

“The conveniences of a living spring of water
by one’s door can hardly be calculated: there
at ones request are health, pleasure, and the
most extra fine utility.”

—*The Genius of Liberty*
11 November, 1798

The Morris Aqueduct Company

*New Jersey’s
First Water
Company*

Part 1: 1798-1869

Arthur Mierisch



Doctor Lewis Conduct's 1797 home at the corner of South Street and Community Place is today's Morristown's Woman's Club. Dr. Conduct was the first president of the Morris County Medical Society, a shareholder and president of the Morris Aqueduct Company, a Congressman, and the first president of the Morris and Essex Railroad.

Prolog

The mid afternoon sun blinded Doctor Conduct as he left his home that hot July day in 1798. *"I feel old and tired. Why is it always so hot? Damn this place,"* he thought as he locked his door and walked to the street. Every day he strode purposefully as if on a mission to help someone too ill or injured to come to his home. With his head bent towards the ground, he appeared to be deep in thought as if trying to resolve some imponderable question. The unbearable heat of the last two summers was affecting his health. He paused, put his hand in his coat's side pocket and withdrew a soiled linen handkerchief. After wiping the perspiration that had trickled down his eyes and neck he used the handkerchief to fan his face. *"It's just as hot outside. I should stay home."* Suddenly a gust of wind erupted creating a funnel of gritty yellow dust. For seconds the Doctor disappeared into its spinning vortex before the funnel wandered in a strange pattern down the street. *"Oh my eyes. When will this heat end? It's so hot. We have to do something."*

[Two blocks away] "Bow Wow! Wow! Wow! Wow!"

"It's that damn dog again. Why can't Arnold keep Ben tied up?" thought the Doctor brushing the dust from his eyes. "That dog's a menace," he said in a low voice.

"What's that Doc? I can't hear you. Talk louder," said Jacob Mann standing underneath *The Genius of Liberty* sign hanging over his printing office. Jacob's once white blouse and pants, now smeared with black ink was soaked with perspiration. Odd, somewhat grotesque patterns of black and gray covered his chest and arms and continued down his pant legs.

"He looks terrible," the Doctor thought shaking his head from side to side. "Jacob. This blasted heat! The wells are dry. Animals are dying. The gardens are wilted. I don't feel well. My mouth is dry Jacob. We need rain!"

"I don't know Doc. Can't we dig another well and get . . . Listen! . . . It's coming from O'Hara's!"

"I don't hear . . . No wait! It's Ben chasing Jefferson's wagon," the Doctor said.

"That dog sure is crazy. He's mean and ugly," Jacob replied. "He likes biting horse's legs. He'll chase them for miles until they drop. The heats making him mad."

Dr. Conduct's eyes opened wide. "They're coming this way Jacob! Jefferson can't stop his team!" the Doctor managed.

The wagon raced down South Street. Joe and Pete, two of Jefferson's strongest horses, pulled the wagon at a full gallop. Ben ran alongside barking and trying to bite their legs. Sacks of flower and vegetables bounced and slid off the wagon and disappeared into the dust raised by the horse's hooves. "Kick that dog! Kick him!" yelled Jacob.

April 17, 1799

A melancholy event took place last Friday night. As Mr. James Gall was removing part of his household furniture to a farm he had lately taken, a vicious dog flew out and seized one of the horses by the heels and set the whole team off in a furious gallop. Mr. Gallaher attempted to throw himself off, but his left foot was caught in the stirrup. He was dragged a considerable distance before it broke. To finish the fatal catastrophe both wheels pulled over him - one across the breast and the other across the abdomen. To describe his mangled and tortured state is impossible,

The Genius of Liberty

August 22, 1779

A gentlemen of respectability in-forms that Edward Griffith, a laborer went down a dry well 35 feet deep to dig for water. One side of the well collapsed burying Mr. Griffith.

The Genius of Liberty

Community Water Systems

In 1652, Boston built a system that captured water from aquifers atop a hill. Gravity conducted the water through wooden pipes into a cistern below. Using pails and jugs, people carried water to their homes.

In 1754, the Moravians in Bethlehem built the first successful community water supply. Steam engines pumped water through bored hemlock logs into a wooden reservoir above the town. The water was distributed downhill through wooden pipes.

In 1771, private water companies in Philadelphia drew water from the Delaware using pumps. In 1799, the city built an aqueduct designed by Benjamin Latrobe, a noted hydraulics expert. Two large steam engines pumped water from the Schuylkill River through a 6 foot diameter tunnel.

In 1796, Governor Samuel Adams of Massachusetts created an aqueduct corporation. Wood pipes carried water from Roxbury into Boston.

“They’re coming. I don’t know what to do!” the Doctor thought. He couldn’t move.

“Doc get out of the way! You’ll be killed!” yelled Jacob.

The Doctor’s face paled as the horses raced towards him. They looked twenty feet tall. He tried to say “Help me!” but couldn’t.

“Doc hurry!”

Suddenly the Doctor was pulled aside. He lost his balance and collapsed. The wagon roared by with Ben in pursuit. “Whoa! Whoa!” shouted Jefferson.

The Doctor looked up. “Doc I had to do it” Jacob said.

“I’m better now Jacob . . . Help me. Thank God you’re here.”

“The dust Doc. It’s bothering my eyes. We better go.”

Five minutes later Doctor Condict and Jacob arrived at O’Hara’s. General Doughty, already seated, stood up pushing his chair hard against the wall. He yelled using his stentorian voice: “Doc! Jacob! What happened? Bartender! Send over mugs of your best wine and a broom to dust off my friends.”

The Doctor, managing a smile said. “After I drink, I’ll tell you . . . we need water . . . something has to be done about that dog.”

Doughty interrupted “Ok Doc. We will, but first listen to my plan. We’re going to get water!”

Morristown—The Hub of Activity

In 1776, Morristown’s two hundred and fifty residents were overwhelmed by the arrival of thousands of Continental Army soldiers. Situated between two mountains, the town provided winter protection for Washington’s troops. Local farms supplied vegetables, fowl and meat to the Army. Nearby, smelters and foundries clouded the air with smoke as they converted iron ore from Rockaway and Mine Hill into military armaments. The Powder Mill section of Denville produced the gun powder needed for the military’s rifles and cannons. Saw and grist mills, and tanneries harnessed the water power of the Whippany River producing flour and clothing. Morristown prospered throughout the Revolution and into the nineteenth century. By 1798, the town had over six hundred residents (not including an estimated three hundred seasonal migrant workers and servants living in the area). The town was the commercial center for goods moving to and from other parts of the country. Merchants with stores on the Green and on South and Morris Streets sold the latest wines, home-goods, apparel and jewelry from New York and Philadelphia. People were heard talking about the new stage coach routes to Elizabethtown, Schooleys Mountain and even to

Don't Drink the Water!

Residents sensed that some illnesses came from foul tasting water while others traveled through the air. People collected human wastes in cesspits located behind houses. Contaminants from the pits seeped into wells that provided water for cooking and bathing. "Honey-dippers" (night-sailmen) emptied the pits and spread the manure in gardens further infecting the food supply. They had not established the link between cholera and tainted drinking water. Communities desperately needed a pure and dependable supply.



O'Hara's Tavern

Taverns were the meeting places of the eighteenth century. People gathered there to eat, drink, and be entertained. They played cards, board games, heard musical and poetry recitals, and danced into the night. Rooms on the second floor provided overnight accommodations. Horses were groomed and fed in the stable behind the tavern. Many patrons read newspapers over glasses of ale and wine while resolving local and worldly issues. They made business decisions with friends and associates. People with various skills and backgrounds assembled to solve problems.

Pennsylvania. In 1815, Stephen Vail expanded the Speedwell Iron Works where he manufactured agricultural and industrial machinery. He was noted for the first durable iron wheel for railroad locomotives. In 1838, the Morris and Essex Railroad was extended to Morristown from Madison. The railroad curved by the front of the Immaculate Conception Church and terminated at the end of Railroad Avenue (now Maple Avenue) at the old DeHart Street depot. The railroad improved transportation for people and goods moving across the state. By 1869, Morristown's population had increased to over 6,000 residents.

In Morristown, people grew vegetables, raised chickens and pigs in their back yards. Outside of town, larger farms grew cotton, grains, and vegetables, and raised sheep, cattle and horses. Several doctors served the community's sick and injured. Every Thursday, the *Genius of Liberty*, the town's paper, distributed the often months old local, national and world news to homes and taverns. The town, unable to raise sufficient money from taxes and lotteries, depended on freeholders, merchants and wealthy residents to finance and administer public works projects. Freeholders and townspeople widened roads, built bridges across small streams, and formed private fire brigades and anti horse stealing societies. State chartered companies erected government buildings, and bridges and roads needed for intra-state commerce. Entrepreneurs seeking profits opened banks and turned trails into toll roads. Morristown's population grew in response to increased economic activity throughout the county.

The spring and summer of 1797 and 1798, were hot and dry. There was little rain causing the town's water table to drop. Those with the deepest wells shared water with their thirsty neighbors while others dug deeper, down thirty feet or more. Many were disappointed when they found dry layers of clay and rocks. The dirt streets became the pathways for dust storms created by the slightest breeze. Morristown was in trouble. The town needed a dependable water supply—the most important commodity necessary for sustaining life and commerce. Residents believed that the aquifers on Mount Washington (now Mount Kemble) offered a solution. These underground streams seeped water that was cool and pure and more palatable than the town's well water. Residents imagined having the luxury of running water and a tree shaded town watered by nearby springs.

Doctor Condict's fictionalized walk to O'Hara's Tavern never happened. However, the excessive heat, dry wells, wilting crops, and crazed animals encouraged him and others to meet and discuss ways to relieve the water shortage. They were men of financial means who possessed the planning and administrative skills needed to initiate public projects. O'Hara's tavern, centrally located on the south side of the Green,

**1799 Proprietors of the Morris
Aqueduct Company
(as listed in the Charter)**

Aqueduct shareholders were officers in the Army, doctors, lawyers, judges, businessmen and politicians. Many sponsored and organized fire departments, schools and quasi police departments. Businessmen and bankers invested in the Aqueduct seeking profits while enjoying running water at their doorsteps. Streets in Morristown have been named in their honor.

General John Doughty

Adjutant General during the
Revolution, farmer, first
President of Morris Aqueduct Co.

Major Daniel Phoenix

Officer during Revolution,
in 1815 director of the Morris
Fire Association, and a Morris
Academy subscriber

Captain Israel Canfield

Rolling mill owner, incorporator of
Morristown to Phillipsburg turnpike,
County Judge, Sheriff, a Morris Morris
Academy subscriber

Captain David Ford

Served in Continental Army, forge
owner, organizer of Morris Academy,
invested in turnpikes

William Campfield

Colonel in Army, assemblyman, sheriff,
organizer of the Morris Academy, fire
and agricultural and manufacturing
societies

Gabriel H. Ford

Landowner, organizer of Morris
Academy, invested in turnpikes

Joseph Lewis

Wealthy businessman, organizer of the
Morris Academy and Fire Association,
County Judge

Alexander Carmichael

Assemblyman, Justice of the Peace,
organizer of fire dept. and Morris
Academy

Rodolphus Kent - Attorney

Doctor Lewis Condict

Physician, Sheriff, County Judge,
President of Morris Aqueduct Co. 1834

Dr. Abraham Canfield - Physician

Matthias Crane - Church Elder

John Halsey

Stage Coach Owner/Operator

Caleb Russell

Forge Owner, Attended College of NJ,
Judge, Morris Academy organizer

was where they met. There they planned to build New Jersey's first water company—the Morris Aqueduct Company. The founders, men educated in the liberal arts tradition were confident that they could raise the capital needed to build and operate an aqueduct. Aware of their technical limitations they enlisted the aid of an experienced hydraulics expert from Boston. The founders of the Company were willing to invest their time and money to improve their town's health and to derive a financial benefit from a much needed service.

Part I of the Morris Aqueduct Company tells the history of the Companies first seventy years of operation from 1799 to 1869. This was the era when the Company struggled to remain in business using available materials—pipes made from wood and cement!

Part II to be published at a future date, continues the Companies history from 1869 to 1923 when it was taken over by the Morristown Water Company. During these fifty four years the business became a modern water company by installing cast iron pipes, steam pumps and covered reservoirs. The business maintained a dependable water service and for many years paid dividends in cash and stock.

Information about the Company's operation has been recorded in the minutes of shareholder meetings held from 1799 through 1823. Thirty five years later in 1868 the minutes resume. During these missing years, the Company suffered bankruptcy and was taken over by James Wood and John Voorhees, entrepreneurs. Deeds from the Morris County Clerk's Office and newspaper articles have added details about the Company's operation. Budgets, plans and correspondence have not been recorded in their *Book of Minutes*. This article is factual and salted with much imagination to fill in the gaps missing in records. Doctor Condict's fictionalized walk is used to emphasize how the town struggled during the early years of the Aqueduct Company. Conversations with John Doughty, Jacob Mann, Rodolphus Kent, James Wood, and John Voorhees, are fictional.

The Charter

In 1798, there were two types of businesses in New Jersey—small and large. Small businesses were unregulated partnerships between two or more people. A person was called a proprietor if they owned or shared ownership in a tavern, a newspaper, tannery, clothing store, forge, etc. As an owner they were personally responsible for all debts incurred by the business.

Large, risky undertakings that needed a great amount of money from many people had to be chartered (incorporated) by the State. The Morris Aqueduct Company was one of these ventures. Initially this business

COMMUNICATION

The people of the Morris-Green, will doubtlessly have their expectations more than answered, provided the Aqueduct succeeds well. Next to a spring of cool water, the Poets, Orators, Historians, and even philosophers have celebrated Shades. This town, especially the Green, and streets leading to it, seem only to want the ornaments to render it pleasant and delightful, almost beyond description. A row of Shades, equi distantly placed, at each side of the way, about one third of the extent of fourth-street to the green-thence running round the green, and enclosing the church, would greatly beautify this already celebrated village - would render those walks exceedingly charming - would prevent that parched appearance the green makes in the heat of summer - would conduce to health - in a word, would render this one of the most enchanting scenes in nature.

The Genius of Liberty
11 November, 1799

Stock Transfer

Know all men by these presents that I Lucretia Russell widow and devisee of Caleb dec. [deceased] & in consideration of one hundred dollars, the receipt whereof is hereby acknowledged, do hereby grant, bargain, sell, release, convey and confirm unto Charles Russell two full shares of the Morris Aqueduct to be had and beholden unto the said Charles Russell his heirs, executors, administrators and assigns, to the only proper use benefit and behoove of the said Chas Russell his heirs, Executors, administrators and assigns forever--- Witness my hand & seal May the twentieth day ado Eighteen hundred & thirteen.

Lucretia Russell

needed thousands of dollars to construct a system before service could begin. It was a huge undertaking requiring four miles of trenches in which logs shaped into pipes were joined together to conduct water from Mount Washington into Morristown. A person became a shareholder and a proprietor when they purchased stock in the Company. State law required businesses to hold annual meetings and to have their records audited by qualified accountants. The company was led by a president and was assisted by five directors who coordinated construction and maintenance activities. At meetings the proprietors created bylaws necessary for the businesses operation. A secretary/clerk kept the minutes of meetings, recorded stock transfers, and collected subscription fees from subscribers. Unlike today's corporations where loans and company assets are used to pay debts, the shareholders were assessed for these liabilities.

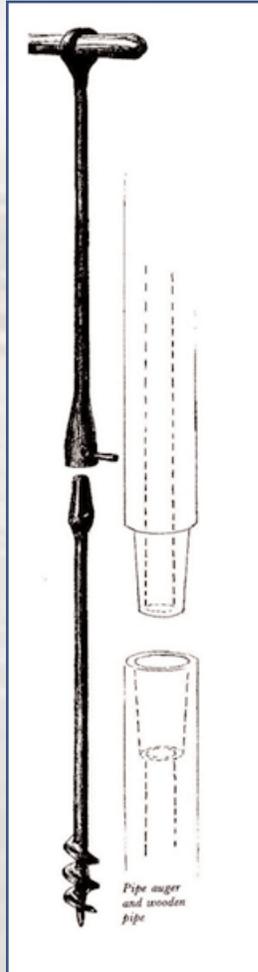
Approval of the Morris Aqueduct Companies Charter in 1799 destined the business to become one of the oldest privately owned corporations in the country. The Charter, prepared with the aid of Rodolphus Kent, was modeled after Boston's and Philadelphia's. It contained provisions necessary to construct and operate an aqueduct. The Charter stated that "a number of inhabitants [the original proprietors] of Morristown have associated together for the purpose of supplying themselves and their neighbors with water." The right of shareholders included: "The Proprietors of the Morris Aqueduct, their successors and assigns, shall have perpetual succession" to the business. The Charter stipulated that the proprietors could lawfully buy and sell property, and could "lay and extend the said aqueduct to such places and through any lands that may be necessary to continue the same where now lay." To always obtain water, the Charter legalized the trespassing upon non Aqueduct property: "it may be lawful for said proprietors, their artists and laborers, with carts, wagons, and other beasts of burden, and all necessary tools and implements, to enter upon the lands contiguous or near the aqueduct and to carry away any stone, sand or earth that may impede the aqueduct or to repair or improve the aqueduct."

The Charter emphatically stated how lawsuits brought by underage children and employees are settled.

The proprietors are to make amends to owners of the property, in a reasonable amount, for any damages. If the property owner is under age, or non compos mentis, or out of the state, then twelve good and lawful men be summoned, sworn, affirmed and empanelled by virtue of a warrant from any judge of the Inferior Court of Common Pleas. The panel will recommend a settlement amount to the Court. The court will make the final judgment. The court will also settle suits brought against the proprietors by their artists or laborers.

The Charter told how meetings were to be conducted and specified the rights of shareholders:

The Company is to notify proprietors ten days in advance for the time and place of the next business meeting to be held in Morristown. The President and others deemed necessary shall conduct and manage the meetings. The President and board shall serve for one year. New officers will be elected at the first business meeting of the year. A proprietor will have one vote for every share he holds. At meetings the proprietors, for the well being and ordering of affairs, can make laws, rules and orders for the ordering of affairs. These shall not be inconsistent with the laws of the state.



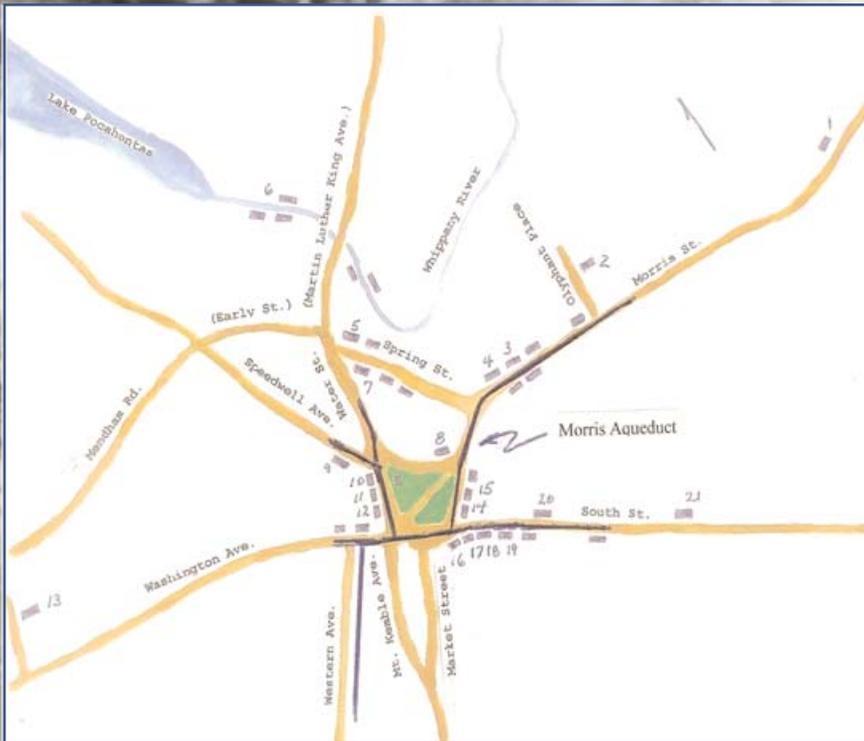
In 1799, the United States economy was still recovering from the depression of 1783. Local governments were unable to finance and conduct public works projects. These activities were taken over by Companies, also known as Societies and financed by wealthy and influential businessmen. Proprietors of the Morris Aqueduct Company afforded the \$50 (\$800 in 2010 dollars) per share price. A shareholder had one vote per share. Most bought one share, some two shares. John Doughty owned three shares giving him a stronger say in Company operations. Each proprietor was authorized to do business in the Company's name and could sell shares without prior approval. During meetings, the clerk entered stock transactions into the Book of Transfers.

Construction

During the spring of 1799, the Proprietors hired Pelatiah Ashley, a noted hydraulics expert (the term *engineer* was first used in the 1820's) to build the Morris Aqueduct. The Genius of Liberty praised his accomplishments:

... and the work executed by, and under the immediate direction of Mr. Pelatiah Ashley of West-Springfield Massachusetts, whose industry, integrity, sobriety, and carefulness merit the hearty recommendations of the citizens of this town, and whose practical and experimental knowledge, in conveying water by aqueduct, will be found, on experiment, to be more useful to his employers than the theoretical knowledge of hydraulics.

An 1800 newspaper report about water usage in New Jersey said that "the Aqueduct Company was chartered by the legislature to supply water to Newark." No mention of this is found in the Company's minutes.



1799 Morristown

1. Ford Mansion
2. Schuyler-Hamilton House
3. Dickerson House
4. Memorial Hospital
5. Norris Tavern
6. Fulling, Grist and Saw Mills, Furnace, Forges
7. Moses Estry House
8. Presbyterian Church
9. Baptist Church
10. Court House and Jail
11. U.S. Hotel
12. Arnold Tavern
13. Timothy Mills House
14. Sheriff's Office
15. Shoemaker, Weaver
16. O'Hara's Tavern
17. DeHart House
18. Dr. Lewis Condict House
19. The Genius Of Liberty
20. Morris Academy
21. Samuel Tuthill House

The Morris Aqueduct pipes ran from Western Avenue to South Street, the Green and Morris Street

However, Pelatiah Ashley may have been involved in two New Jersey projects, one of these Newark's.

A newspaper revealed local sentiment about aqueducts:

It was the wonder of the age when the streets were opened for the laying of the first main. Many an old-timer viewed with alarm the new fangled notion of bringing water from the distant springs to the back door. The alarmist predicted all sort of evil consequences. The town might be flooded some day when the pipes had rotted away, and other calamities were sure to follow.

The proprietors trusted Pelatiah Ashley. Knowing that he disliked the costly and unreliable pipes made from iron, copper, ceramic and leather, they accepted his recommendation to use sturdier and inexpensive logs. Ashley took control and organized teams to auger 2 and 4 inch diameter holes down the center of the each log creating a pipe. One end was tapered and the other end enlarged so that the pipe sections fit together. When set in the ground, sections were sealed with tar, sap or cement and held in place with metal straps. The 4 inch pipes known as *mains* connected to 2 inch pipes that ran to subscriber's establishments.

Once the Aqueduct was built and Ashley had left Morristown, the Proprietors believed that they possessed the logical disciplines necessary to operate the Company. After all they were educated men trained in solving problems needing logical deduction. For example, they knew that water

AQUEDUCT PIPES

On Saturday. The 30th instant, at 4 o'clock P.M. near Barrell's Bakery, on the Green, a quantity of Logs, for Aqueduct Pipes, will be ordered for sale. The timber of many is sound and good, and will answer a valuable purpose for cellar drains, and other convenience for water. Those which are unfit for pipes will make good fencing stakes.

L. CONDUCT

B. FREEMAN

Directors of the
Morris Aqueduct Company
March 26, 1811

inside a pipe would flow downhill if one end was raised above the other. The taller the pipe, the greater the pressure at the bottom of the column. They reasoned that water flowing downhill in a 4 inch pipe would provide enough pressure to equally the distribute water about town. By 1805, the Proprietors through experience learned that friction inside a pipe retarded the flow of water. Could they solve this problem?

During May of 1799, the Aqueduct Company advertised for workmen to dig a four mile trench and for contractors to deliver tree sections to Pelatiah Ashley at Jockey Hollow for auguring. Workmen supplied their own tools, food, and clothing. Overnight shelter was not provided.

Wanted immediately, a number of hands to dig a ditch three feet deep and eighteen inches broad for which service, 6 shillings [\$36 in 2010 dollars] per day, and the price of half a pint of spirits upon every four [64 feet] rods, will be given every Saturday. The persons who engage are to furnish themselves with tools and provision; or if any person wishes to contract for digging, by the rod [16 feet], he may have an opportunity by applying to either of the subscribers in Morristown on Saturday the 29th at five o'clock in the afternoon, when a number of lots, containing eight rods in a lot, will be sold to the lowest bidder.—Also will be sold to the lowest bidder, the right and privilege of contracting lumber suitable for said Aqueduct, forty allotments each, to contain 25 [400 feet] rods in length, and the lumber to be good chestnut, or other timber to be approved of by subscribers; to be delivered to Mr. Ashley's works for boring, in Jockey Hollow; not more than eight feet three inches long to be sawed and cut square at each end; to be no less than eight inches in diameter exclusive of the bark.

An ad for workmen to dig a trench appeared a week later:

Will be sold in lots of 20 rods [320 feet] each, to the person who will undertake to do the cheapest, the digging of a trench 18 inches broad, and 3 and a half feet deep . . .

"It's too hot. Why all that noise?" complained many residents during the summer of 1799. Others tolerated the sounds of oxen dragging logs and pipes sections up and down the mountain, and along South and Morris Streets. They welcomed the congestion of wagons and horses going in all directions around the Green in anticipation of the fresh water that soon would flow into town.

Often a merchant would drive his wagon down DeHart Street to avoid

In 1799, a single share in the Morris Aqueduct Company sold for \$50.00 (about \$800.00 in 2010 dollars). A pricey investment considering that a farm laborer earned \$80 a year compared to doctors who earned \$500 a year. It was an investment for the wealthy that offered the convenience of running water.

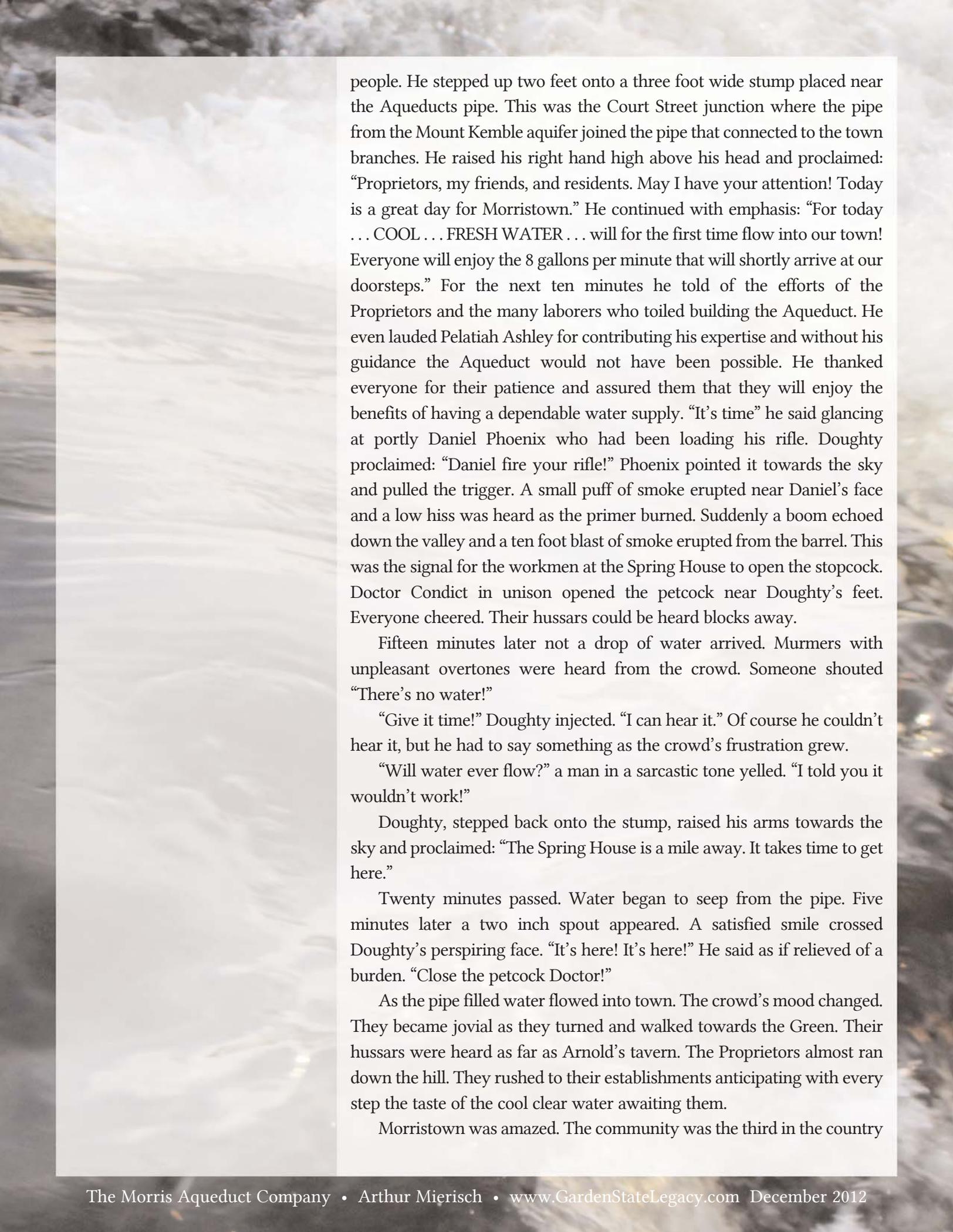
the slow moving oxen plodding along Bank Street. O'Hara's and Arnold's taverns served ale, wine and rabbit stew to exhausted workmen every weekday and Saturday night. *Thank God for Sunday* many thought as they rose at dawn and prepared for Church. It was a day of rest for all—even the animals.

A 4 mile long trench 2 feet wide by 3 feet deep was dug along the Jockey Hollow Road (now Western Avenue) southwest of Morristown. It began at an aquifer 100 feet above the town and sloped downhill to a junction point at Ann and Court Streets. From there it spread like the roots of a giant tree around the Green and down South and Morris Streets. Depressions in the terrain were filled with dirt, rocks and chunks of clay so that the pipe always sloped downhill. At Court Street stopcocks and petcocks controlled the flow of water in each of the branches. Over 1,700 sections of pipe were placed in the trench, joined and covered over with dirt leaving a long continuous mound of dirt above ground—as if a mole had tunneled through the town giving away the Aqueducts path. Teams of 80 laborers, 10 supervisors, 8 oxen and 10 horses toiled six days a week for three months to complete the project. It was a notable achievement for Morristown in 1799.

To passersby, the Spring House located a mile from town along Western Avenue looked odd surrounded by seventy foot tall oak and chestnut trees. The building, a one story 10 foot by 10 foot log structure was without windows and a chimney. Light entered only when its heavy rough hewn wooden door creaked open. A latch, used in place of a lock, kept the door closed. The House protected the aquifer inside from invasion by animals, leaves and wooded debris. This was the Aqueduct Company's source of water. In the middle of the dirt floor, the first section of the wooden pipe protruded 2 feet below ground level into an almost circular 4 foot diameter hole. Out of the ground and into the hole seeped the water destined for Morristown. Stopcocks along the way controlled the flow of water on its downhill course.

Tuesday, the 13th of October 1799, was a memorable day for the Morris Aqueduct Company. Monday, the day before was cloudy, but on this day the sky was clear, the air crisp and an occasional puff of a cotton like cloud drifted eastward across the sky. The noontime sun bathed the crowd gathered at the Court Street junction. "Look at that sky. It's definitely a good omen" said Jacob Mann talking with Doctor Condict and William DeHart standing near the pipe. About forty five merchants and residents gathered nearby awaiting the arrival of John Doughty, the town's most noted citizen.

Exactly at noon, John Doughty, dressed in his colonel's uniform galloped up the hill and dismounted before a cheering crowd of sixty



people. He stepped up two feet onto a three foot wide stump placed near the Aqueducts pipe. This was the Court Street junction where the pipe from the Mount Kemble aquifer joined the pipe that connected to the town branches. He raised his right hand high above his head and proclaimed: "Proprietors, my friends, and residents. May I have your attention! Today is a great day for Morristown." He continued with emphasis: "For today . . . COOL . . . FRESH WATER . . . will for the first time flow into our town! Everyone will enjoy the 8 gallons per minute that will shortly arrive at our doorsteps." For the next ten minutes he told of the efforts of the Proprietors and the many laborers who toiled building the Aqueduct. He even lauded Pelatiah Ashley for contributing his expertise and without his guidance the Aqueduct would not have been possible. He thanked everyone for their patience and assured them that they will enjoy the benefits of having a dependable water supply. "It's time" he said glancing at portly Daniel Phoenix who had been loading his rifle. Doughty proclaimed: "Daniel fire your rifle!" Phoenix pointed it towards the sky and pulled the trigger. A small puff of smoke erupted near Daniel's face and a low hiss was heard as the primer burned. Suddenly a boom echoed down the valley and a ten foot blast of smoke erupted from the barrel. This was the signal for the workmen at the Spring House to open the stopcock. Doctor Condict in unison opened the petcock near Doughty's feet. Everyone cheered. Their hussars could be heard blocks away.

Fifteen minutes later not a drop of water arrived. Murmurs with unpleasant overtones were heard from the crowd. Someone shouted "There's no water!"

"Give it time!" Doughty injected. "I can hear it." Of course he couldn't hear it, but he had to say something as the crowd's frustration grew.

"Will water ever flow?" a man in a sarcastic tone yelled. "I told you it wouldn't work!"

Doughty, stepped back onto the stump, raised his arms towards the sky and proclaimed: "The Spring House is a mile away. It takes time to get here."

Twenty minutes passed. Water began to seep from the pipe. Five minutes later a two inch spout appeared. A satisfied smile crossed Doughty's perspiring face. "It's here! It's here!" He said as if relieved of a burden. "Close the petcock Doctor!"

As the pipe filled water flowed into town. The crowd's mood changed. They became jovial as they turned and walked towards the Green. Their hussars were heard as far as Arnold's tavern. The Proprietors almost ran down the hill. They rushed to their establishments anticipating with every step the taste of the cool clear water awaiting them.

Morristown was amazed. The community was the third in the country

First and Last Notice

All persons indebted to the Morris Aqueduct Company, are hereby notified to pay their arrears to Charles Russell, Treasurer, of the Company, on Saturday, the 25th, between the hours of 9 o'clock and 5 in the afternoon, at the office of C. Russell. All persons neglecting to do so, are required to enter their appearances to actions to be instituted against them, before E. Condict, Esq.

Charles Russell, Treas. Feb 11, 1809
The Genius of Liberty

Minutes of 25th of May 1868

Be Resolved that a loan of \$5,000 from the Morristown Savings Bank be taken to be used for the Bridge Street pipe and to pay off a loan of \$2,000 and interest to the firm of the late John Voorhees.

to have running water. All of the Proprietors expectations came true. No longer did they have to drink from contaminated wells and they had water to buffer times of drought. They looked forward to the pleasure of drinking the cool pure water from the mountain stream. Within hours, residents presented Doughty with their \$50.00 shareholder fee and others waited in line asking to subscribe to the service. "My friends please be patient? It's already November and snows are coming. It's too late for digging. After next year's thaw we'll reach your door" replied Doughty.

Two days later, on Thursday November 18, 1799, *The Genius of Liberty* announced the successful completion of the Aqueduct. Into town flowed water of the highest and unequalled quality.

An aqueduct of 4 miles in length, including the various branches, had been laid down and completed in this town, since the 20th of June last which affords to the citizens, at their doors a constant flowing spring of pure and fine water as may be found in the United States; it is equal to the purest rain water for washing . . . the pipe is running through the woods for nearly a mile, is not only secure from the influence of the sun, but in all probability from the severity of the frost likewise.

During 1800, the branches were extended throughout town and connections made to more customers. In 1805, a small reservoir was built (now a municipal parking lot) at Ann and Court Streets. The reservoir held 60 hogsheads (a measure of capacity equating to 3,780 gallons or 14,280 liters) of water.

Income and Expenses

In 1799, the Aqueduct Company sold 45 shares of stock at \$50 a share to 30 proprietors. Much of the \$2,250 raised was paid to Pelatiah Ashley for his services, and to contractors for logs. A share entitled the holder to a one vote in the company's operations. Owning more shares gave the holder a stronger say in the business. Gabriel Ford invested \$200 for 4 shares and William Campfield spent \$150 for 3 shares. Each proprietor acted as an agent and sold shares to interested investors. Sales of stock were entered into the Book-of-Transfers during meetings. Being a stockholder (shareholder) meant that the investor shared the businesses profits and was responsible for the businesses debts. When the company owed money, each proprietor was assessed a reconciling amount. Customers who were not shareholders were known as subscribers and paid \$7.00 (\$105 in 2010 dollars) per annum for a 2" pipe running from a 4" main to their establishment. For the next twenty years the Company



A typical 1832 Bank Note. Banks made loans using their own unsecured notes. The State Bank of Morris established in 1812, conducted business at the corner of Park Place and Bank Street. Within a few years, the bank failed and was succeeded by the Morris County Bank in 1836. The Iron Bank of Rockaway moved to Morristown in 1858, a year after the Morris County Bank failed. A competitor, the Morris Savings Bank opened its door in the 1860's. Many Aqueduct Proprietors were principles of these banks.

accepted the currencies from other countries. English pounds and French Franks were preferred over weak American dollars.

Annual meetings were held in January and emergency meetings were called throughout the year as needed. Benjamin Freeman's home hosted many sessions. Attendance was mandatory and absentees were fined. In 1799, absent shareholders were assessed 1 or 2 English shillings, (\$6 or \$12 in 2010 dollars). In 1807, William Johnes was fined 12 1/2 cents for being tardy and an additional 12 1/2 cents for leaving early! 12 1/2 was less than \$3.00 in 2010 dollars. In 1810, a committee was appointed to determine what excuses should be allowed for non attendance.

Once completed, a staff of workers maintained the system. One man, a supervisor and five assistants directed the efforts of thirty laborers who for nine months a year were kept busy digging trenches and replacing pipes. How to find and replace a leaking pipe was a difficult task. Robert Conklin, Supervisor would tell his crew: "They're not getting water. Check the ground for wet spots. The leak will be there."

The Spring House, often raided by vandals (local boys suspected), required monthly repairs to the door and clearing matted leaves and twigs from the pipe. Workmen had to remove all obstructions. If debris lodged deeper within the pipe, the pipe was disconnected and a long pole used to push out the obstruction. The pipe would then be reconnected and service resumed. As branches were extended small cisterns were positioned in the streets to collect unused water.

In 1807, escalating maintenance costs raised the subscription fee to \$10.00 per annum. A fine of \$2.00 was levied on anyone taking too much water. Violators were determined by inspecting the petcock at the subscriber's location. If opened beyond the allowable setting, too much water would pass and the subscriber fined. In 1810, any subscriber using water to construct a brick building was charged \$10 a year for the service.

Expenses from 1800 through 1869 always exceeded income causing the business to operate at a loss. The Company borrowed from banks and wealthy residents lent money to the business. In 1810, a loan of \$400 was repaid to J. Langer.

Each shareholder was required to pay a portion of the losses in relation to the number of shares they owned. Assessments began in 1805 at \$2.00 a share and increased due to rising costs to \$6.00 a share by 1817. Many shareholders stopped attending meetings and refused to pay their assessments and attendance fines. In 1807, much to the joy of defaulted shareholders, a bylaw forfeited all shares held by a proprietor who neglected to pay their installments. In 1810, the Company attempted unsuccessfully to prosecute defaulting proprietors.

Occasionally the Company raised money through the sale of land and



Fire! Fire!

To fight a fire in 1800, a hole was augured in an Aqueduct pipe. Water trickled from the pipe into a bucket or pail. When full it was carried to and thrown on the fire. When not in use, the hole was closed with an oak or teak plug.

equipment, and cancelling leases. However, debts continued to climb.

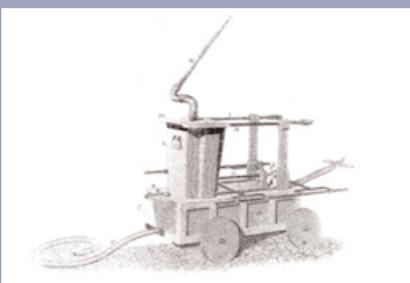
Shareholder Meetings

Friday, November 16th 1799, was a day that not yet President of the Aqueduct Company, John Doughty would ever forget. Only three days after service commenced, he encountered his first problem. Taking action, he sent a messenger to each proprietor ordering them to assemble at Benjamin Freeman's home by mid afternoon. Doctor Condict, the last to arrive was rushed into the parlor led by William DeHart. They heard Doughty saying: "Gentlemen please forgive me for calling you here on short notice. As you already know, we have a problem with the Aqueduct. I can't walk past O'Hara's without someone, even Proprietors, telling me that their water's not flowing, or its foul tasting, or they're not getting enough. We have to do something." Doughty paused to take a drink of wine. As he put down his glass he commanded: "Gentlemen! I'm calling this meeting to order. David [Ford] you have good penmanship, please take minutes. Let's get started!"

David Ford came prepared. He sat at Freeman's desk and opened his satchel. Reaching in, he withdrew several sheets of paper, and a thick white hard bound book. *Book-of-Transfers* was neatly lettered on the cover. Carefully he withdrew a bottle of ink and six goose-feather pens. With a small knife, he sharpened these to a point. After uncorking the bottle, he dipped a pen into the ink and began writing. It sounded like scratching: The Minutes of the Morris Aqueduct Company, November . . . Next, Doughty asked everyone to register their stock sales with David.

A half hour later Doughty appointed an emergency committee of five proprietors, led by Doctor Condict "to inquire why the water was not drawn through the pipe and to remedy the situation." The Committee, known as the *committee-of-five*, within minutes suggested "venting the pipe to air and tomorrow we'll assemble a crew and open all of the branches." Discussion followed about the amount of water distributed. The proprietors wondered what went wrong. They believed Pelatiah Ashley when he said that the system would deliver 8 gallons per minute to each subscriber. Or did he mean 8 gallons a minute to the junction at Court Street? After much debate, they reduced the quantity to 1 gallon per minute. That's 60 gallons per hour, still an impossible amount for a 4 inch pipe.

Later in November 1799, the charter was approved. David Ford placed a notice in *The Genius of Liberty* notifying the Proprietors of their first annual meeting to be held on January 2nd 1800, at Benjamin Freeman's home. On that day at 2:00 PM John Doughty pounded his mug three times against Freeman's desk and called the meeting to order. "Gentlemen! Let



The 1790s Newsham Fire Engine directed water into fires. It was a wooden pump with a flexible leather hose that connected to the water supply.

The Morristown Fire Association formed in 1797, was replaced by the Morristown Fire Company in 1815. In 1836, two competing fire companies were formed. An act passed in 1837, consolidated the companies into the Morristown Fire Association. It raised money for equipment and expenses through taxation.

In 1825 arson was punishable by 25 years in prison!

us begin. We have to elect officers and have much work to do” he said. Doctor Condict seated near the fireplace stood and nominated John Doughty for President. He was seconded and unanimously elected. After twenty minutes of discussion the group resolved that Doughty’s duties included conducting shareholder meetings, maintaining relationships with town officials, recommending the extending of mains to new subscribers, and negotiating leases, property sales and purchases. Doughty was to appoint committees to recommend ways to improve service. Gabriel H. Ford became the first Vice President. Three Directors were chosen: Daniel Phoenix, John Halsey and William Campfield. Matthias Crane was appointed Treasurer, Timothy Tuttle became the first Accountant and Henry King the Clerk. A committee of the shareholders, some with accounting experience, were selected to yearly audit the books. Doughty asked several members to prepare bylaws for next year’s annual meeting. At 5:15 PM the meeting ended. The Proprietors returned home confident that all problems were resolved.

Subscriber complaints continued that year. Everyone was upset over the appearance, aroma and taste of the water. Doughty called emergency meetings in February, April, and September to resolve this problem. During April’s meeting he ordered “a hole opened up at the end of each main once a week for the purpose of cleaning the pipe until the filth is discharged.” After a summer of flushing, the water’s taste improved. In September, Directors were appointed and charged with assuring “that a quantity of water is not missing the pipe in the Spring House.” Blockages at the House caused an insufficient amount of water to enter the pipe.

From 1779 to 1860, the Company met at Proprietor homes for business meeting and at a table in one of the Morristown taverns where subscription fees were collected. Benjamin Freeman, George O’Hara, Stephen Halsey, and Mrs. Halsey, the wife of deceased John Halsey hosted many sessions. They were paid \$1.00 for refreshments that always included wine and ale. In 1860, the Company was given a desk in the law office of John Pitney, an Aqueduct shareholder. Here subscriber fees were accepted, workmen and creditors paid, and real estate transactions took place.

Meetings lasted for hours. It took the Secretary time to record the minutes created by the wordy proprietors. Imagine the time needed to dip the quill into the ink and then write six to ten words before the pen needed another dipping. And how many times did the Secretary have to stop and ask the Proprietors to repeat a long entry? The Secretary’s script was always legible. No cross-outs were found. Often the Secretary made notations during meetings and expanded them into minutes the next day.

People wrote legibly during the eighteenth and early nineteenth

**Events that Influenced
Morris County's Economy**
Agricultural, leather, and textile
production, and fabricated iron
equipment

1793 - Eli Whitney's invention of cotton harvesting equipment stimulated cotton growing. By 1830, the south harvested 2 million acres up from 300,000 acres in 1800. Morris County benefited from the increased demand for linens and leather goods.

1807 - Robert Fulton established steamboat service along the Hudson River, coastal rivers and waterways, and inland along the Ohio and Mississippi Rivers. Morris County produced iron products used on boats.

1812 - Morris County built armaments for the War of 1812.

1813 - Speedwell Iron Works went into production.

1820 - The Morris Canal used steam powered equipment manufactured at the Speedwell Works.

1831 - Immigrant farmers begin to flood western territories increasing the demand for housing, clothing and farm equipment. Speedwell Iron Works made boilers for Ohio and Mississippi River steam boats and farm equipment.

1836 - The Morris and Essex Railroad transported people and goods between Jersey City and Morristown. The rails were cast from ore mined locally.

1837 - A panic gripped the country caused by inflated prices, land speculation, banks notes issued without backing, and businesses borrowing in anticipation of increased profits. Sixty percent of businesses closed. People worked for food. The state and national governments were unable to provide relief.

1842 - The Mexican War brought Texas into the Union and the California gold rush began. Morris County increased the production of iron and agricultural products. The country returned to work.

1861 - The American Civil War began. Morris County produced gunpowder and armaments.

century taking time to write neatly in straight lines across unlined paper. Each page was an artistic accomplishment. An oddity of the style was the depiction of the letter *s* making reading documents and newspapers difficult. Words that began with a small *s* or capital *S* were written as an *n* or *S*. However, a lower case *s* inside of a word appeared as an elongated *f*. The word "passage" became "*paffage*." Happily in 1820, the convention changed—a written *f* meant *f*. The secretary kept the original copy of the minutes making them available to interested Proprietors.

In 1799, thirty shareholders owned forty five shares. The minutes recorded that an average of eighteen shareholders attended each session and represented an average of thirty shares. They considered this representation sufficient to pass resolutions. However, if attendance was light, the meetings were cancelled and rescheduled. From 1801 through 1817, a proprietor absent without a valid excuse was fined in shillings. After 1817, fines were levied in dollars, now the accepted currency of the United States. The Secretary called the meetings to order. No mention about the approval of the minutes of the previous meeting was made. The President began by speaking about the physical and economic condition of the Aqueduct. Next new and old business was discussed and resolutions made.

John Doughty was perplexed. Subscribers along South and Market Streets complained that they were not receiving water while others insisted that their neighbors were giving water away. Doughty assembled a committee to resolve the situation. After months of investigation, the Proprietors decided to fine violators \$2 a day for each day that water was given away to non subscribers. Proprietors were told to keep a watchful eye on cisterns and report anyone stealing water. The service was discontinued for anyone found "wantonly" wasting water. Subscribers still not receiving their share of water were indemnified 2 cents per day.

In 1803, President Doughty, at the request of the Morristown Council on Safety appointed a committee to devise a plan to extinguish fires. The committee recommended connecting a pump directly to an Aqueduct pipe, or to a cistern located within twenty feet of the fire. However, if the fire was further away, the pump was placed inside a large wooden trough 10 feet long x 5 feet wide x 1^{1/2} feet deep. The trough was kept full by a bucket brigade. The pump was positioned within 10 feet of the fire. If operated vigorously, it sprayed water a maximum distance of 15 feet. However, if the fire was too hot, the pump could not get near the building and was ineffective. Unfortunately, water trickled out of the Aqueducts pipe and buckets filled too slowly. Brigades relied on well water—if available.

Security of the Spring House troubled the Proprietors. In 1803, vandals

From Minutes 1860

Value of Company

Charter and water rights, and pipes laid before 1847	\$5,000
Construction since 1847	6,000
Brick Grist Mill	6,500
Reservoir Lot	500
Value of current property	18,000
Deduct original stock, 45 shares at \$50 each	2,500
1860 Value of Company	\$15,750

Resolved: That a Committee be appointed to procure an Engine of sufficient capacity to raise water from a spring on the land owned by Mr. Voorhees on the Jockey Hollow Road to the distributing Reservoir.

Resolved: That it is expedient to immediately enlarge the Reservoir on the hill in Court Street

broke in and blocked water from entering the pipe. The Proprietors resolved to put a lock on the door and offered a \$5.00 reward “for persons committing an offense on the Spring House.”

In 1804, the Proprietors resolved to increase the amount of water flowing into town. Dr. Condict led a committee to “consider erecting a reservoir on the high ground adjacent to the Green at the two pipes (the junction point where the pipe from the mountain connected to the pipe going into town).” They advocated construction of a reservoir at the corner of Court and Ann Streets. It would store water at night for use the next day. A year later, the project was completed. The reservoir measured 10 feet long on the side facing Ann Street by 20 feet wide by 3 feet deep. It held 60 hogsheads (3,780 gallons or 484 cubic feet) of water. It worked—more water was available.

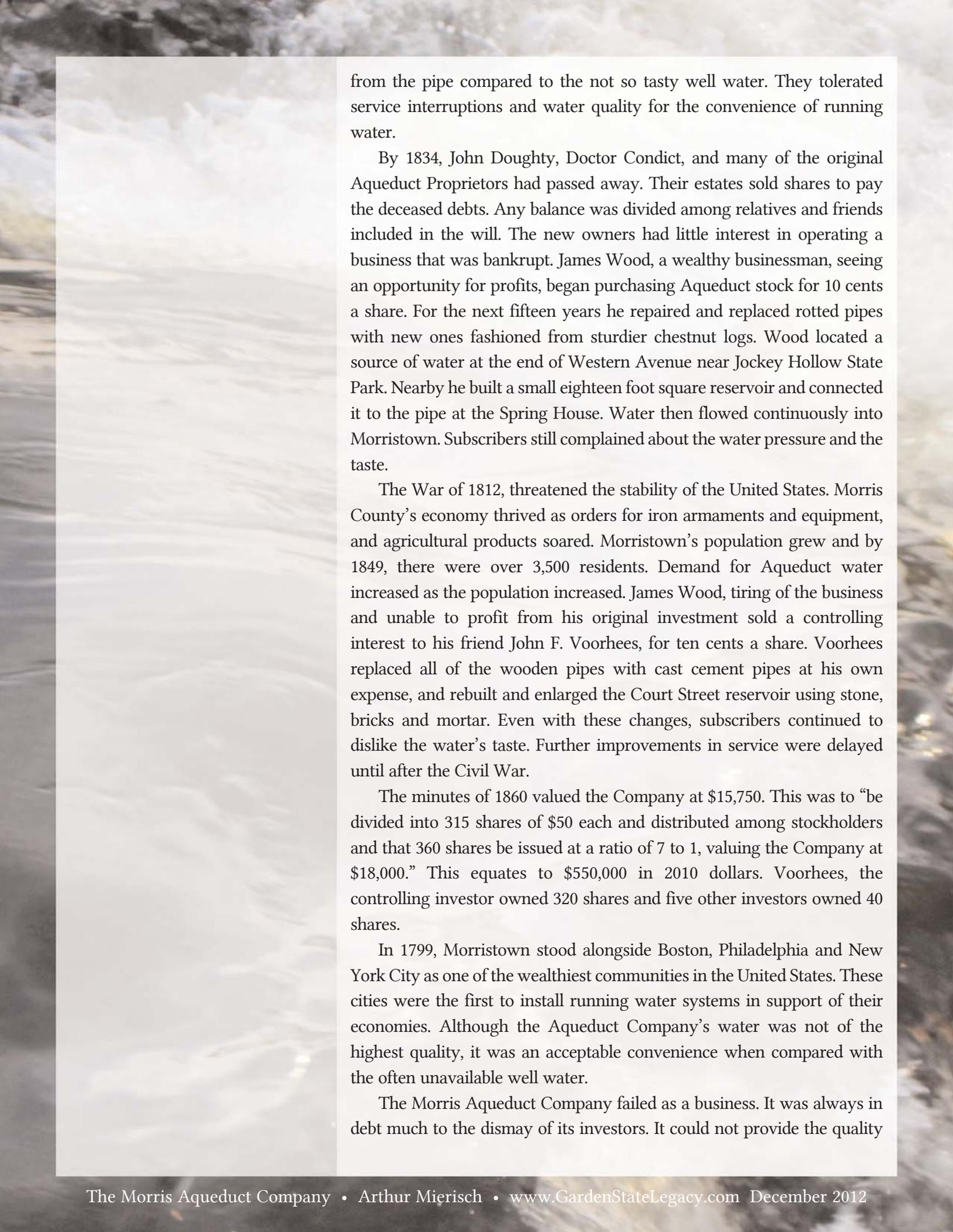
The Proprietors experimented with different types of pipes. In 1805, David Mills connected 60 feet of leather pipe to his residence. It cost \$15 (about \$500 in 2010 dollars) to verify that a leather pipe would leak when softened by flowing water—he replaced it with a wooden pipe. By 1810, the Proprietors scorched wooden pipes hoping to smooth the inner surface. The results were minimal. However, they succeeded in adding to the awful taste of the water.

In 1808, the Directors, fearful that they might go bankrupt, resolved that the Aqueduct “be leased for a term not less than fifteen nor more than thirty years to any person or persons who will undertake to supply the Proprietors with water at the rate of five dollars per subscriber per annum.” William Campfield dissatisfied with the service accepted the offer. He located several small aquifers, and directed the water into one of Morristown’s mains. Two years later he surrendered the lease. He had underestimated expenses and was unable to supply water at the five dollar rate.

In 1820, the Proprietors determined to increase the water flow, replaced fifty feet of rotted sections with thin flexible *lead* pipes. The experiment failed—the pipes leaked when crushed by the weight of the soil and leaked when freezing water expanded opening the joints.

1800 to 1869

Morristown welcomed the Aqueduct. After 1800, mains were extended to connect new subscribers and cisterns installed to store excess water. The problems facing the Proprietors increased as branches were extended. In 1815, the Company temporarily halted the sale of stock until the water quality improved. Although shareholder meetings did not record what improvements were made, months later new stock sales were resumed and subscriptions increased. Perhaps subscribers preferred water



from the pipe compared to the not so tasty well water. They tolerated service interruptions and water quality for the convenience of running water.

By 1834, John Doughty, Doctor Condict, and many of the original Aqueduct Proprietors had passed away. Their estates sold shares to pay the deceased debts. Any balance was divided among relatives and friends included in the will. The new owners had little interest in operating a business that was bankrupt. James Wood, a wealthy businessman, seeing an opportunity for profits, began purchasing Aqueduct stock for 10 cents a share. For the next fifteen years he repaired and replaced rotted pipes with new ones fashioned from sturdier chestnut logs. Wood located a source of water at the end of Western Avenue near Jockey Hollow State Park. Nearby he built a small eighteen foot square reservoir and connected it to the pipe at the Spring House. Water then flowed continuously into Morristown. Subscribers still complained about the water pressure and the taste.

The War of 1812, threatened the stability of the United States. Morris County's economy thrived as orders for iron armaments and equipment, and agricultural products soared. Morristown's population grew and by 1849, there were over 3,500 residents. Demand for Aqueduct water increased as the population increased. James Wood, tiring of the business and unable to profit from his original investment sold a controlling interest to his friend John F. Voorhees, for ten cents a share. Voorhees replaced all of the wooden pipes with cast cement pipes at his own expense, and rebuilt and enlarged the Court Street reservoir using stone, bricks and mortar. Even with these changes, subscribers continued to dislike the water's taste. Further improvements in service were delayed until after the Civil War.

The minutes of 1860 valued the Company at \$15,750. This was to "be divided into 315 shares of \$50 each and distributed among stockholders and that 360 shares be issued at a ratio of 7 to 1, valuing the Company at \$18,000." This equates to \$550,000 in 2010 dollars. Voorhees, the controlling investor owned 320 shares and five other investors owned 40 shares.

In 1799, Morristown stood alongside Boston, Philadelphia and New York City as one of the wealthiest communities in the United States. These cities were the first to install running water systems in support of their economies. Although the Aqueduct Company's water was not of the highest quality, it was an acceptable convenience when compared with the often unavailable well water.

The Morris Aqueduct Company failed as a business. It was always in debt much to the dismay of its investors. It could not provide the quality

and quantity of water demanded by subscribers. However, as a convenient and somewhat dependable source of water, the Morris Aqueduct Company was a success. It provided Morristown with the primary element needed for life—water.

Prolog—1869

The 2:00 p.m. sun blinded John C. Pitney as he stepped out of the Morris Academy onto South Street. He always admired the building for its distinctive architecture. Someone told him that they put Greek, Italian, Roman and Turkish styles into a sack, shook it up, and out came the Academy. It was supposed to be cool inside being protected from the sun by its thick brick and mortar walls. “It’s just as hot inside,” he murmured as he walked towards the Green. He thought that the building would give him relief from the oppressive heat that had scorched Morristown for the past two months. At age forty five his thick brown hair began graying around temple temples. He was of average height, standing five feet eight inches tall and weighing one hundred and seventy five pounds. Today he looked shorter. Three months ago he strutted, shoulders back as if on an important mission to be somewhere in town. Now, he shuffled down the street with his head bent towards the ground. He appeared to be deep in thought or was he exhausted? As he passed Dr. Condict’s old house, he reached into his jacket’s side pocket and removed a soiled crumpled handkerchief. Wiping the perspiration from his brow he thought: *Where can I go? Suddenly a gust of wind erupted creating a spinning cloud of yellow grit that engulfed him as it twisted and wandered haphazardly down the street. Oh my eyes. When will this heat end? It’s so hot. No rain. The pipe is clogged. I have to do something.*

[Two blocks away] “Bow Wow! Wow! Wow! Wow!”

It’s that damn dog again. He’s always around the Green. Why can’t Fairchild tie him up? thought Pitney, as he brushed the dust from his face and hair. “That dogs a menace” he said in a low voice.

“What’s that John? I can’t hear you. Talk louder!” said John Voorhees walking slowly towards him.

Voorhees jacket was soaked with perspiration. “You look terrible,” Pitney said shaking his head from side to side. “There’s no water again. Even the cisterns are dry. I can fix the pipe.”

“I don’t know John. Can’t we put in a steam pump?” Asked Voorhees. “Wait! Do you hear barking? It’s coming from the Green!”

“It’s that dog, he’s gone crazy again. Something’s coming this way, it looks like he’s chasing a wagon,” said Pitney.

To be continued



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