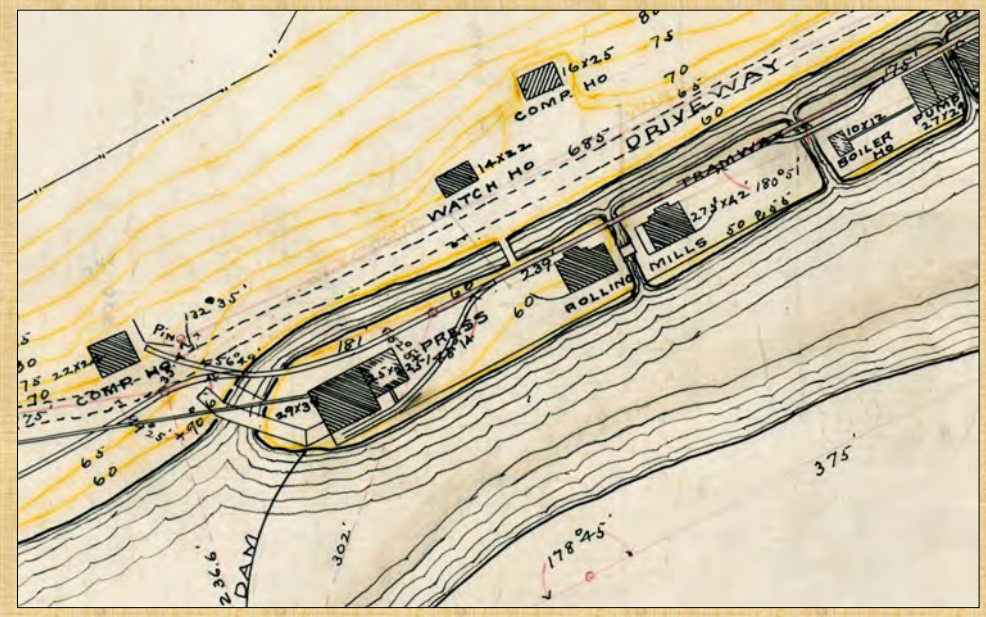
The finished mill stood 4-1/2 stories high and operated from 1826 until 1897, first by Samuel and E.I. du Pont, later as rented to a succession of tenants.

1839 Flood on the Brandywine

- On Jan. 26, 1839 a warm rain melted a massive ice jam on the Brandywine in southern PA. The ensuing rush of ice, rain and pent-up water caused the Brandywine to rise to a height of 20 to 22 ft. There was major damage to RR and highway bridges, and to industrial works up and down the creek.

In January 1839 a 150- to 200-year flood struck the Brandywine. Triggered by an ice dam break upstream, it caused massive damage to industrial works all up and down the creek. Lammot du Pont said, *"Much as all the mills and water-powers on the Brandywine, it took out the stone dam embankments, part of the dam was destroyed, the headgates were forced open, the entire race bank was swept away, and the rolling mill was more damaged than by half a dozen explosions. This freshet swept off all of the materials, stone, earth, gravel and timber. Little was left in place, nothing of what gave way could be used, which necessitated very expensive repairs. The new headgates and abutment on the Brandywine Hundred side was the most costly of anything of the kind ever constructed in the state.*

Lower Powder Yard Detail (1904)



Courtesy Hagley Museum & Library

The damage was **very** extensive. Many of the mills were situated on narrow strips of land between the Brandywine and the mill races that were dug behind them… the floodwaters simply swept away everything anywhere near the creek. This is a detail drawing of the Lower Hagley Yards where the destruction was particularly severe. There the dam, the race and the rolling mills were all destroyed. This is a natural narrow spot on the creek, which increased the velocity, force and depth of the water. The rushing waters took dead aim on the dam abutments, the narrow spit of land between the creek and the race, and the mills that were situated there.

The 1839 flood was comparable to that caused by Hurricane Ida, Sept., 2021

A storms like these come around once every 150-200 yrs.

Upstream, the barley mill's machinery may have been damaged, but the building withstood the onslaught of the record-setting flood, probably because it was solidly constructed and set well back from the creek.

High water at Rockland after Storm Isais… a mere 10-year storm in August 2020

Courtesy Becca Roberts, Brandywine Creek State Park

To give you an idea of what constitutes high water, this photo is of the Brandywine at Rockland just after Storm Isais in 2020. The creek's flow was reported at 16,000 cfs, less than half that of Ida and the 1839 flood. Note that the dam is completely submerged… from this and others photos taken that day, I estimate the dam was under 5 feet of water.

The mill burned in April 1897 while being leased by the Pyle and McIntyre Flour Mill Co.

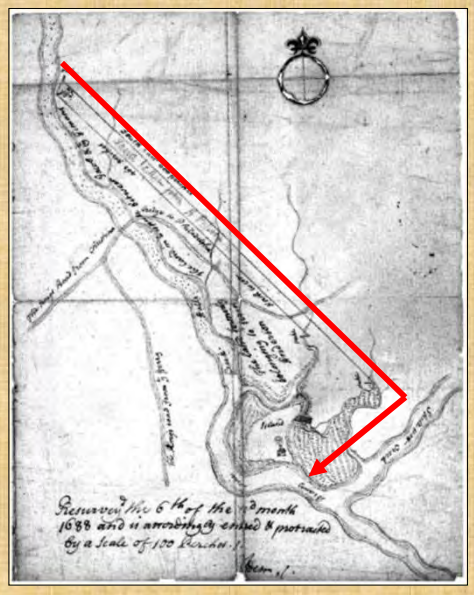
Courtesy Hagley Museum & Library

The Old Barley Mill burned in 1897. It was replaced by a then-modern machine shop.

About 1855, Caleb Jr. relocated to Cecil Co., MD.

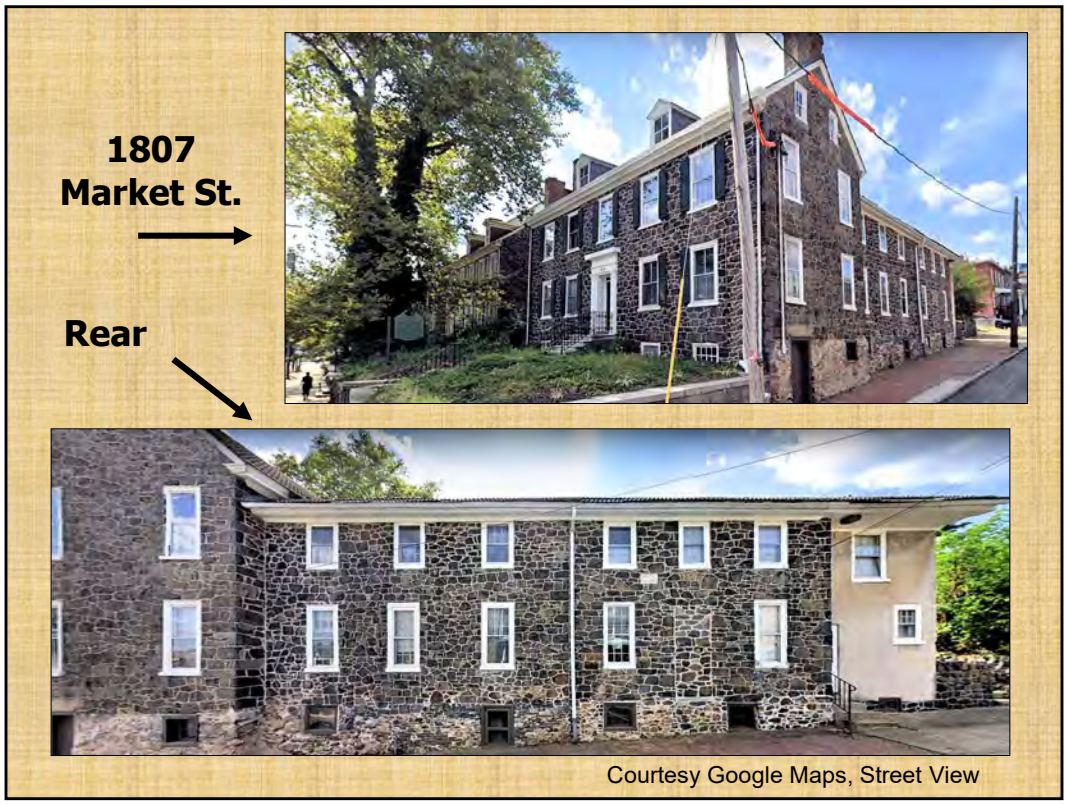
In 1855 Caleb, Jr. and his sons relocated to Cecil Co., MD, where they built and operated new grist- and sawmills on North East Creek at Blue Ball Rd.

1718 (Gen. 1B) - Alphonsus' nephew Samuel Kirk arrived from N. Ireland

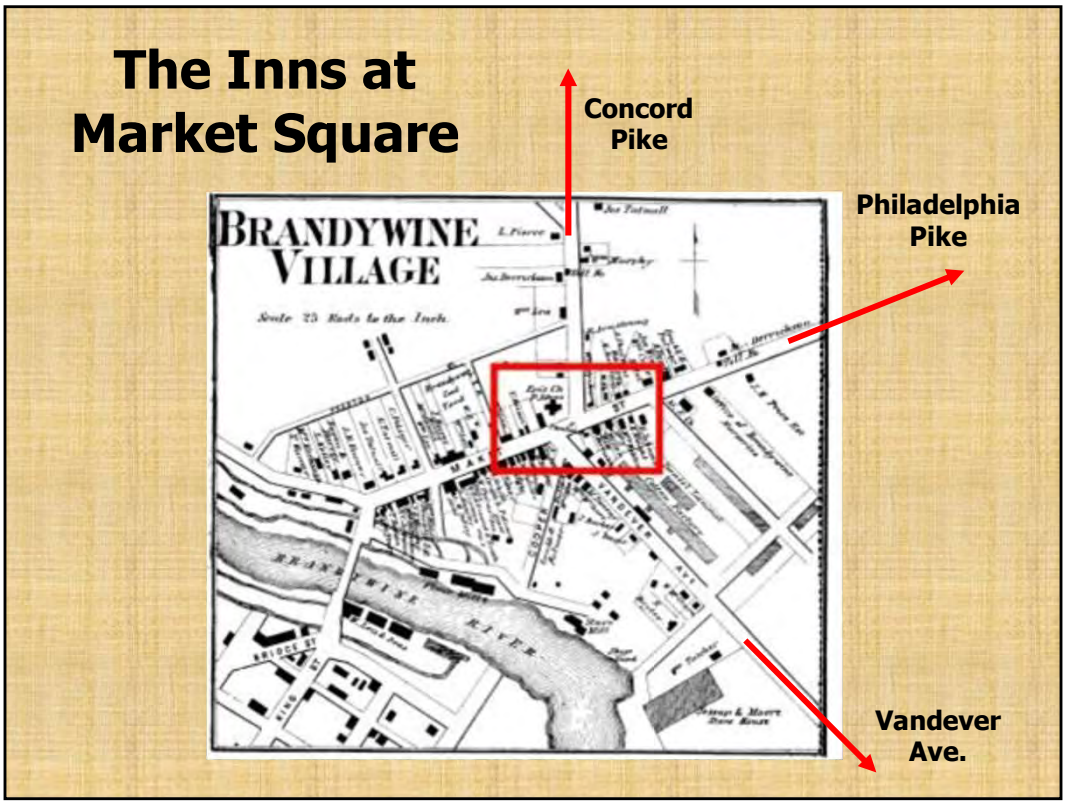


Samuel married widow Alice Vandever. He was an innkeeper, a Justice of the Peace and a miller.

Now let's change gears and location and step back in time, all the way back to 1718. We move well down the Creek and meet another wing of the Kirk family. That year Alphonsus' nephew Samuel arrived from Ireland… 41 years old, a recent widower and the father of three young children left in the permanent care of relatives in Ireland. He soon married Alice Vandever, the widow of William Vandever, the son of Jacob Van der Weer, a sergeant in Peter Stuyvesant's Army of New Netherlands. In the 1680s, Jacob had obtained land grants on the north bank of the Brandywine. Included were the rights to operate an inn, to operate a ferry and to build a gristmill. His land included Timber Island, aka Van der Weer's Island Plantation, where the family lived. Much of his land is where Brandywine Park and Brandywine Village now exist. Through Samuel's marriage to Alice, he gained control of these assets for the rest of his lifetime. The old Vandever home and the inn are thought to have been situated along the Kings Highway to Philadelphia, at what is now the 1800 block of Market St.



University of Delaware history professor and author Carol Hoffecker reported that the rear portion of 1807 Market St. was probably the plantation house on the old Vandever farm. This structure has been independently dated back to at least 1735. The front portion of the building was added later.



As for the inn… there were two pre-Revolutionary War inns near Market Square: the Green Tree and the Brandywine. In addition to accommodating travelers with food and rooms, they served as terminals for stage coaches plying the toll roads headed north and east. In the early days, both were respectable operations.

Brandywine Village Inn, 1931

Courtesy Hagley Museum & Library

The Brandywine Inn was known for… "high class conviviality, fine food, music and dancing, a jovial landlord and sweet-scented barmaids. Favorite drinks were cider sprinkled with ground ginger, and beer made from hops, molasses and yeast." Well-to-do and upper-class patrons frequented the establishment.

The Green Tree Inn

Courtesy Historic American Buildings Survey, National Park Service and Library of Congress

Not so with the Green Tree, which I believe was the inn once owned by Samuel and Alice. After Samuel sold out, it degenerated into an unsavory joint where heavy drinking, gambling and wenching provided recreation for bored land travelers, and for sailors off ships taking cargo to and from the Brandywine Mills. The fare was apt to be grog - water mixed with rum, and sour mash whiskey.

The staid Quaker millers who lived nearby detested the inn but could do nothing about it. But the very religious A.I. du Pont had both the resources, and the will. He wrote," I *have work to do. That work is to purchase the old Green Tree, and demolish the structure where the Tempter holds his orgies. Now the Green Tree is flaunted by a sign and its shades lead to perdition. My purpose is to build a house which shall be God's and be the green Tree of Life, and its sign shall be the sign of the Cross.*

A.I. du Pont **did** buy the Green Tree, razed it and donated heavily so St. John's Episcopal Cathedral could be built on the site. Sadly, he died in an explosion at his mill shortly before the church was finished.

Ashmond Stidham Barley Mill
S. Bank of Brandywine at Adams St.

Yes, there were two "Old Barley Mills"

Courtesy Irene Shadoan Lott

There were two "Old Barley Mills" on the Brandywine, the just-discussed 1820s era mill that the later Samuel and E. I. du Pont built by the Henry Clay cotton factory, and one that this Samuel purchased 100 years earlier from Ashmond Stidham… it being the very first mill on the Brandywine. The left image shows a millstone discovered at the site around 1930, and later set as a monument to the early mills.

How Brandywine Creek got its name…

The Stidhams operated a side business in conjunction with their barley mill. They produced “Aquavit”, an alcoholic beverage enjoyed by the inhabitants of Nordic countries since the early 1500s. Distilled from grain or potatoes and flavored with herbs, spices or fruit oil, this yellow-hued, 80 proof (that’s 40% alcohol) is a festival favorite that is still produced, and imbibed. The Stidhams made the first Akvavit in Delaware using barley and good, clear water from the creek. Here is the interesting part… this beverage is known by different names in Denmark and Sweden… it is called “Snaps”, “Dram”, or “Brændevin”. BRÆNDEVIN… and there you have “the rest of the story”, how Brandywine Creek got its name!

Old Barley Mill (built by Samuel Kirk)
c. 1900 etching by Robert Shaw

Courtesy Hagley Museum & Library

Samuel continued to operate the just-purchased Stidham mill and built a second, larger and more modern mill close by. This etching shows the configuration of Samuel's mill and the dam he built from bank to bank. The artist even showed the old mill stone lying at the edge of the stream.

1st Old Barley Mill & Dam Location

Decades later the mill was converted to a cotton factory

Courtesy Hagley Museum & Library

This slide shows the location of Samuel's angled dam and mill. The mill was later converted to a cotton factory. There was a fire sometime in its history, the exact date is unknown.

Barley Mill Dam Ruins

Courtesy Hagley Museum & Library

Photo by Frank R. Zebley showing the ruins of the Barley Mill dam in the 1930s.

American Shad

Image drawn by Sherman Foote Denton, 1896

This is *Alosa sapidissima*, Latin for the "most delicious herring", the American shad. At 4 to 8 pounds and 20 to 24 inches in length, it is the largest of the herring family. The nutritious shad earned the nickname "Founding Fish" after their spawning run made it past a spring 1778 British fish blockade and surged up the Schuylkill River, arriving *en masse* just in time to feed the famished forces huddled at Valley Forge. You ask, "What does that have to do with Samuel?"

So well did Samuel's dam function in hindering the downstream flow of the creek that it also blocked the upstream migration of the shad during the annual spawning season. The effects on the shad run were so bad that the region's Native Americans – the Leni Lenape - petitioned the Assembly for redress. They argued that "we previously hunted shad with bows and arrows, but now our children are being wantonly starved." The Lenape received a lot of promises, but little action. In 1818 the Brandywine millers felt the mounting pressure and submitted a petition to the Legislature opposing mill dam alterations to permit fish to go past them.

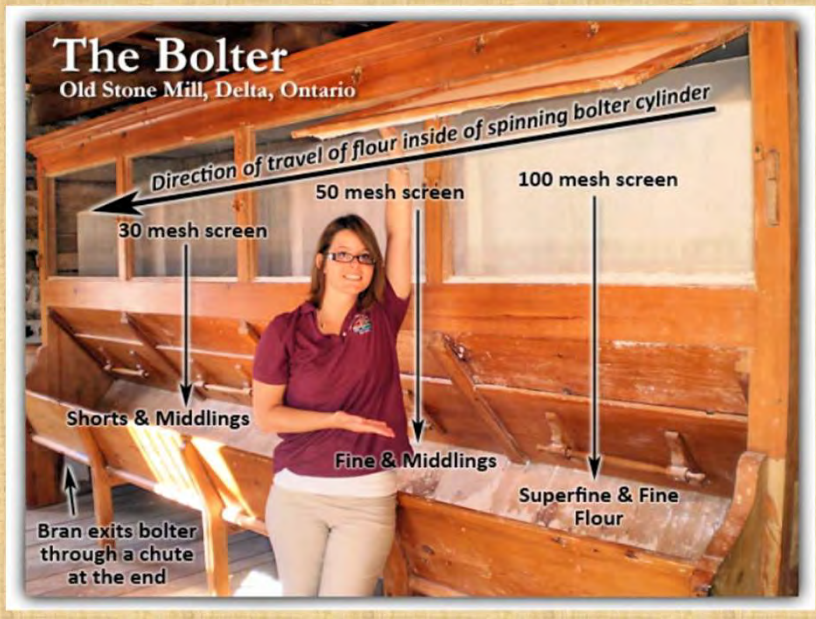
Samuel's dam was the first of what eventually numbered roughly one dozen dams on the Brandywine. For 300 years the dams combined to not only completely eliminate the river's once-mighty shad runs, but also increase siltation, levels of dioxins, heavy metals, mercury and other toxins, increase water temperature, and reduce dissolved oxygen. When the 21st century rolled around, their presence again aroused the concern of area persons and organizations, many of which banded together to form "Brandywine Shad 2020". Dam removal and modification to restore - as much as possible - the Brandywine to its pre-colonial condition is currently in progress.

Samuel added "Superfine" Bolters

Courtesy L. Ivins Smith III

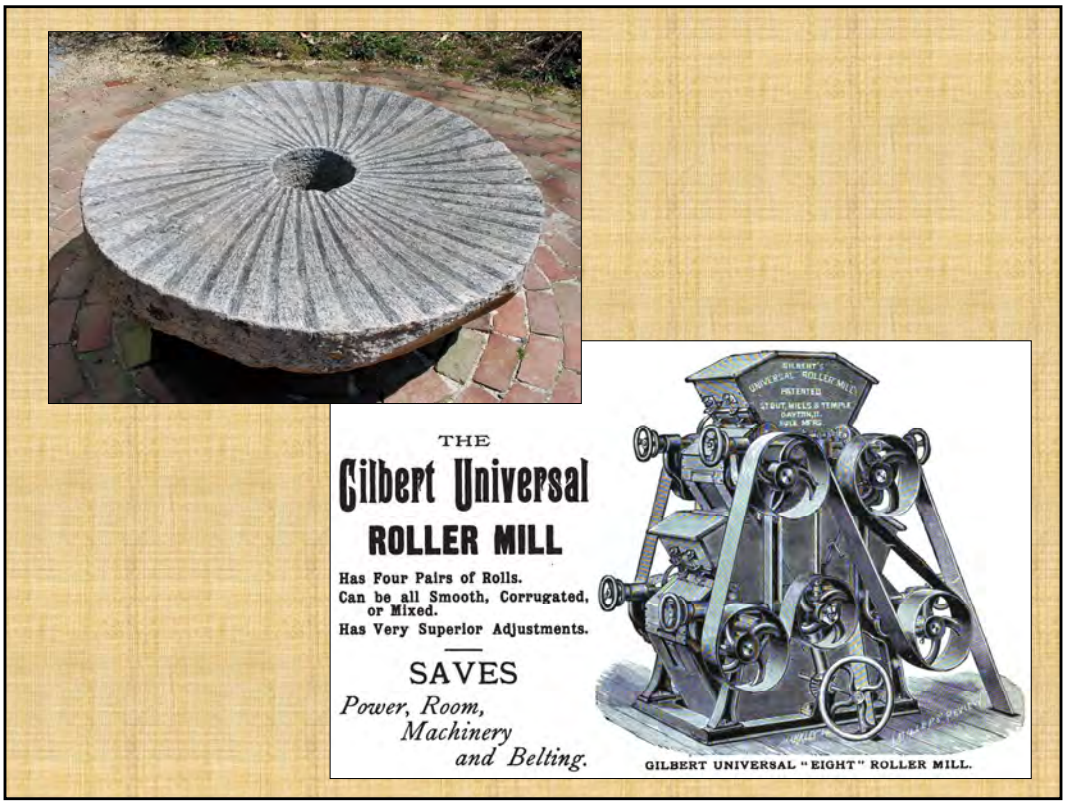
Samuel pioneered another innovation, at least it was innovative for the region. He added to each of his gristmills a bolting mill to sift the flour and divide and sort the larger and smaller pieces of the grain, so he could be called the earliest of the Brandywine Valley's famous "Superfine" millers. Those following his lead likely obtained even greater product quality and appearance as equipment technology progressed, but it was Samuel who set the bar and eventually made Brandywine Superfine Flour the most sought-after in the nation.

How a Bolting Mill Works



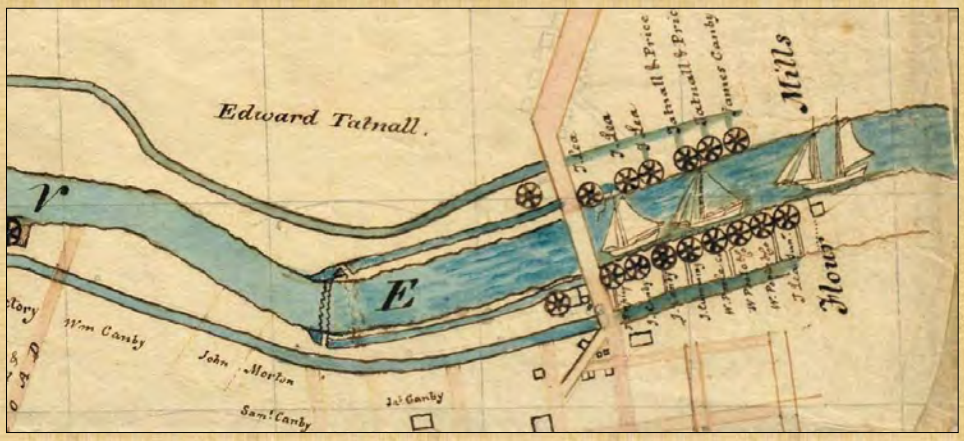
Courtesy Old Delta Mill, Ontario

A bolting mill is a rotating cylindrical screen with its long axis tilted down from inlet to outlet so the flour moves through the bolter by gravity. Screen (or cloth) openings get progressively larger the further the distance from the mill's inlet. The finest particles pass through and out of the feed stream first and are collected, then successively larger and larger pieces are collected down-screen. The smallest flour particles are the superfines, followed by the fines, middlings, shorts and bran. Superfine flour is prized for cakes; at the other end of the spectrum, bran was often used for animal feed. An interesting part of the English language has its origin in flour milling… When asked the question, "How are you", the answer might be "Fine to middling".



The old stone millstones could grind flour only so fine. Steel rollers, like the one pictured here as used in an 1800s-era Kirk family mill in Ohio, replaced millstones. Later huge cylindrical mills loaded with grinding balls replaced roller mills, and high-pressure jet mills replaced them. Colonial superfine flour that would have passed through a 100-mesh screen (that's 10,000 openings per square inch) has been replaced with ultrafine flour that, if mesh screens were made with holes that small, would pass through a screen with more than 1-1/2 million openings per square inch. Particle sizes these days are measured in microns and are examined in flour mill quality control laboratories with scanning electron microscopes.

Oliver Canby invested, then bought the Kirk Company. Canby went on to found the first of the mercantile mills. Tatnall, Lea, Price and others followed.



Courtesy Hagley Museum & Library

Samuel called his new milling enterprise the Kirk Company, and took on investors, one being Oliver Canby, considered a pioneer miller in his own right. When Samuel tired of daily mill management, he sold out to Canby, who, along with Edward Tatnall and others, constructed great mercantile mills a few hundred yards downstream on Tidewater. Note the two pairs of millraces in this sketch… identified as the longs and the shorts, the North and the South.

North Millrace

Photos by Allee Davis, courtesy
Richard Grubb & Associates

The North Millrace is no longer in operation, but remnants of the stone walls that lined its channel to prevent erosion and bank collapse can still be seen.

South Millrace

Photo by Joan M. Norton, from Brandywine Park National Historic District file, courtesy State of Delaware, Div. of Historical and Cultural Affairs

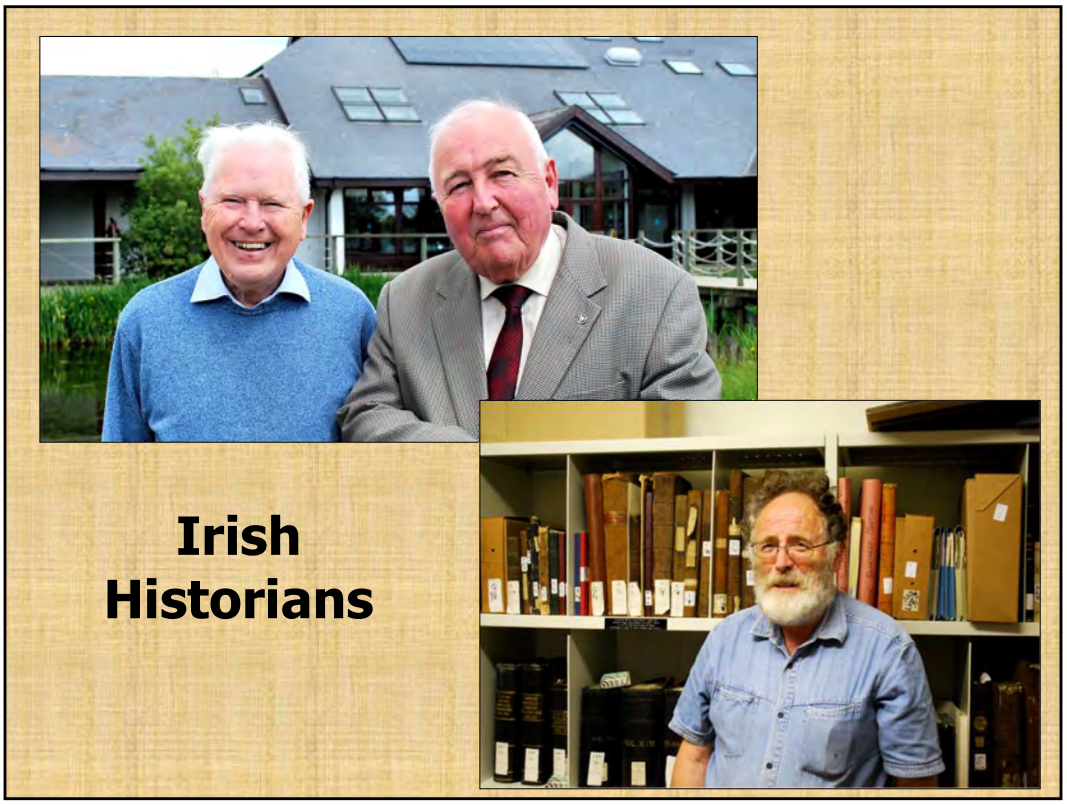
The 18-foot wide, 5-foot deep South Millrace remains in service and functions as part of the City of Wilmington's water supply system. The Public Works Dept. renovated it in 2015.

Samuel's Brandywine Milling "Firsts"

- He bought the first gristmill from its original owner
- He constructed the first dam on the Brandywine
- He built and operated the second gristmill
- He introduced bolting mills and the concept of "Superfine Flour"

To conclude, the Kirks were milling pioneers on the Brandywine, especially the earlier Samuel.

- He bought the first gristmill on the Lower Brandywine from its original owner
- He constructed the first dam on the Brandywine
- He built and operated the second mill… it being acknowledged as the first mill of substance on the Creek
- He introduced to the region through his bolting mills the concept of "Superfine Flour", for which the Brandywine Valley millers would thereafter be famous, and ship their product as far away as the West Indies and Europe.



A special thanks to the Irish historians who paved the way for my research on No. Ireland. Shown are Arthur Chapman, Frank McCorry and Ewan Cameron. Arthur literally wrote the book on the Society of Friends' history in Lurgan and the emigration of the Kirks, Hollingsworths, Harlans and more to northern Delaware. Here at home there are too many members of the family, historians, interested persons and organizations to mention, but I must thank Hagley Museum for providing many of the images in this presentation.

Thanks to all for tuning in and listening. Can I answer any questions?