

Field Trip Guide November 1-3, 2019

-The Erie Canal-

Fayetteville and the Southern Reservoirs

Canal Society of New York State

On August 30, 1861 the Syracuse Journal reported that "a laborer employed on the DeRuyter Reservoir, named Jerry Madigan, aged about fifty years, was instantly killed there, yesterday morning, by the falling of a bank of earth.

Acknowledgements

The Canal Society is extremely grateful to Barbara Rivette for her contributions to the November program. A founding member of the Canal Society, Barbara is a legendary local historian. She is currently the official historian for the villages of Fayetteville and Manlius and for the town of Manlius. Most of all, she is a good friend.

We also express our appreciation to Jim Crow of Fayetteville for sharing his knowledge and experience with the Ledyard Canal. His efforts have done much to preserve the legacy of the Canal.

Cover Illustration. *Detail of Discharge Pipes... at De Ruyter Reservoir... 1862.*

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Fayetteville and the Erie Canal

Local residents would have gotten their first in-person indication of the Erie Canal in September 1812 when the Erie's famous chief engineer, Benjamin Wright, surveyed a route along the base of escarpment in the town of Manlius which then cut west across Limestone Creek. As was true for much of the Clinton's Ditch, Wright's route hugged the hillside. By following the contour of the land, one needed only to build half a canal as the hillside served as the other bank. Wright placed number markers along the route which were then followed in August 1816 by another of the Erie's legendary engineers, Nathan Roberts. Roberts mentioned the house and farm of Peter Gumaer (c1786-1825) just north of the future site of the Limestone Creek Aqueduct.

The Roberts survey, as it bent west, described Gumaer's meadows and wheat fields. The survey crossed an old bed of Limestone Creek, then went just south of an "old log house," as it came to the east edge of Limestone Creek. Crossing the creek, the survey found more meadows of "excellent grain and grass" followed by stands of bass, hemlock and ash.

According to another survey, in September of the following year, one found that this section of the canal was, if not settled, at least partly cleared and accessible. Still, when construction began, the local contractor found it necessary to build roads to his work site.

That contractor was Elias Gumaer, Junior, the brother of the above mentioned Peter Gumaer. The Gumaer contract encompassed the section just west of Limestone Creek, his brother's farm. The contract was probably let that September 1817. Indeed, it was there that the first ground was broken for the Erie Canal in Onondaga County. Peter received more than \$300 for damages caused by that construction. Likely, much of Peter's land was flooded by the Ditch eastern widewaters

Construction of the Ditch aqueduct involved many hands. As was done for most of these larger structures, the State prepared the foundation with its own forces. At Limestone, much of that work involved driving pilings to secure the wood and stone foundation. Portions of that foundation can still be seen on the west bank of the creek. Aaron C. Hoar, another local resident, provided stone along with other work to complete the canal just west of the aqueduct. The wooden trunk was built by the brothers Asa (1779-1845) and Argalus (1781-1833) from nearby Madison County.

Locally, boats were probably using the canal by the end of 1819, not long after the ceremonial dedication for the opening of the Rome to Utica section on October 23, 1819. The Canal Commissioners reported at the end of the year that this middle section of the canal between the Mohawk and Seneca Rivers had been "so far completed... that large boats have actually navigated it, for the distance of seventy-five miles..." Celebrations for the

completion of the entire Erie Canal in 1825 were grandly marked in Fayetteville as DeWitt Clinton's "Wedding of the Waters" flotilla made its way east. Though Clinton's boats probably passed during the night of October 29th, festivities in the village included salutes, speeches and a gathering at "the house of D. B. Bickford, where they fared sumptuously." As noted in Colden's Memoir, "Nothing occurred to cloud in the least the festivities of the day."

Well, maybe one cloud. There was no Limestone Creek Feeder to provide a direct connection between the lower village and the main line of the Erie. While construction of the feeder was proposed in even the earliest surveys to provide water for the Rome summit level, its completion did happen until 1826 and then only with a non-canal justification. The State was rapidly expanding its salt pumping facilities in Salina. The pumps were driven partially by surplus water coming from the western end of the canal's Rome summit. The Canal Commissioners were instructed to keep the canal open even during the winter in order to provide water for the pumps. To help guarantee the water, the construction of the Limestone Creek Feeder was specifically sanctioned by the State legislature. Confirmation of this action can be found in a manuscript receipt for services performed by Zachariah Kinne, one of Fayetteville's first settlers. In July 1828 he received payment for his tending of the guard lock at the head of the feeder during the previous winter "for the purpose of supplying the Salt pumps at Salina which are supplied from the Limestone feeder."

Construction of the feeder channel was apparently more difficult than planned. Its primary contractor, Jacob B. Barse, appealed to the State shortly after its completion for additional compensation due to the unforeseen efforts. Barse with Frederick Pratt had also worked on the main line of the canal. The feeder required several ancillary structures such as a diversion dam, the above-mentioned guard lock, a waste weir and two culverts. Aaron Burt (1792-1848), another local resident, was hired by the State to build those. Burt already had a reputation for being one of the State's go-to contractors for weighlocks, bridges, lock gates and many other canal-related needs.

The lack of the feeder and its linkage between the village and the canal in those very first years may explain the existence of Hull's Landing. In 1822 Morris Hull, a Connecticut merchant, purchased from Peter Gumaer land on the east side of the canal, at the base of escarpment, along the road leading north from the village. Stores and warehouses were soon erected, some maybe even before 1822. Without the feeder, Hull's Landing would have been Fayetteville's only port until 1826. When the eastern widewaters were enlarged in the 1850s, the Landing lost direct access to the towpath and soon faded away. (Figures 1, 2)

With the feeder, new possibilities were recognized. Village merchants extended the feeder around 1828 with a private lock and canal, just west of the mill race of the Bangs and Teall (later Bangs and Gaynor) hydraulic cement and plaster works. The site of the lock was just north of the current feeder entrance. This private canal took advantage of dams that had been erected in Limestone Creek just above the feeder dam to provide water power for the plaster mills. It enabled boats to go to the mills and factories south of Genesee Street well into the 1870s. In February 1829 these merchants petitioned the State for further improved access to the feeder, noting that, in addition to the cost of the private canal, they had "erected at a great expense upon said side cut or lateral canal large and convenient ware houses for

the accommodation of persons who reside south of said village wishing to transport property upon the Erie Canal." (Figures 17, 18)

In March 1833 they petitioned the State again. To justify their request, they explained that Fayetteville was "a place of considerable business, where a large amount of property is put on board of boats to send to market and where a large amount of merchandise is landed for the surrounding country." Twenty years later, the Canal Commissioners likewise described the lower village as "the place of deposit for the agricultural products of a large extent of country, and from which very large shipments are made for transportation on all the canals of the state. The number of tons, if we except salt from Syracuse, exceeds that shipped from any other port on the Erie Canal between Rochester and Albany."

In 1847 an accounting was made of the products shipped from the Feeder. At the top of the list of several dozen items were nearly 80,000 barrels of plaster and lime followed by a nearly equal number of barrels of barley shipped that year. Another interesting product being shipped is revealed in the 1854 manuscript court documents concerning the mishandling of the shipment. The papers describe how over two thousand pounds of tobacco were to be delivered to Orrin Gillett's "store and forwarding house on bank of the Erie Canal at or near Hull's Landing." Perhaps the most significant part of the story is not the actual mishandling but that tobacco was being grown locally in quantities large enough for shipment.

Watching much of this commerce was the young Grover Cleveland. His father was a local minister. As a teenager in the 1850s, he worked for one of the above merchants. One biographer stated that with the several lime quarries and kilns in the area, boats were always needed for the shipment of the product. Often the shippers "needed space they had not contracted for in advance from passing barges, and one of the sources of revenue for the village boys was going down to the main canal and intercepting boats that might take loads of stone." He added that the future US president would go down to the canal while still dark to earn money before school.

Contemporary references to the private lock and canal taper off in the 1880s. In August 1882 the local newspaper reported that the "canal boat, *W. S. Huntington*, lies in the lock near Bangs and Gaynor's mill. She has made her last trip and presents a forlorn appearance, submerged and deserted as she is." Nonetheless, the location was still a recognized gathering spot. In May 1892 "Professor O. S. Perkin's museum and aquarium of arctic and tropical animals and wonders arrived... and is anchored near Bangs and Gaynor's office. The museum will be open to the public to-day." About that time or soon thereafter, the lock was filled in and the current stone wall erected at the head of the feeder. (Figures 24, 25, 26, 27, 28, 29, 30)

Grover Cleveland would have also likely watched the local canal landscape dramatically change. The first enlargement reached Fayetteville in the late 1840s. As with the enlargement state-wide, the dimensions of the canal were increased to a seven-foot depth from the Ditch's four-foot depth and the width nearly doubled to seventy feet. The State's engineers also eyed the curves and bends in the Clinton's Ditch alignment as it followed the contour of the landscape. Besides being annoying to the boaters, those curves

added extra length to the Erie Canal. The sharp bend in the canal from the east base of the escarpment west across Limestone Creek was a clear target for the enlargement engineers. The curve would be lessened by moving the towpath north along an expanded eastern widewaters and a new second widewaters west of the creek. The Ditch alignment would form the south bank of that western widewaters and evidence of that narrow channel shows to this day in Lidar imagery as does the very intact Ditch channel at the base of the escarpment on the far east bank of the eastern widewaters. (Figures 3, 4, 5)

The first contracts in the Fayetteville area for the enlargement and straightening of the Erie's channel were let in September 1849. Actual construction probably did not begin until the following year and was likely finished by the mid-1850s. The contract for the feeder, its diversion dam and other structures, was not let until August 1855 and not finished until late 1858, the delay being caused by legal issues with the owners of the private lock and canal. The new dam was located substantially further south, bringing the southern end of the feeder nearly to the foot of the private lock. (Figures 17, 18, 19, 20)

The enlarged Limestone Creek Aqueduct was built under its own contract, let to Bangs, Kingsley and Company. This was the same Reuben Bangs, Fayetteville resident, who had been a contractor on the original canal and founder of the cement works. Most of the work was probably done in 1851. Most of the work was likely not done by Bangs himself but by a small army of immigrant laborers. There is a rare glimpse into the lives of those immigrants among the legal papers of the Chapman family of lawyers, manuscripts now housed at Cornell University. In 1852 Thomas Prindle, an English immigrant, sued the Bangs Company on behalf of his 34-year-old wife, Sally, also an English immigrant. The cause of the suit occurred in the summer of 1850 when the Prindles resided on a repurposed packet boat that the company had anchored near the site of the new aqueduct to accommodate the laborers. Sally was the cook on the boat and the suit attempted to get just compensation for her services. (Figures 10, 11)

Prindle's brother James provided testimony that he had stayed briefly on the packet and that, on average, about a dozen people lived there during the construction season. He described how the boat was not a comfortable place, being very crowded and the cook stove old. When the 1850 census taker visited the boat he found eight others besides the Prindles, including five Irish laborers and an English stone mason. Workers were often ill on the boat, James stated, perhaps due to the cramped quarters.

James recalled how Reuben Bangs' 24-year-old son, Eli, who worked in partnership with his father, had once joined them in the company of "some engineers or inspectors" at "the second table dinner." Eli criticized Sally for the poor condition of the cabin and the setting of the table. Sally did not take kindly to his remarks even after Nathaniel Kingsley, another of the partners, offered an apology that Eli "was not acquainted with Public Works, that he had never been away from his mother and that he could have things so slick as he would have them at home."

By the time of the Civil War, the canal landscape had largely settled into an appearance that would be familiar today. Just east of the aqueduct, a change bridge

connected the Erie's towpath with that of the feeder, the south abutment of which remains. The wooden change bridge was replaced in April 1879 with "the old pipe truss bridge, formerly on Franklin Street" in Syracuse. New but now gone industries established themselves along the canal banks. The Bangs' kilns soon faced the competition of the Sheedy works, located just south of the abandoned community of Hull's Landing. John Sheedy (1819-1889), an Irish immigrant, had purchased the just-established kilns in 1868. The Sheedy house still stands and remains of the kilns are visible from the feeder towpath. Another newcomer to the canal landscape was the boatyard on the southern bank of the western widewaters. Lidar imagery shows that the discharge channel from its pair of drydocks is evident. The docks themselves were likely filled around 1920 when use of this section of the canal for commerce was replaced by the Barge Canal. (Figures 9, 12, 13, 14, 15)

The canal locally was not completely abandoned. The portion of the Enlarged Erie Canal between DeWitt and New London has been maintained as a water supply for the Barge Canal, thus still making use of the waters of Limestone Creek at least until the failure of the diversion dam in 2009. If any canal boats had a future on the new Barge Canal, they would have left the area by the early 1920s. Several boats apparently didn't make that transition as shown by their rotting timbers just east of Burdick Street or along the east bank of the eastern widewaters. One boat was pulled on shore at the head of the feeder and turned into a residence, surviving into the early 1970s. (Figures 7, 8, 21, 22, 23)

Other canal elements were lost. The wooden trunk of the Limestone Creek Aqueduct was removed about 1930 and replaced with a concrete trough, now badly deteriorating. About the same time, the north abutment of the change bridge was likely pushed into canal. At times of low water in the 1970s, rusted metal rods were visible alongside the abutment stones, perhaps remains of the bridge truss.

The Ledyard Canal

The July 8, 1845 issue of the Utica Daily Gazette carried the following -

Fourth of July at Fayetteville

The celebration of the national anniversary in Fayetteville, Onondaga county, was rendered peculiarly interesting by the commencement of a work destined to make that village a large and important manufacturing place. The work is the construction of a canal from a point a little below the village of Manlius, to Fayetteville, by which an extensive and valuable water power is created at the latter place. - This enterprise has been in agitation for a number of years, but difficulties of various kinds have prevented any effectual measure for its consummation till the present year, when by the spirited efforts of several of the principal inhabitants of Fayetteville, assisted by the liberal aid of Gen. Ledyard of Cazenovia, the work has been undertaken with a certainty of speedy completion.

The canal is to take the water of Limestone creek from its present circuitous and gradually descending route between Manlius and Fayetteville, directly across the top of the hill at Fayetteville, and thus concentrate the whole power, now scattered through some three miles, in the space of about a quarter of a mile, most eligibly located for manufacturing purposes. The fall from the termination of the canal to the bed of the creek, will be 89 feet, to which add 26 feet already in use at Fayetteville, making a total of 115 feet fall. -

The Limestone creek is said to be rather larger than the Sauquoit. There are several mills and factories upon it at Manlius and above. It is increased by a considerable branch which empties in below Manlius. The canal is to be two miles in length, and will terminate at Fayetteville in a large reservoir, which it is intended to make ornamental as well as useful. -

From this the water will descend a handsomely formed declivity of about a quarter mile to a navigable feeder of the Erie canal. The whole descent can be occupied by factories on either side of the stream.

Fayetteville is already a place of considerable size, and its accessibility to canal navigation, together with the advantages of a healthy and beautiful location in the midst of a rich farming country, cannot fail to render this fine water power of great value. In addition to the Limestone creek, a small but very permanent stream, called Bishop's brook, is to be brought into the village by a separate work, on which a fall of from 120 to 130 feet will be obtained.

The citizens of Fayetteville very properly deemed the commencement of these important improvements worthy of special commemoration, and the Fourth of July was selected as the day for breaking ground upon the work. At 11 1/2 A.M. a procession was formed which first marched to the church, where it was joined by the ladies of the village, also

in procession, and the whole then proceeded to the ground selected for the ceremony, the site of the first or upper water power, about a stone's throw to the south of the main street of the village, where the procession formed in a hollow square. Colonel Sprague and Judge Watson, standing in the centre, performed the ceremony of breaking ground. First, Judge Watson in a loud voice made the following announcement: "This canal shall hereafter be forever called and known as the Ledyard canal." With the last work, Col. Sprague struck the spade into the sward, and before the reverberation from the cannon which announced the event had ceased, turned up a sod that would have made a tolerable load for a canal wheelbarrow. Judge Watson then made a handsome and pertinent address, after which the procession re-formed and marched to the Presbyterian church, where the customary exercises of the Fourth were gone thro' with. The Declaration of Independence was read, and an oration delivered by the Rev. Mr. Cleveland, pastor of the church, and another by Mr. Gregory. Mr. Cleveland's address was particularly adapted to the more interesting feature in the day's celebration. The circumstance that our national anniversary was constantly becoming more and more to be celebrated by an exhibition of the fruits of peace and civilization, rather than by the sounds and insignia of war and barbarity, was dwelt upon with much force and beauty.

(Figures 32, 33, 34, 35, 36, 37, 38, 39, 40, 41)

The Ledyard Canal or, as it is also often referred to, the Ledyard Dyke has defined the landscape of the village ever since. This was the hope of those gathering that July 4th, including the above mentioned Reverend Richard Cleveland, the father of US President Grover Cleveland. Perhaps the eight-year-old Grover attended the festivities?

The water power resource of Limestone Creek had already been well recognized. The mile-plus long Reilly's Dyke has been constructed several years earlier along the its east bank, driving water wheels at mills just below where the Ledyard Dyke would eventually empty into the Creek. Inspiration for Reilly's Dyke may have come from plans as early as 1823 to make a connecting canal between the Erie and Cortland via Fayetteville, Manlius, Delphi and DeRuyter. Five years later the Manlius Canal Company was incorporated to build at least the two and half miles of navigable canal to Manlius, a failed effort.

Local business leaders had formally launched the Ledyard Canal effort in 1836 under the name of the Fayetteville Hydraulic Company. Various legal issues combined with the downturn in the national economy stymied the progress. It finally took the resources and commitment of Cazenovia's noted benefactor, Jonathan Ledyard (1793-1874), to put shovels to dirt. He resolved the legal issues and paid for construction, later settling with the village leaders for their eventual purchase of the canal. His home in Cazenovia, Lorenzo, is now a State historic site.

The complexity of the system is truly remarkable if not nationally significant. The engineer if not the designer of canal was Henry Van Vleck, then barely in his mid-twenties and later to become a noted engineer for many other canals and railroads. He reenters the local canal story for doing the first studies two years later for what becomes the DeRuyter

Reservoir. One would have to go to the mill complex at Cohoes to find a comparable network of power canals. At the same time that the Ledyard canal was being built, another water power was being developed under the same auspices. Bishop's Brook, a small creek just east of the village, was tapped. Its water was diverted to a large reservoir from which an underground pipe carried additional water power alongside the Ledyard Dyke down to Limestone Creek. The Bishop's Brook piping is still extant under the ravine between Clinton and Genesee Streets.

Perhaps the most famous industrial descendant of the Ledyard Canal is the Stickley furniture company. Leopold and J. George, the brothers of Gustav Stickley, took over in 1902 the property that had been the Collins, Arnold and Sisson furniture company. David Collins was one of the founders of the Hydraulic Company and the site alongside the dyke was a prime location for water power development. (Figures 38, 39)

Probably the last industry to use Ledyard Dyke water was the McIntyre Paper Mill, taking advantage of the dramatic fall of water between Beach (now Beech) and Mill Streets. A brick mill was built on the site in 1852. For most of the 20th century, the mill was noted for the production of anti-tarnish paper, one of the few such producers in the nation. It continued in use until late 2002, being torn down a few years later. (Figures 35, 36, 37)

By then, there was actually little water left in the power canal to be used. The diversion dam at the southern end of the canal was destroyed by flood waters in 1977, ironically just below the current Stickley manufacturing plant. Today, water comes from Perry Springs in Manlius, the same source that feeds the locally famous Swan Pond and also a descendent of a 19th-century water power network in that village. (Figures 42, 43)

Cazenovia Lake and Reservoir

The simple gate house belies a complicated history of the Lake's relationship to the Erie Canal. (Figure 44)

The first enlargement of the Erie Canal stressed the water resources of the Rome Summit level, especially after the completion of the enlarged Lodi locks. The Van Vleck 1847 report recognized the potential use and operation of Cazenovia Lake as a reservoir. The first use of Cazenovia Lake came in 1849 when the Canal Commissioners reported that "it became necessary... to raise the water in Cazenovia lake, and use it for a temporary reservoir." The situation did not improve as more of the new enlarged canal with its greater water requirements were brought into use. In 1854 after the Erieville Reservoir was "exhausted" to fill the canal, the State appropriated "temporarily" the waters of the lake, cutting down the outlet to the lake. This appropriation was made permanent later that year.

As described by the State Engineer, "the plan approved by the Canal Board contemplates cutting down the first dam [today's lower dam] on the outlet to a level four feet below the ordinary high water surface of the lake, and reducing the outlet so as to make this depth available as a reservoir. It also contemplates the construction of a feeder to convey the surplus waters of the Chittenango creek into the lake, and a regulating wier to control the flow of water through the outlet. As the lake is not to be raised above its present high water level, no claims can arise for damages." This was accomplished by 1857 when the Canal Commissioners also noted that "it is not supposed that resort to this reservoir will often be necessary, but should it only be required once in a period of many years, it will amply repay its costs." They used the reservoir again the following year. (Figure 44)

The upper dam is a product of this 1857 effort along with the straightened channel between it and the lake, reducing what had been marshy lowlands. The water could flow both ways. Chittenango Creek with its Erieville Reservoir waters enters the outlet just "below" or east of the upper dam. In times of high water from the Creek, water can spill over the dam to replenish the lake if needed. The State-maintained dependability of the waters from Erieville and Cazenovia was a blessing for local mill owners. When other nearby mills went dry in late summer, those in Cazenovia could still count on the State maintaining a constant flow. Indeed, an 1858 sales advertisement for mill properties proclaimed that the creek is "powerful, and always reliable, being secured from low water by two large reservoirs..."

In March 1865 an unprecedented flood largely caused by sudden snow melt swept through the creek's valley and throughout Upstate New York. Every bridge, dam or mill along Chittenango Creek was either substantially damaged or destroyed. Later that year the Canal Commissioners reported among the repairs a new "gate house over paddles" for the Cazenovia Lake reservoir. This is likely the one standing today. The same flood destroyed the privately-owned Mill Street dam. It was soon repaired by the owner.

In April 1872 another flood complicated the situation even further. The *Cazenovia Republican* reported that Mr. Parson's dam had collapsed under the pressure of the ice-choked waters. That dam, known as the "lower dam" by canal officials, was critical to the proper operation of the reservoir. As the report stated, water from the Creek and ultimately the Erieville Reservoir could not now reach the height to "go to fill the lake as a reservoir for the canal." The upper dam would also be placed in jeopardy by the substantially lower water levels below it. Though privately owned, the State had since 1854 had at a tender at the State-installed gates on the lower dam to adjust the flow. This time the owner of the dam declined to rebuild it. Perhaps steam power had made such investments less tenable. In less than a month, the State's Canal Board approved the rebuilding of the dam at State expense. It was restored in July 1874 but only after the mill owners stepped up to fund the work due to State fiscal confusion. Though structural work was at an end, it was only the beginning for lengthy legal proceedings that dragged on for several years.

DeRuyter Reservoir

In a February 1947 letter to Albany the Syracuse District Engineer, William Robinson, wrote from his desk in the Syracuse Weighlock Building that the DeRuyter "Dam has always leaked to a greater or less extent." He reviewed the history from its early 1860s construction to the present, noting the timber crib that had been placed "some time in the past" along the downstream toe of the highest portion of the dam and the 1939 placement of 10,000 cubic yards of gravel also on the downstream side to "provide additional stability. At the same time drains were placed along the face consisting of trenches filled with rip-rap stone. Tile drains were also installed at several locations to collect and carry off seepage water." Robinson added the comment that "the entire area surrounding the Dam has within recent years been developed as a summer cottage and recreational colony. There are now nearly 200 cottages and staked-out cottage lots adjacent to the Reservoir. Additional cottages are being built every year." Robinson was reacting to concern that the leakage problem had "deteriorated more rapidly." There was the additional worry that a lower but possibly safer water level would result in "numerous complaints" from the camp owners.

Coincidentally, the Canal Commissioners formally considered the building of the DeRuyter Reservoir a century before almost to the day of the Robinson letter. There was a need for more water for the Rome Summit level of the Erie Canal. There had always been such a need. As a summit level and as a particularly long one, water was always needed to replenish that lost at either of the lower ends due to lockages. Think of the summit level as a giant bathtub with open drains at either end. Without additional water the bathtub would soon go dry. The Rome Summit level often did go nearly dry, particularly as new sections of the even more water-hungry enlarged canal became useable. On the Clinton's Ditch, the bathtub faucets were the numerous short feeders that tapped north flowing streams to the south. Butternut, Limestone, and Chittenango were among those so tapped. The enlargement channels and the enlarged locks quickly depleted these sources. At the eastern end of the summit, additional water supply was established by a grand network of reservoirs in the Adirondacks, feeding their water down the Black River Canal.

In 1847 the Commissioners studied the surveys and findings of Henry Van Vleck for additional water at the western end, the same engineer who was instrumental in Fayetteville's use of Limestone Creek for its Ledyard Canal just two years earlier. In addition to Limestone Creek and Cazenovia Lake, Van Vleck highly recommended what would soon become Erieville Reservoir with the caveat that springtime flood waters could be diverted from the Otselic to fill such a reservoir. It was an option that wasn't implemented though a similar one was for the DeRuyter's use of the Tioughnioga. By March 1850 the discharge pipes in the new dam of the Erieville Reservoir were closed and the water began to fill the basin. By 1851 Erieville water was being drawn down to keep the Rome Summit afloat. Predictions were made that this new water source would be sufficient. By 1854, those predictions fell flat as

the Rome Summit needed still more water. Cazenovia Lake had already been tapped and would be made a permanent fixture of the water supply network. (Figures 53, 57)

In 1856 the Commissioners highly recommended the construction of Van Vleck's proposed DeRuyter Reservoir as its waters would enter the canal via the Limestone Creek nearer to the water-gulping enlarged Lodi locks than Chittenango. Ultimately, the State would build by 1875 the Jamesville Reservoir as even DeRuyter proved insufficient. The Commissioners stated that the "site of the DeRuyter reservoir is believed to be the most feasible as to construction and security of any known." The Commissioners' recommendations became an annual plea. In January 1861 the Canal Board finally authorized the construction of the DeRuyter Reservoir. The contract was let on March 29, 1861. In their 1861 end-of-the-year report the Commissioners explained that the "time fixed for the completion of this work was the first day of November last. Though the contractors have been diligent and faithful, and have kept a large force steadily employed during the season, it cannot be fully completed this year."

There were complications. The Civil War began shortly after the contract was let. Labor and material resources soon become scarce. As a contract issued under the State's first enlargement program, it was caught short when the State declared the enlargement completed in 1862. A new, more costly and time-delaying contract had to be let. Completion came the following year.

The Commissioners reported at the end of 1863 "the work on this reservoir was in a sufficiently forward state to save the spring floods of the present season, filling it within about four feet of high water mark. The extraordinary quantity of rain which fell during the summer months was more than equal to the evaporation and leakage, so that the quantity saved in the spring was kept in reserve to supply the wants of navigation. This leakage will lessen as the deposited bank becomes settled and compact, and it is believed that the springs feeding this reservoir, within the flow lines, and from the entire watershed, will be fully equal to the evaporation in any season, however dry... In the original plan for this structure there was an allowance for outer slopes of three to one, making the base of the earth dam nearly 400 feet in breadth. Notwithstanding this liberal provision when the bank which was mainly of excellent material became thoroughly saturate with water, the slides and sluffing off, at the outer limits of the embankment was heavy, rapid, and at times apparently threatened the destruction of the entire dam. This tendency was effectually counteracted by the use of great quantities of stone and brush at the tow, including in some instances, large trees placed at right angles to the dam, and filling up the cavities in the face, or outer slope of the bank with coarse gravel.

"This plan of securing this important and expensive structure was entirely successful, though it has necessarily added greatly to the expense of the work, and will partially account for the excess of cost... The leakage, especially in the early part of the season was considerable, but gradually became less, as it always will in a bank composed mainly of gravel. If any part of the dam shall fail to become so compact as not to leak materially, it will probably be the hill or natural portion of it, which contains horizontal veins of quicksand through which the water oozes in considerable quantities under the immense head of seventy

feet. Perhaps it may yet become necessary to build a puddle bank on the inside face of this portion of the dam.

"The discharge pipes, discharge cocks, well house and 'tail race,' are well constructed, not subject to decay, and with reasonable care can be relied on, and will involve no expense for repairs."

The contractor added an extra expense for six pounds of butter, apparently to help lubricate the discharge cocks.

(Figures 46, 47, 48, 49)

Despite these hopeful expectations, the Reservoir soon developed structural difficulties. In May 1867 the Reservoir was drawn down as quickly as possible. "At the waste-weir [spillway] the stones and dirt were becoming loosened and it was feared that the safety of the dam itself would be endangered."

As the Robinson 1947 letter indicates, concerns about the reservoir were always present. Some were relatively minor. Decorative portions of Fulton's 1915 Broadway Bridge over the Oswego River and Canal were used as rip-rap along the banks of the reservoir's inlet. In 1990 NYSDOT's Waterways Maintenance unit let a contract for additional repairs of the spillway. In October 2019 the trustees of the New York State Canal Corporation approved a \$7.8 million contract for further safety enhancements to the dam. Work will include "stabilizing the dam embankment, installing drainage systems and rehabilitating overflow spillways. Crews will also remove tree stumps, install in-ground instrumentation to monitor the dam, resurface roadways and perform electrical work."

Throughout the second half of the 19th century, the Reservoir was regularly emptied by the end of the navigation season, filling up the following spring. All of that water entered the canal system via Limestone Creek, being diverted to the Limestone Creek feeder by the c1858 dam in Fayetteville. The feeder was retained with the construction of the Barge Canal as a source of water for the much shorter Rome Summit level. In 2009 that dam failed. The water from DeRuyter now continues to flow into Limestone Creek until the creek empties into Oneida Lake, then down the Oneida River into the Oswego River and Lake Ontario. It no longer serves any operational need for today's Barge Canal system.



Figure 1 (top). The c1834 Hutchinson map of the Erie Canal near Fayetteville (New York State Archives).

Figure 2 (bottom). The c1850 plan for the enlargement of the Erie Canal near Fayetteville with the blue outline showing the proposed enlargement (New York State Archives).



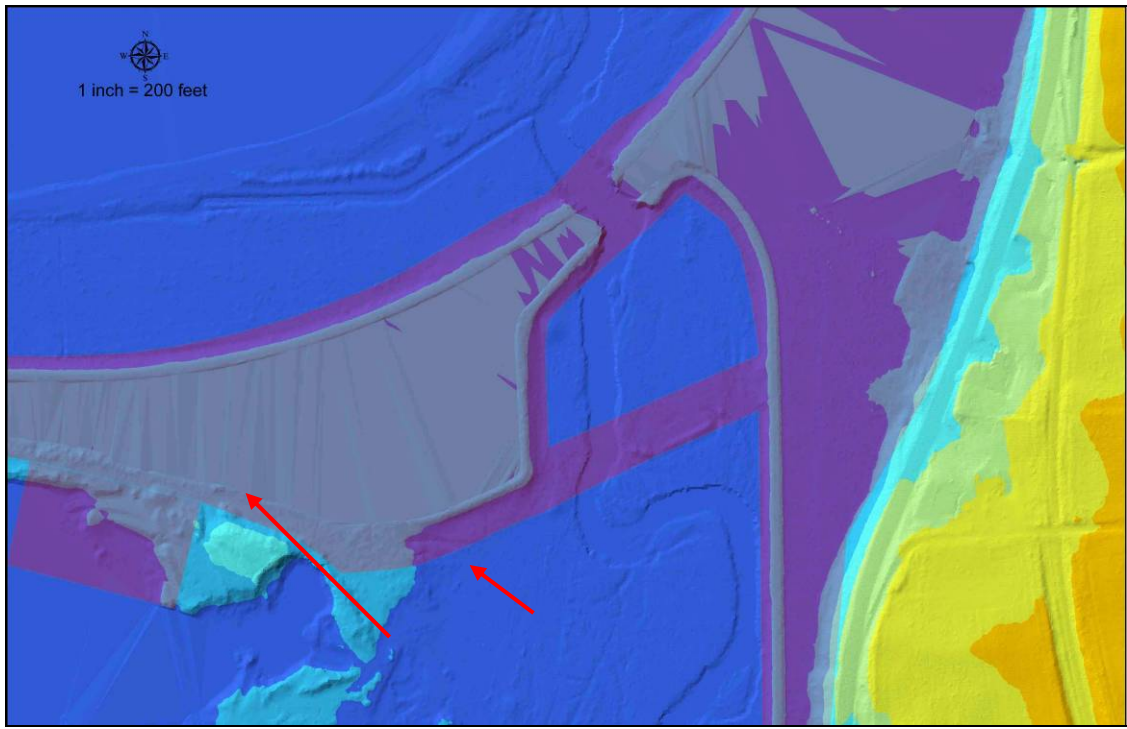
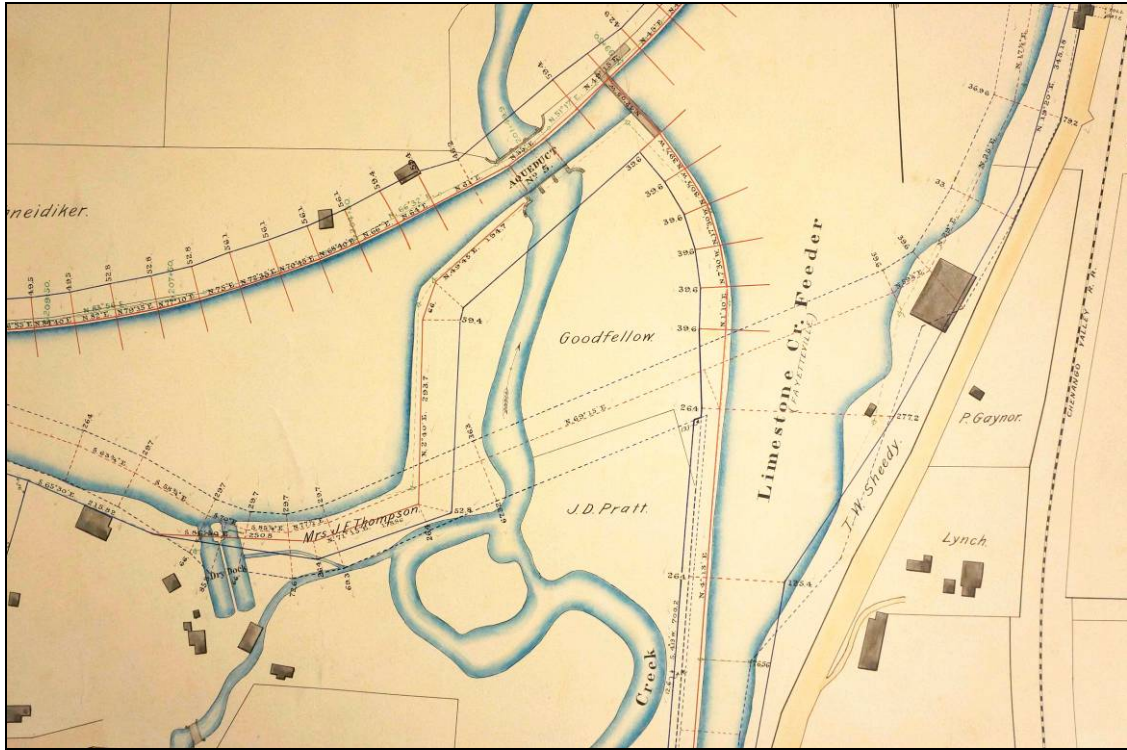


Figure 3 (top). The c1896 Schillner map of the Erie Canal near Fayetteville with the Clinton's Ditch alignment shown by the dotted line (New York State Archives).

Figure 4 (bottom). Lidar image of the Erie Canal near Fayetteville, pointing to the Ditch and drydock remains (New York State Canal Corporation).

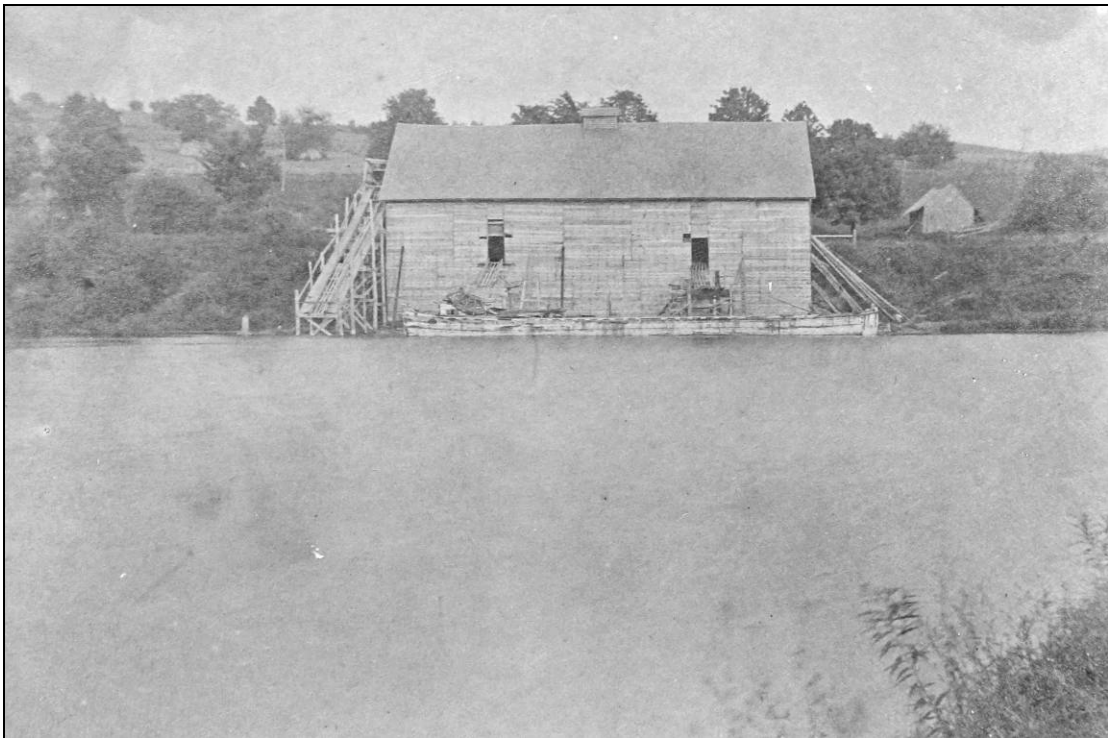


Figure 5 (top). Remains of the Clinton's Ditch towpath on the eastern bank of the eastern widewaters.

Figure 6 (bottom). Ice house and barge, c1910, eastern bank of eastern widewaters.



Figures 7 and 8 (top). Canal boat remains on east bank of eastern widewaters, June 1970.

Figure 9 (bottom). View west over the eastern widewaters, c1870.

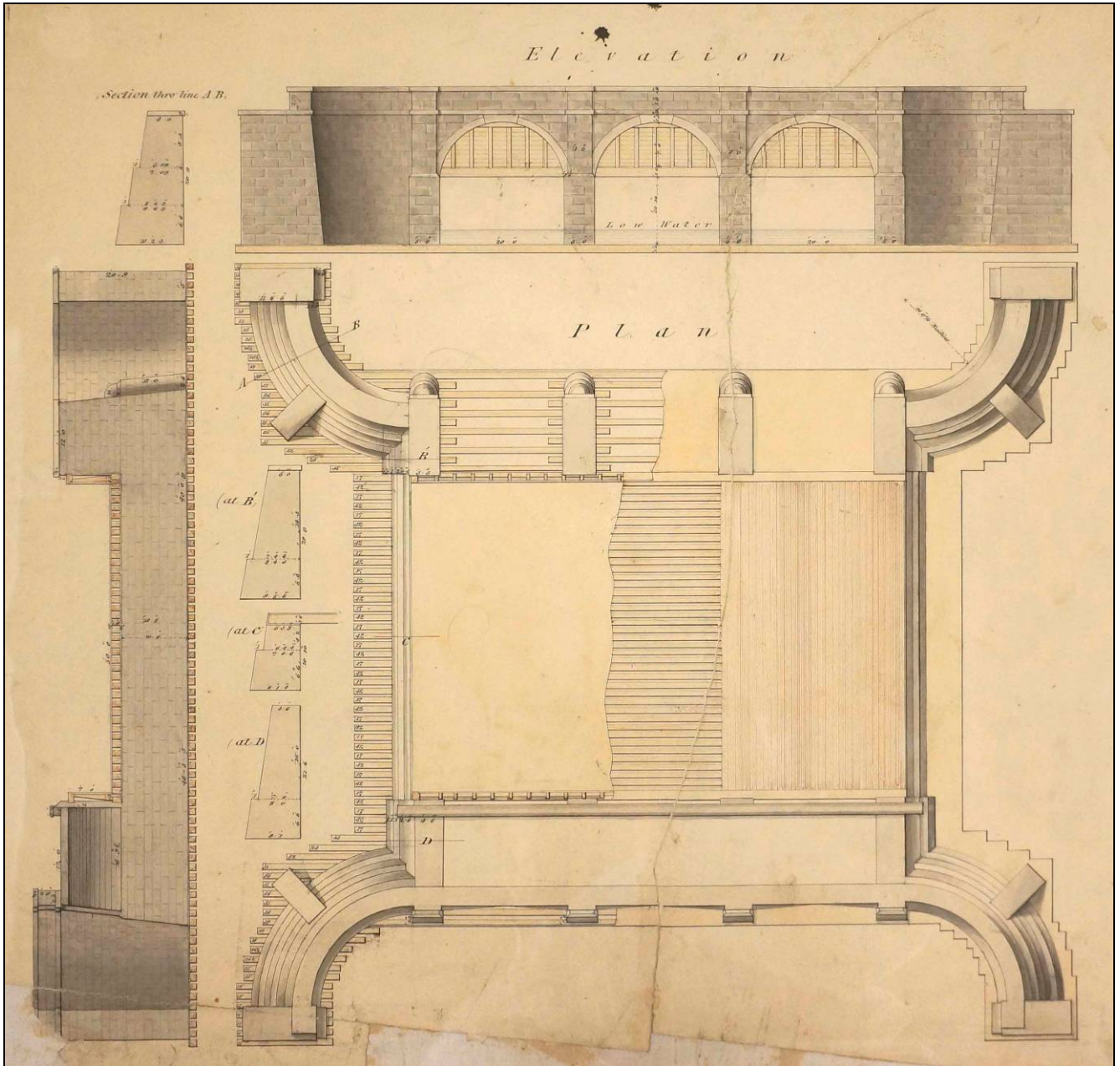


Figure 10. Plan of the Enlarged Erie Limestone Creek Aqueduct, c1850 (New York State Archives).

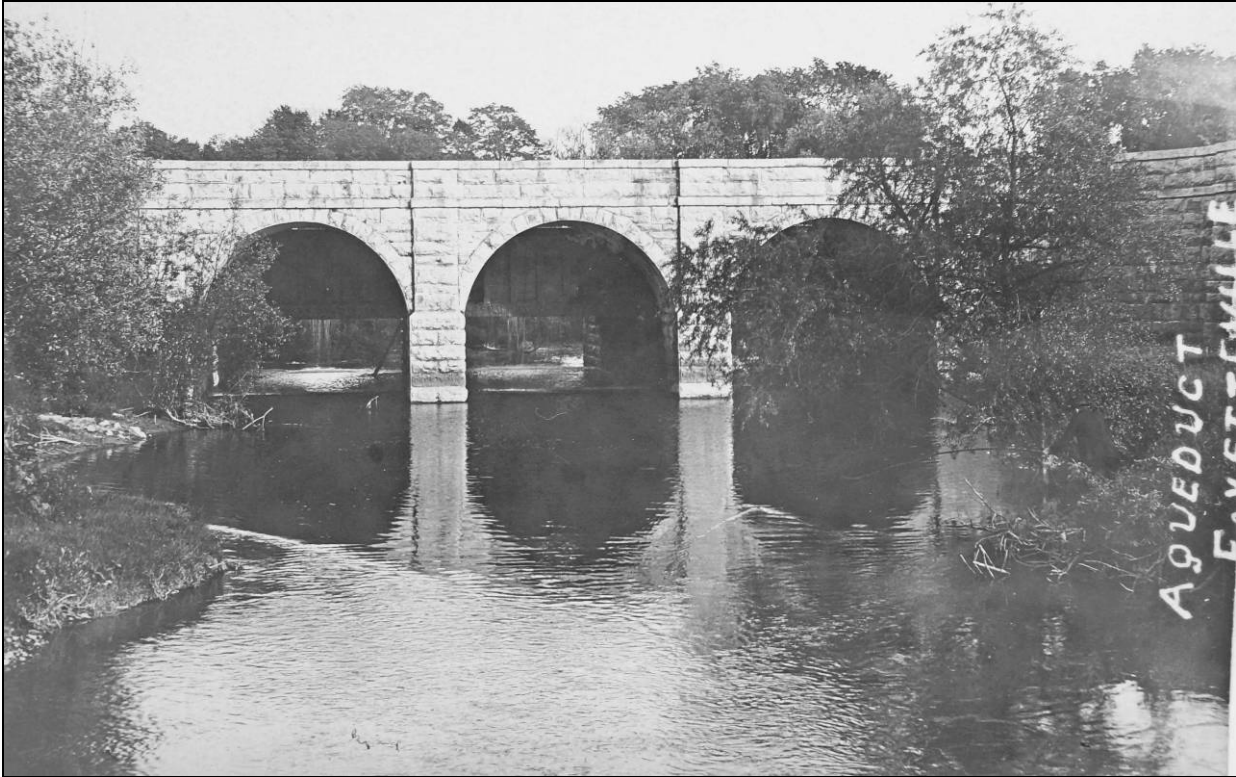


Figure 11 (top). Limestone Creek Aqueduct, looking south, c1910.

Figure 12 (bottom). Limestone Creek Feeder change bridge, c1910.

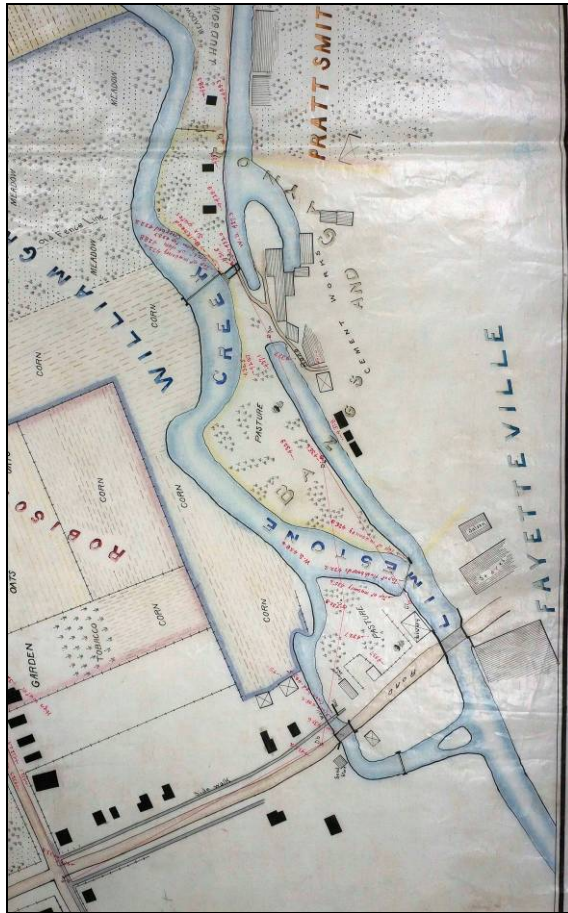


Figure 13 (top left). Shedy lime kilns, c1880. Figure 14 (top right). Kiln operation.

Figures 15 and 16 (bottom). Limestone Creek Feeder, c1900 (New York State Archives).

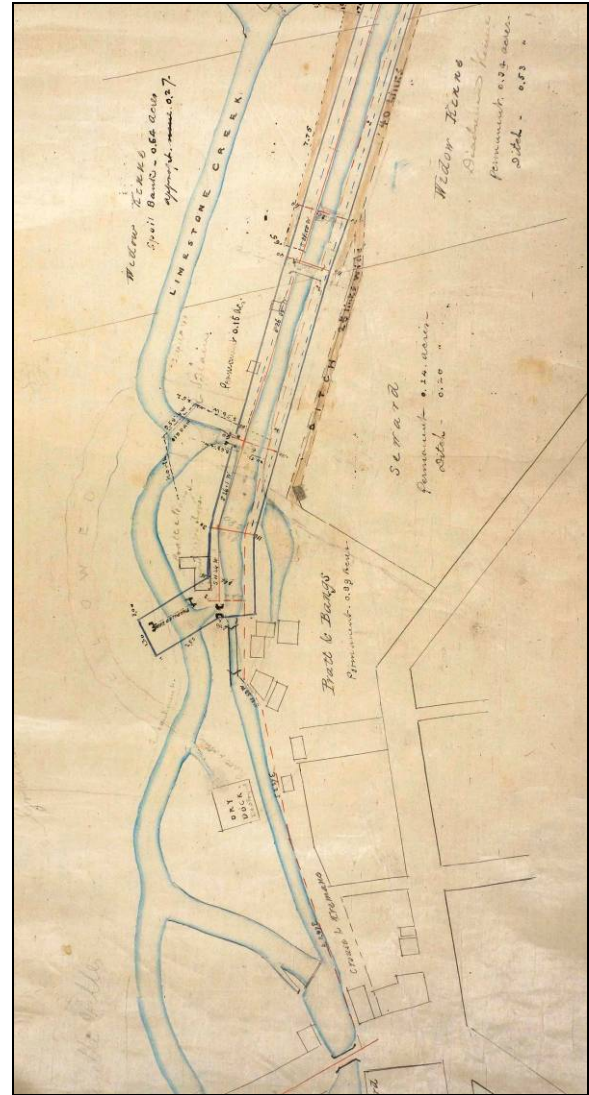
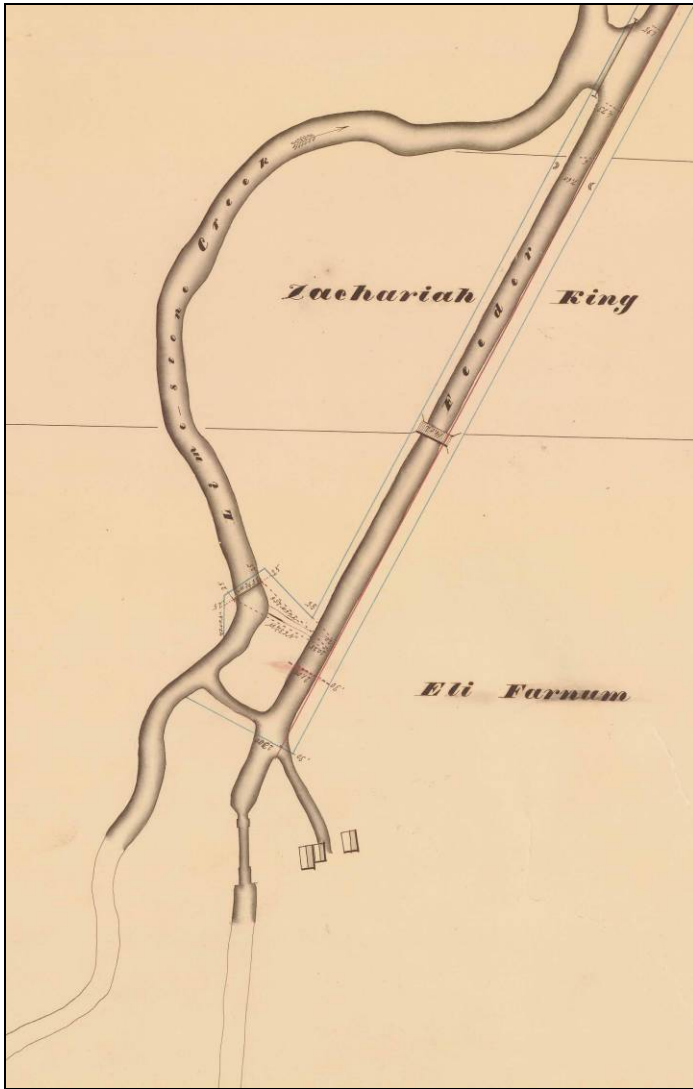


Figure 17 (left). The c1834 Hutchinson map of the Limestone Creek Feeder (New York State Archives).

Figure 18 (right). Map of proposed enlargement and extension of the Limestone Creek Feeder, c1855 (New York State Archives).

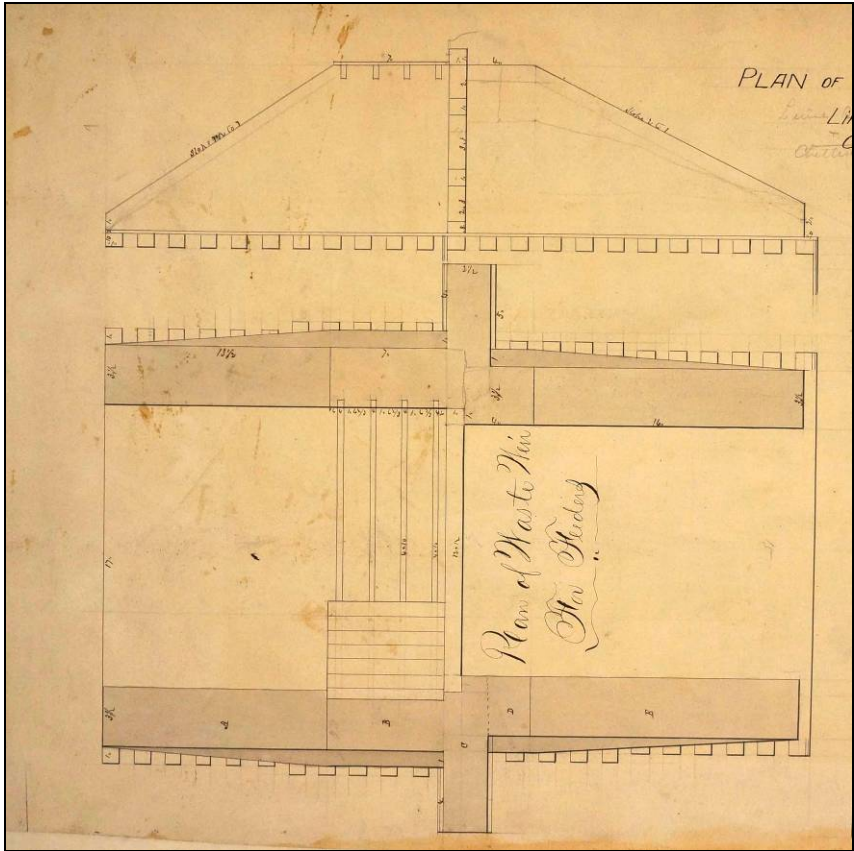
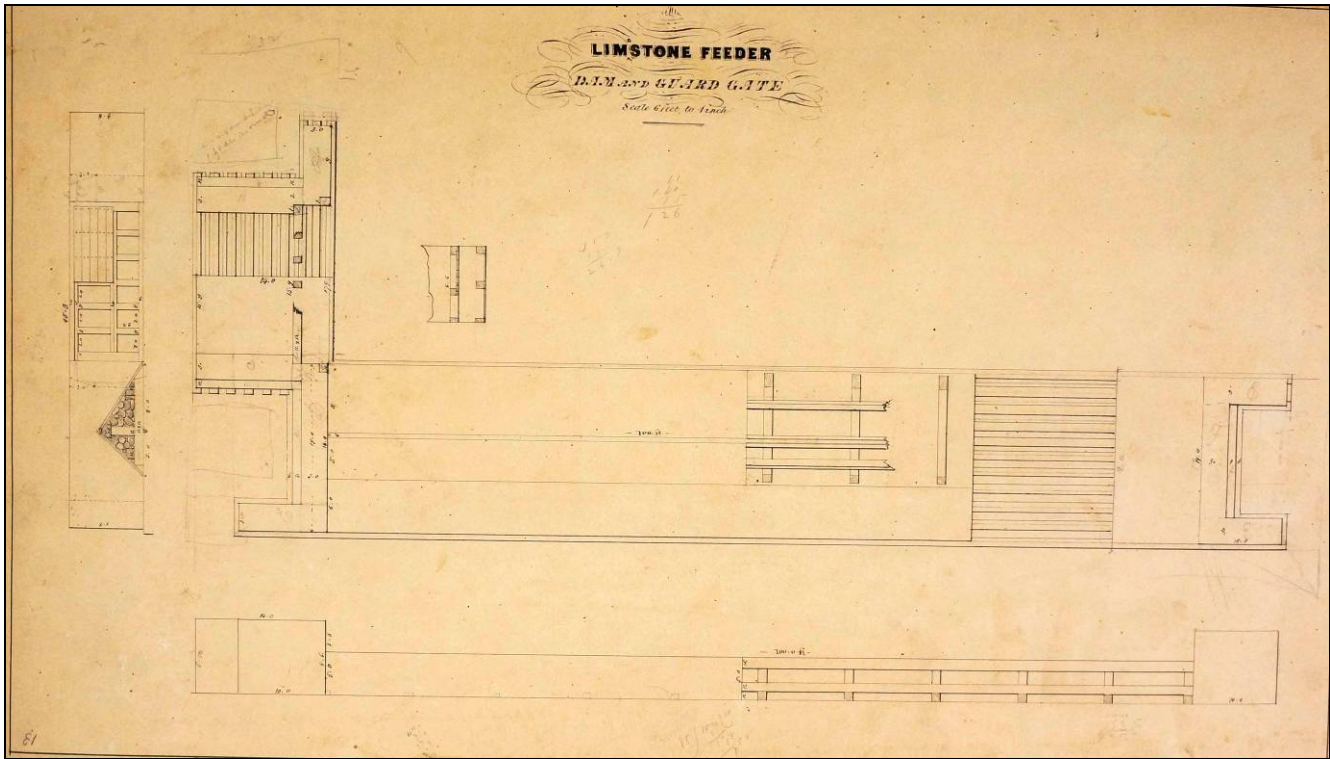


Figure 19 (left). Plan of waste weir on the Limestone Creek Feeder, c1855 (New York State Archives).

Figure 20 (bottom). Plan of diversion dam for the Limestone Creek Feeder, c1855 (New York State Archives).





Figures 21, 22 and 23. Failure of the Limestone Creek Feeder Dam in 2009 (Village of Fayetteville).

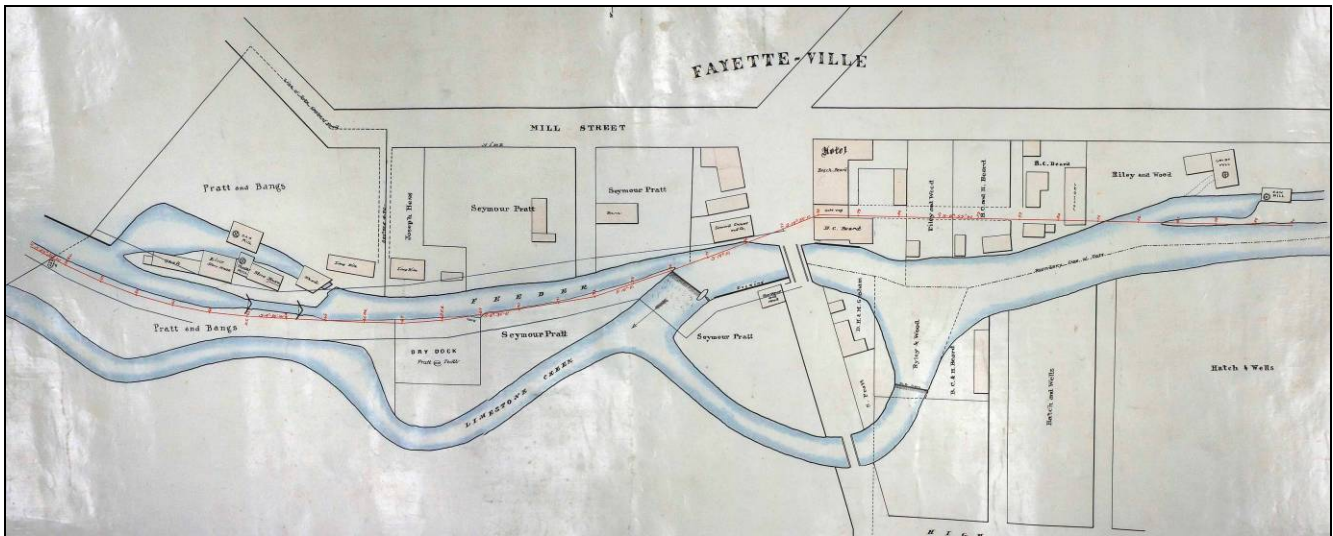
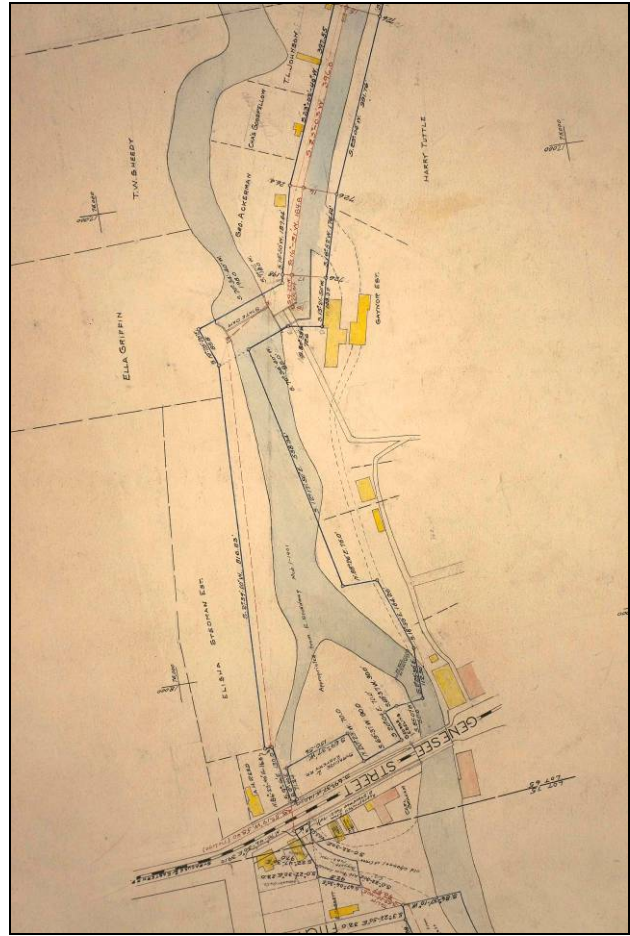


Figure 24 (top left). Lower Fayetteville and the Limestone Creek Feeder, 1874

Figure 25 (top right). Lower Fayetteville and the Limestone Creek Feeder, c1915.

Figure 26 (bottom). Lower Fayetteville, c1845 (New York State Archives).

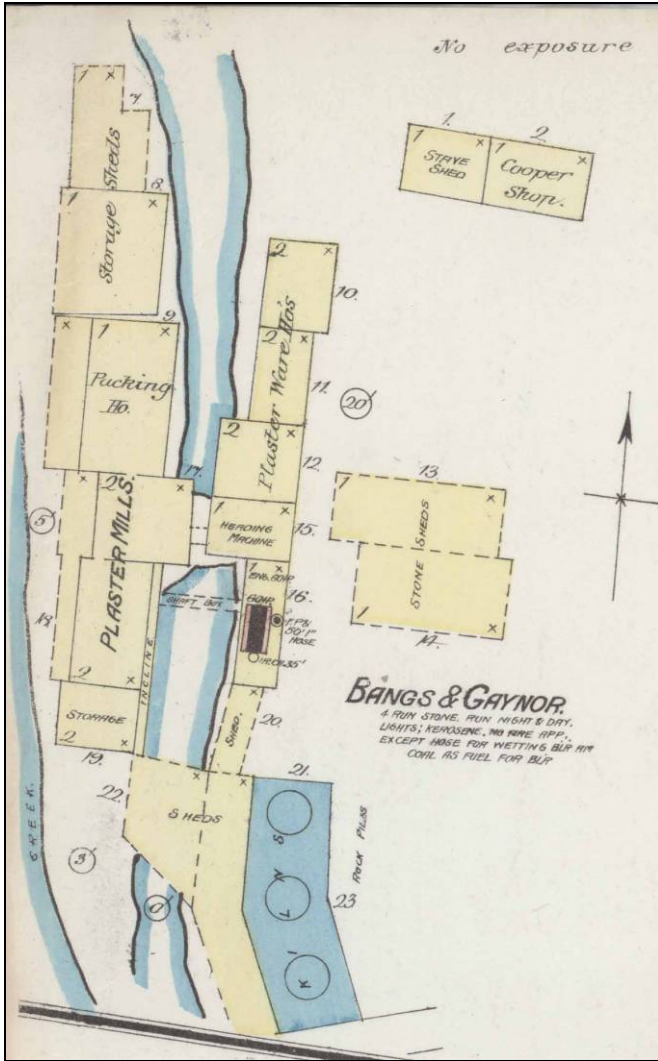


Figure 27 (left). 1885 Sanborn map of the Bangs and Gaynor works.

Figure 28 (bottom left). View north of the Bangs and Gaynor kilns, c1900.

Figure 29 (bottom right). The Bangs and Gaynor kilns in 1963 with Canal Society trustee, Craig Williams (on right), doing initial research for the 2019 tour.



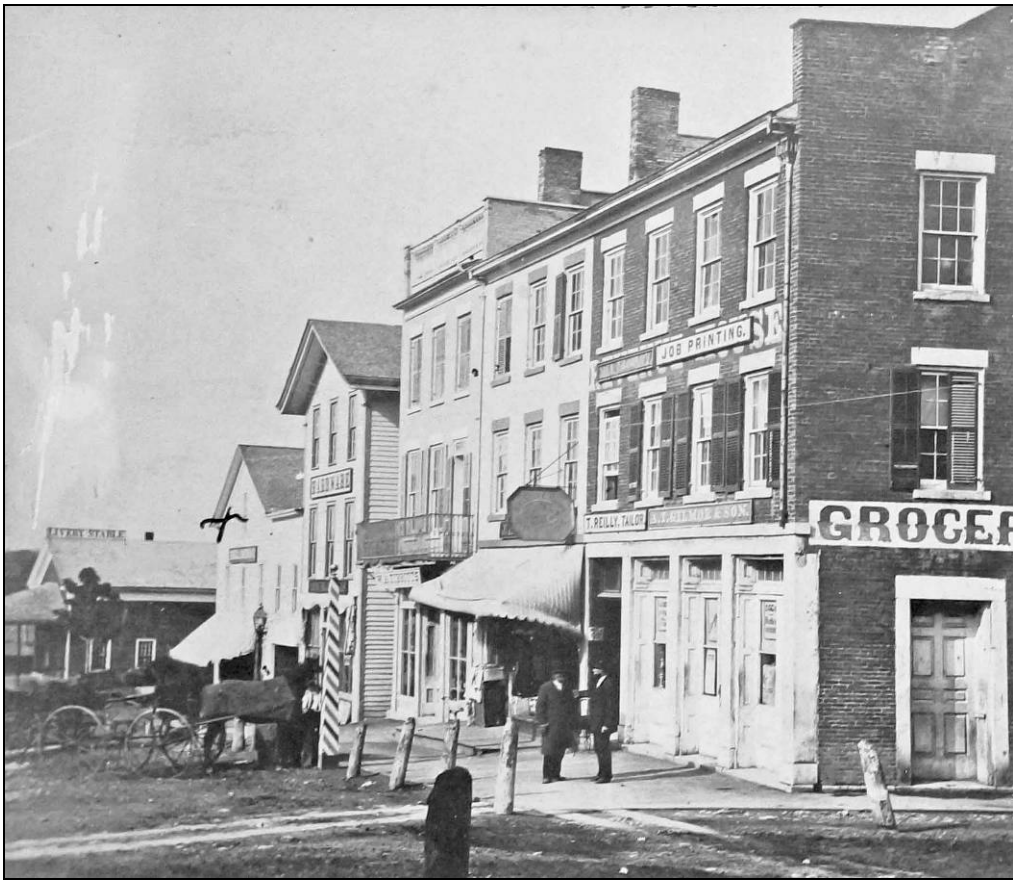


Figure 30 (top). Excursion at the Bangs and Gaynor works, 1910.

Figure 31 (bottom). Commercial buildings in lower Fayetteville, c1870.

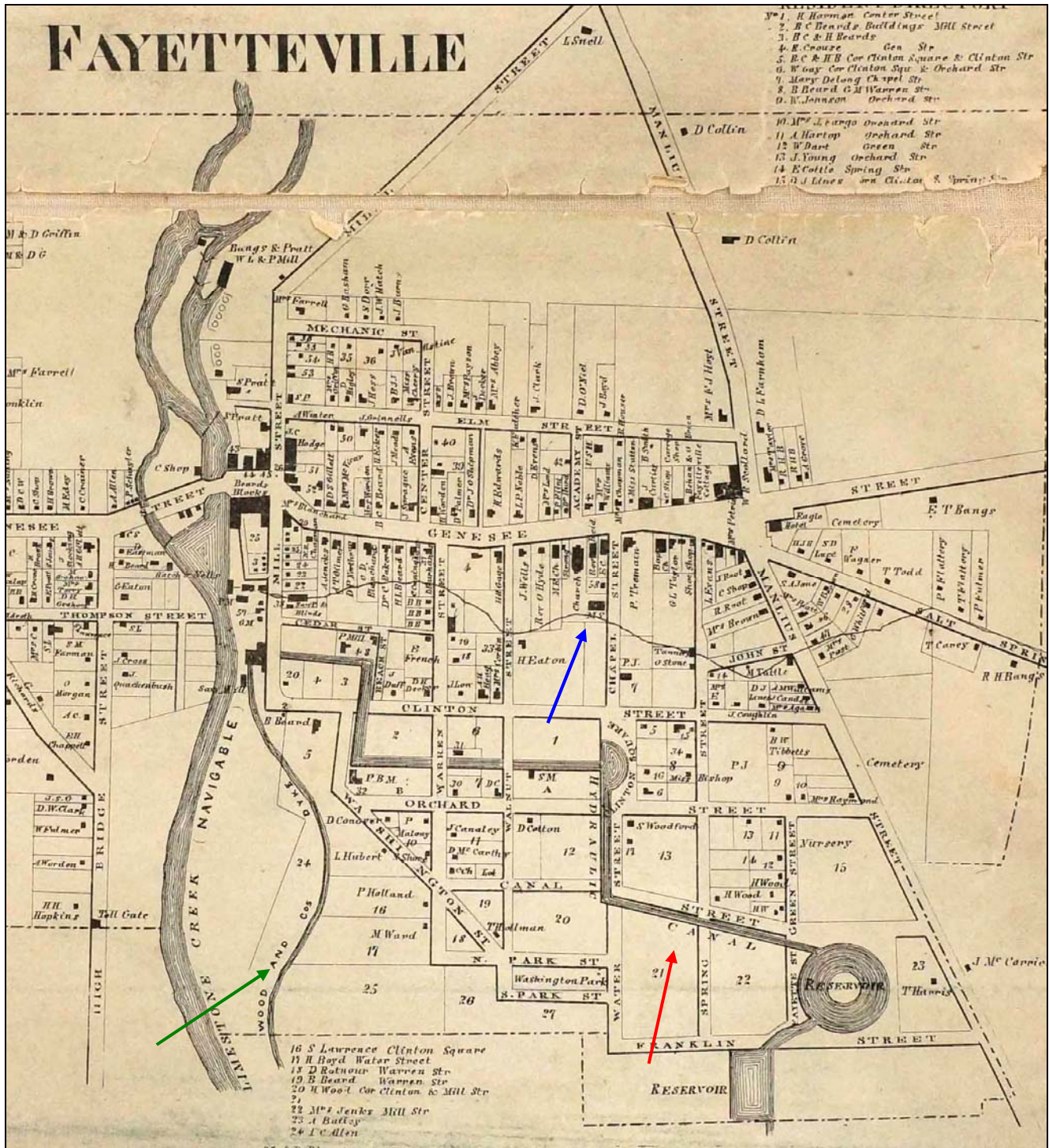


Figure 32. 1860 map showing the Ledyard Canal (red arrow), the Bishop's Brook "aqueduct" (blue arrow) and the Reilly Dyke (green arrow).

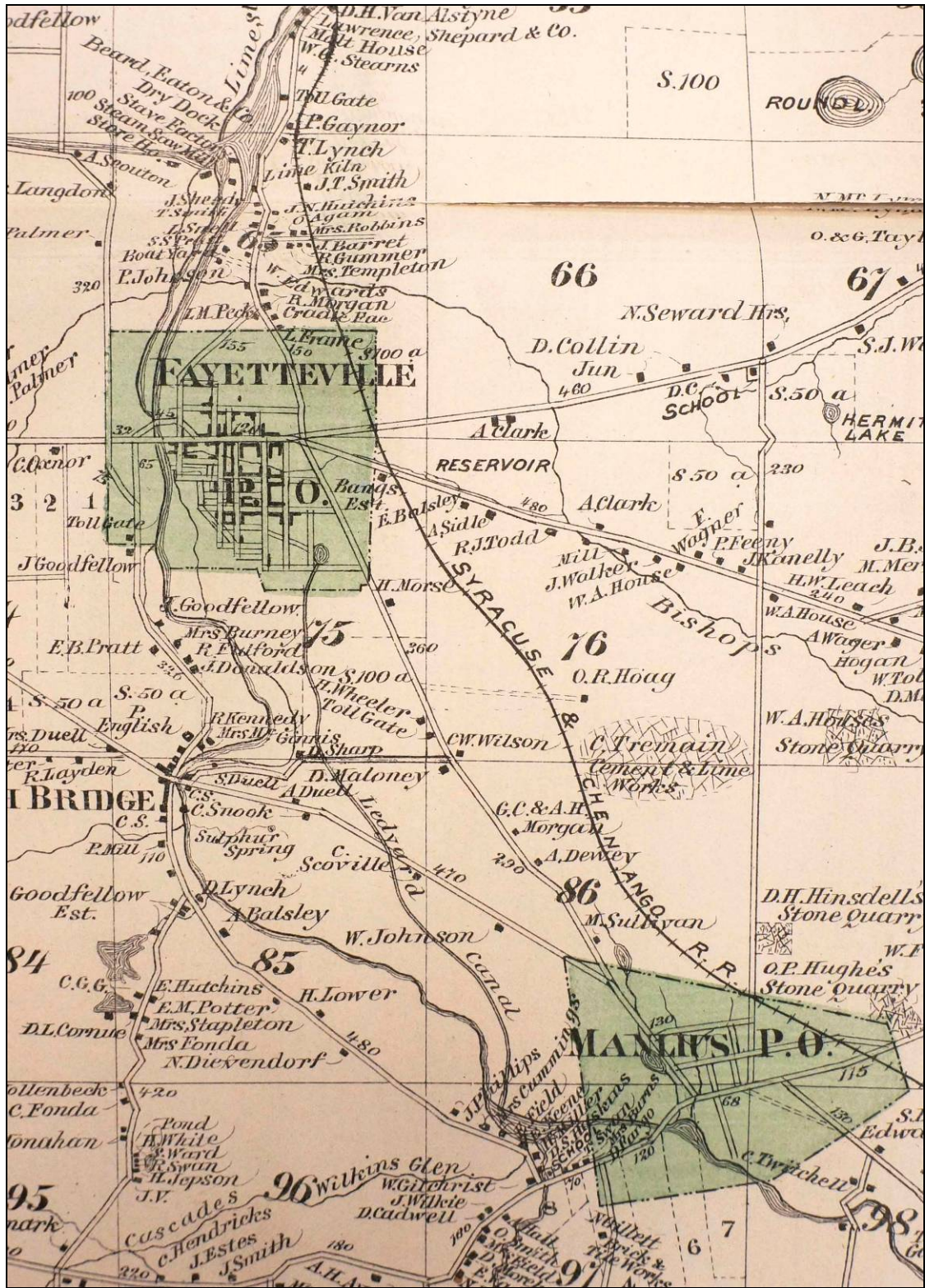


Figure 33. Map of a portion of the Town of Manlius showing the Ledyard Canal between Fayetteville and Manlius, 1874.

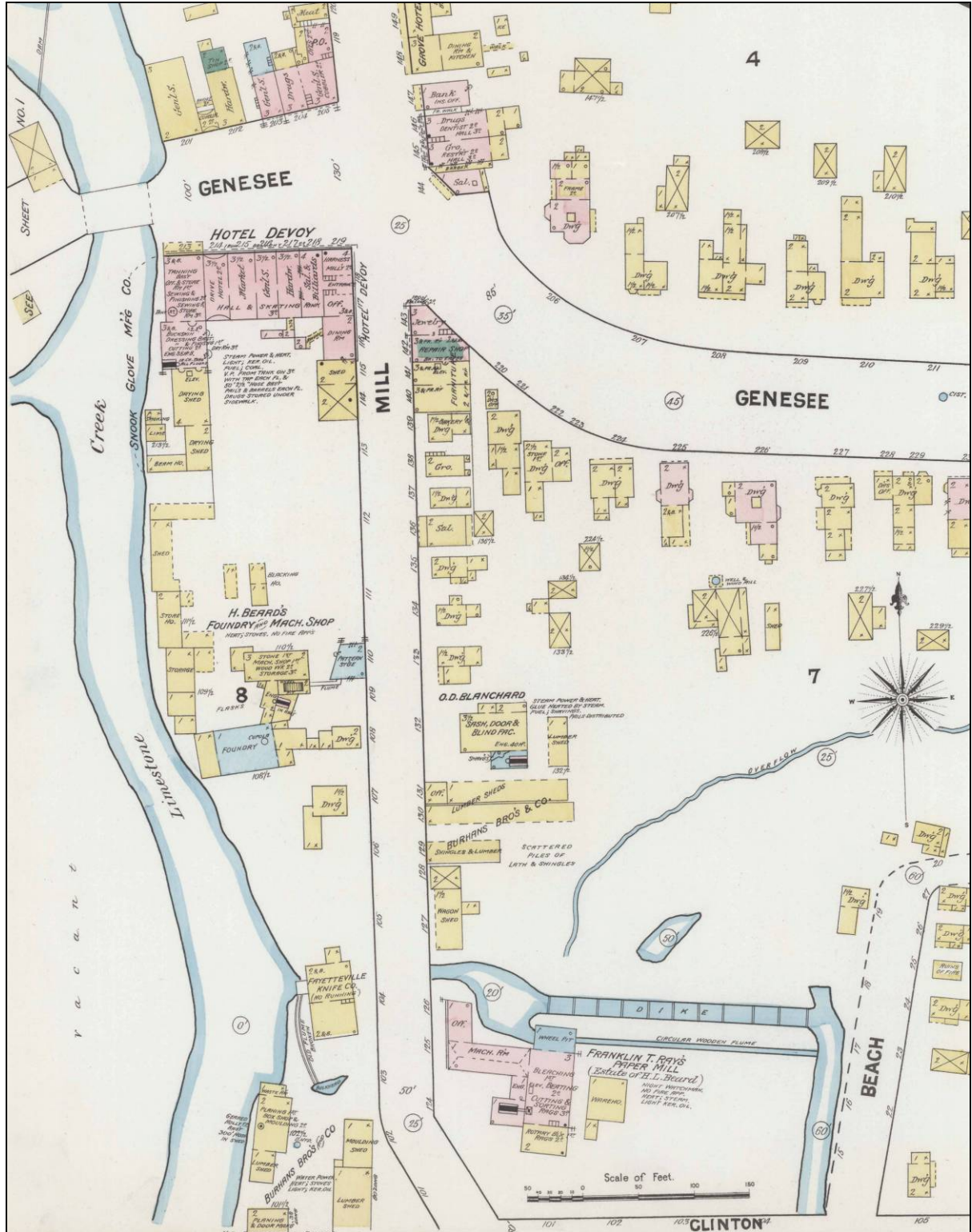
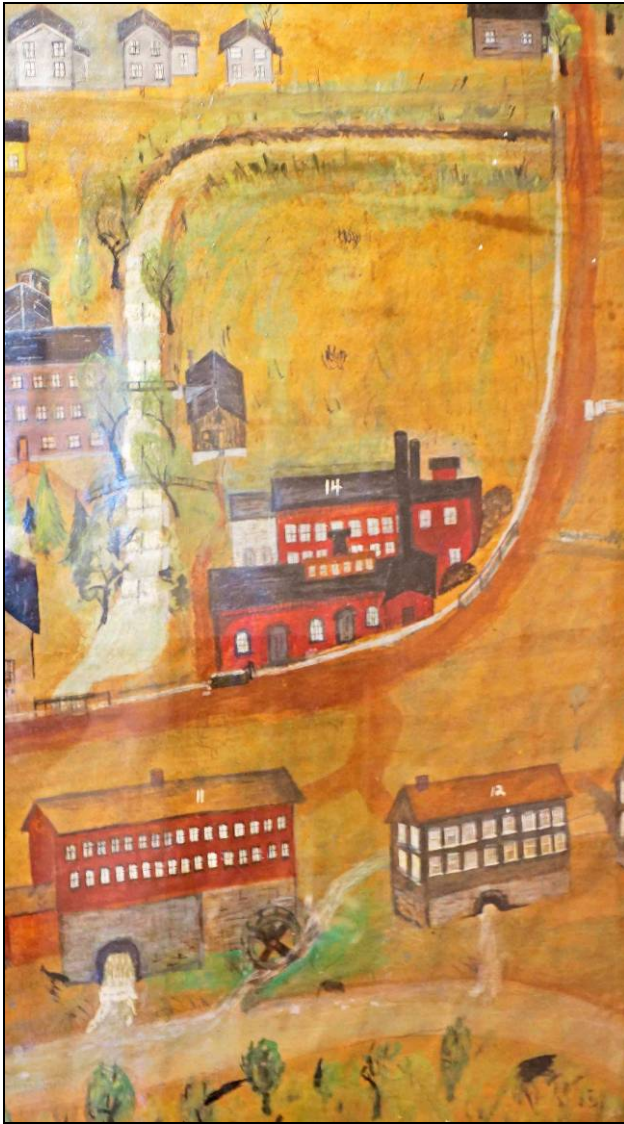


Figure 34. Sanborn map of lower end of the Ledyard Canal, 1890.



Figures 35 (top left). Ledyard Canal alongside McIntyre Paper Mill, c1910.

Figure 36 (top right). View southeast at the McIntyre Paper Mill, c1890.

Figure 37 (bottom). Portion of the George Ebeling mural showing mills being powered by Bishop's Brook (left), the Ledyard Canal (center) and the Reilly Dyke (bottom).

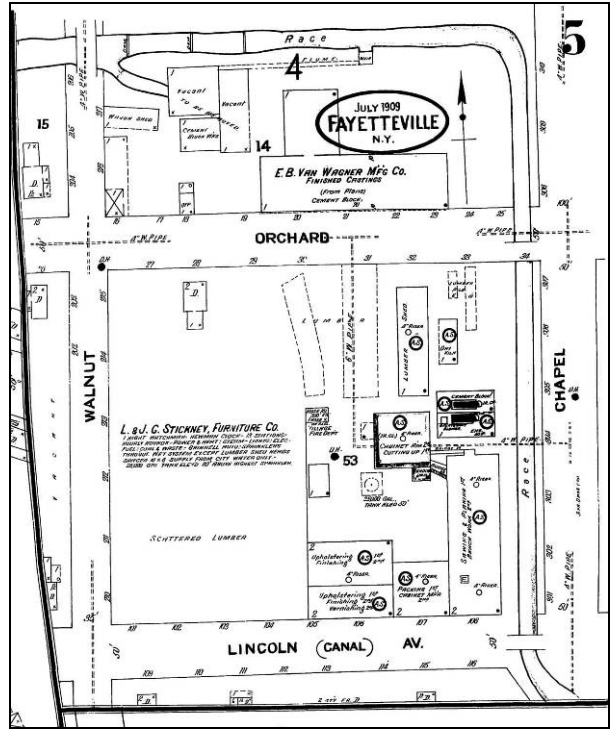
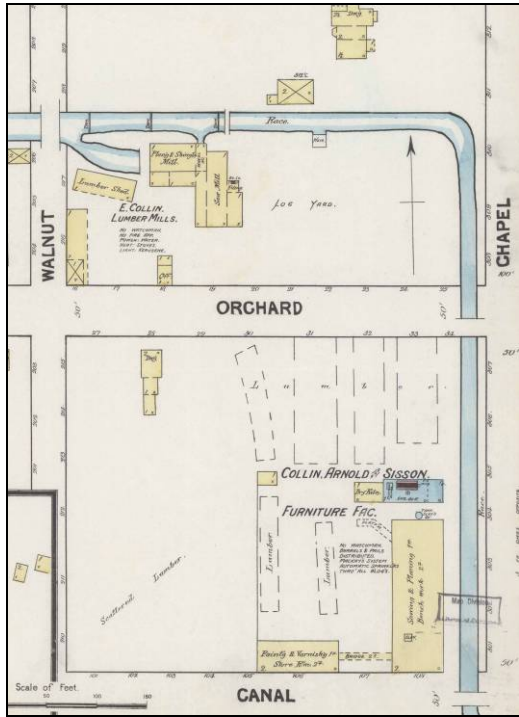


Figure 38 (top left). 1890 Sanborn map of site of the Stickley factory.

Figure 39 (top right). 1909 Sanborn map of the Stickley factory.

Figure 40 (bottom). View of the Ledyard Canal, c1890.

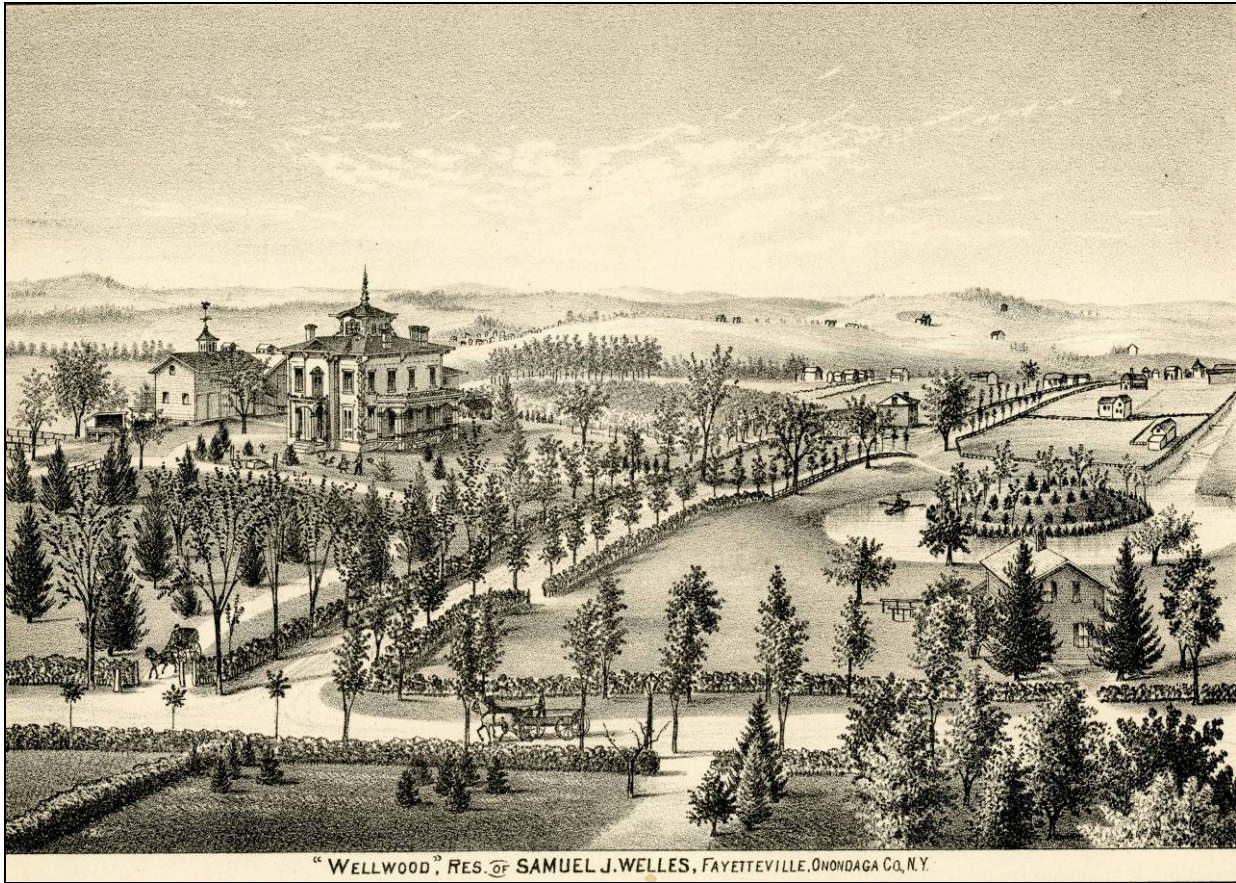


Figure 41 (top). The Wellwood estate with the Ledyard Canal reservoir to right, 1878.

Figures 42 and 43 (bottom). The Ledyard Canal diversion dam on Limestone Creek in Manlius before and after its 1977 failure (Barbara Rivette).

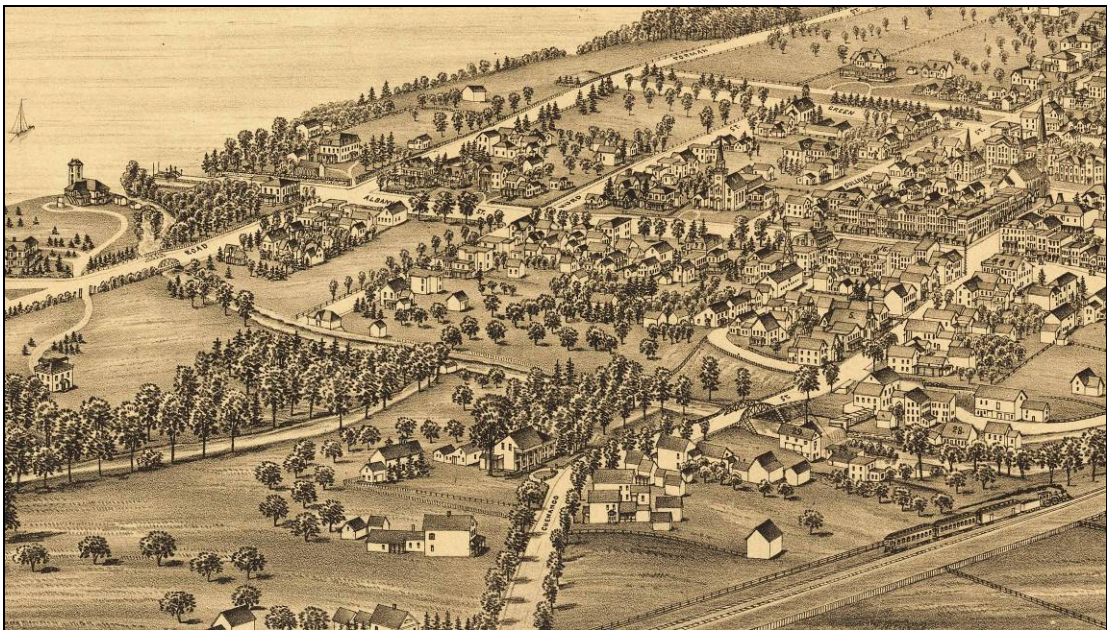
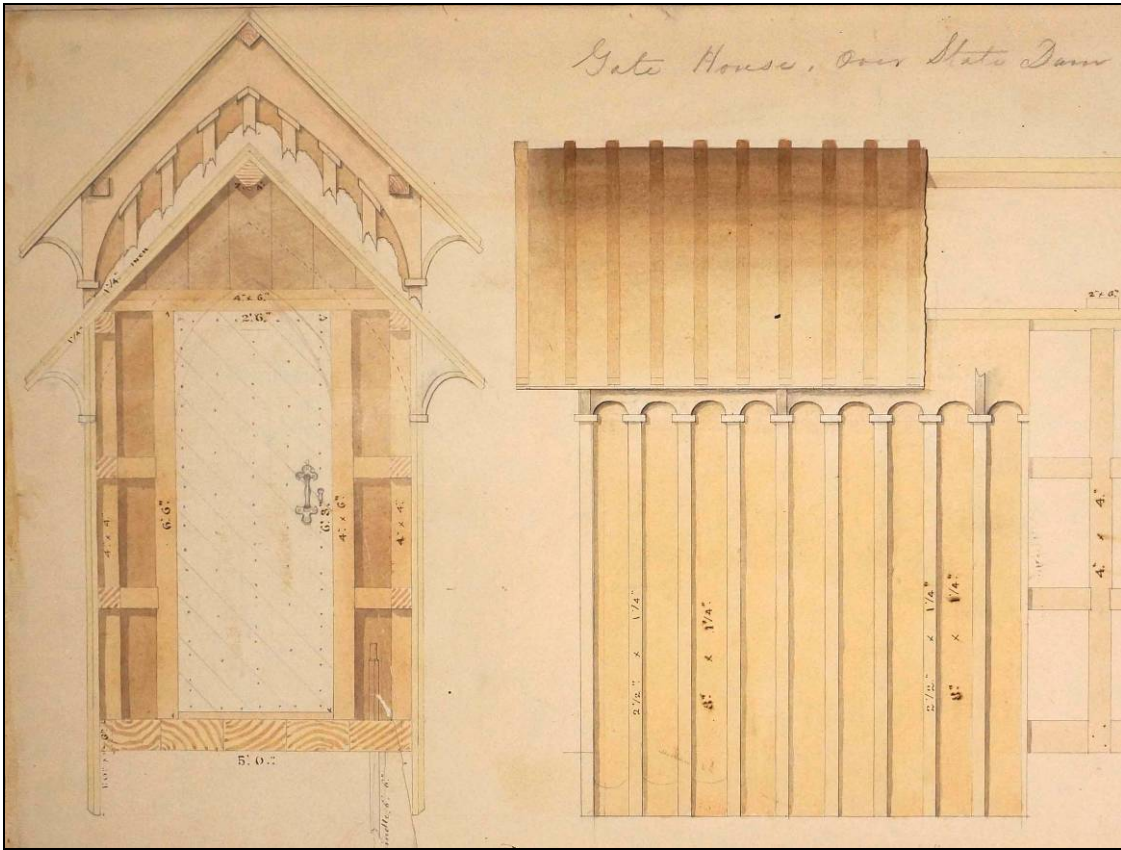


Figure 44 (top). Plan of the gate house on the State dam at Cazenovia, c1864 (New York State Archives).

Figure 45 (bottom). View of Cazenovia looking north over the lake outlet, 1890.

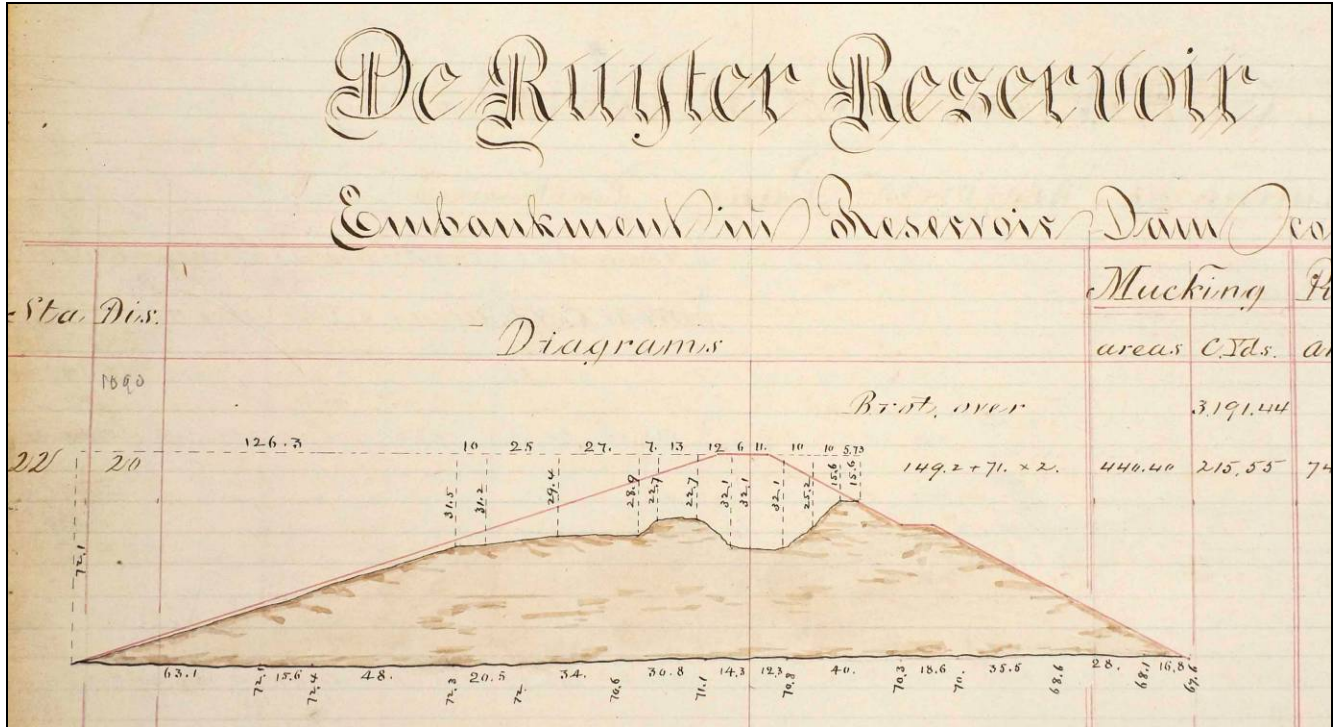


Figure 46 (top).
Embankment profile of the
DeRuyter Reservoir, 1863
(New York State Archives).

Figure 47 (bottom).
Spillway entrance of the
DeRuyter Reservoir, 2016.

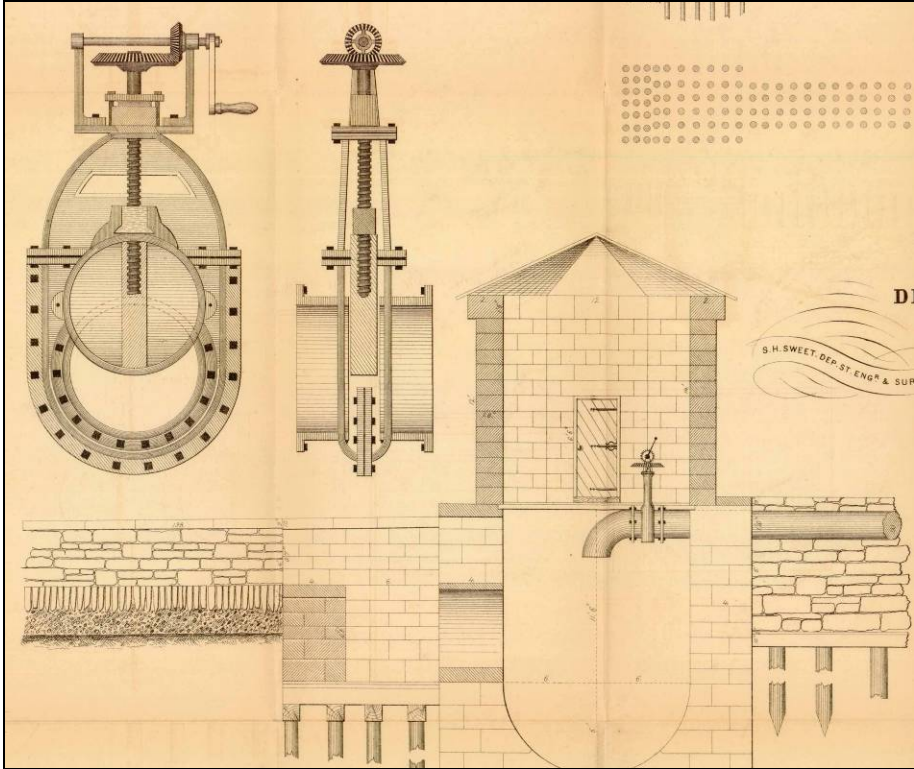


Figure 48 (top). Discharge valves of the DeRuyter Reservoir, 1862.

Figure 49 (bottom). Discharge valves of the DeRuyter Reservoir, 2014.

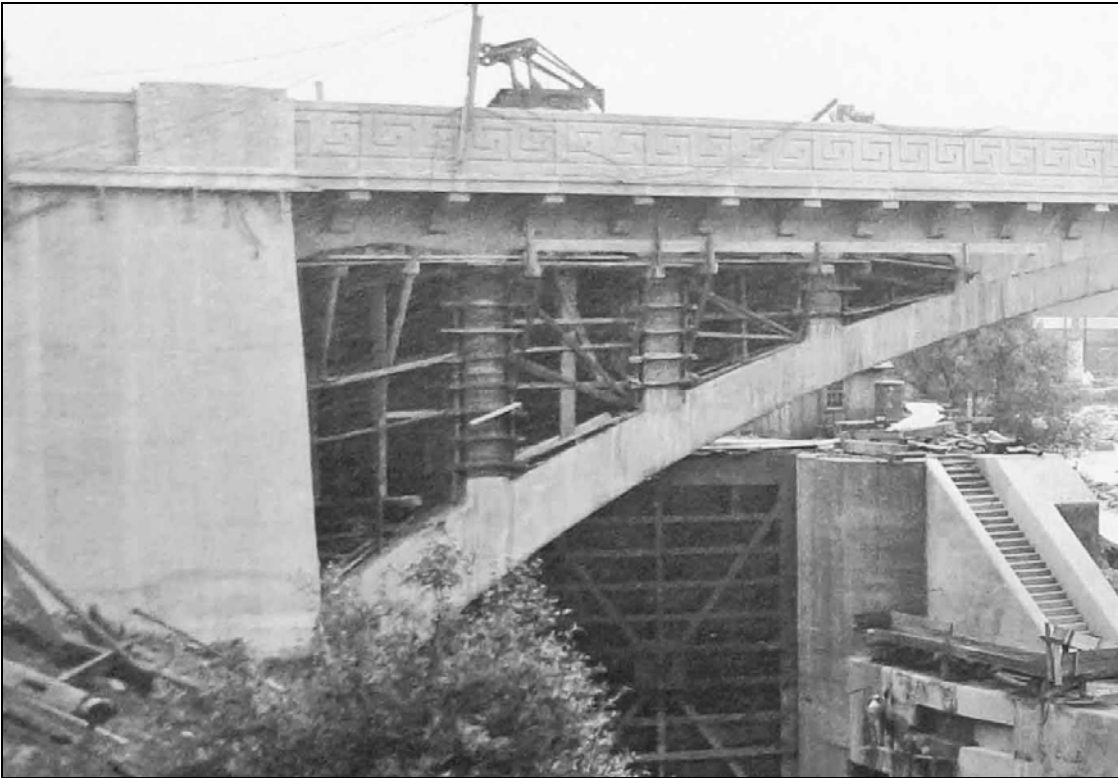


Figure 50 (top). Portion of Fulton's 1915 Broadway Bridge as rip-rap on the DeRuyter inlet.

Figure 51 (bottom). The 1915 Broadway Bridge in Fulton under construction (New York State Archives).

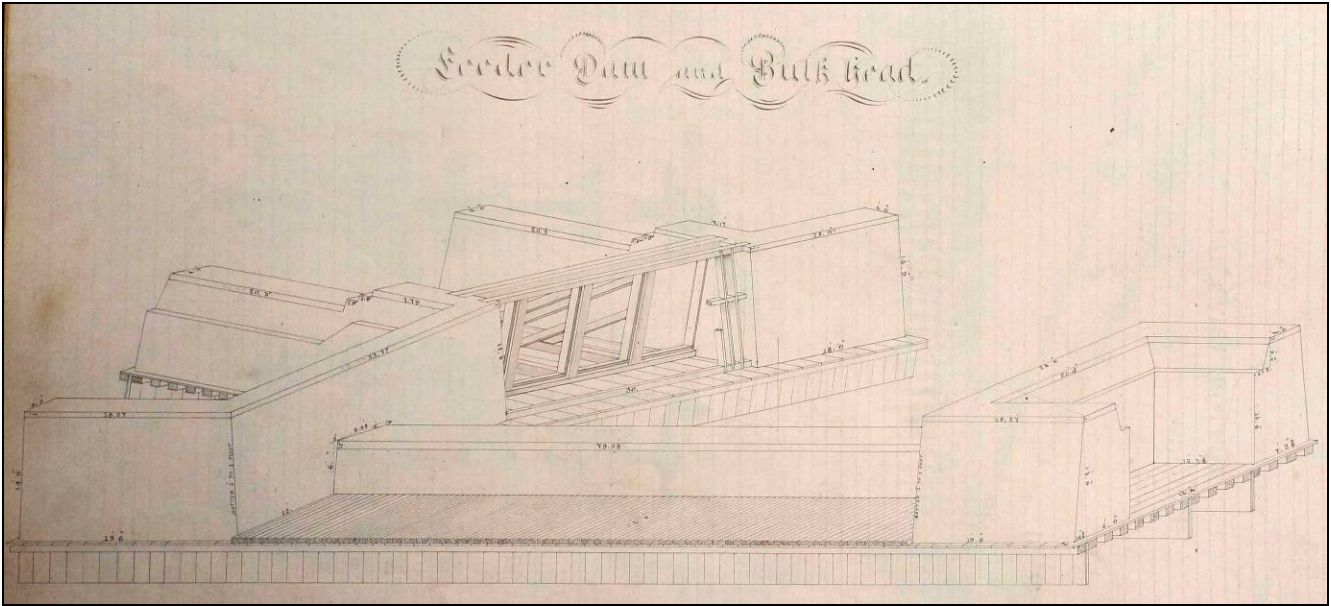
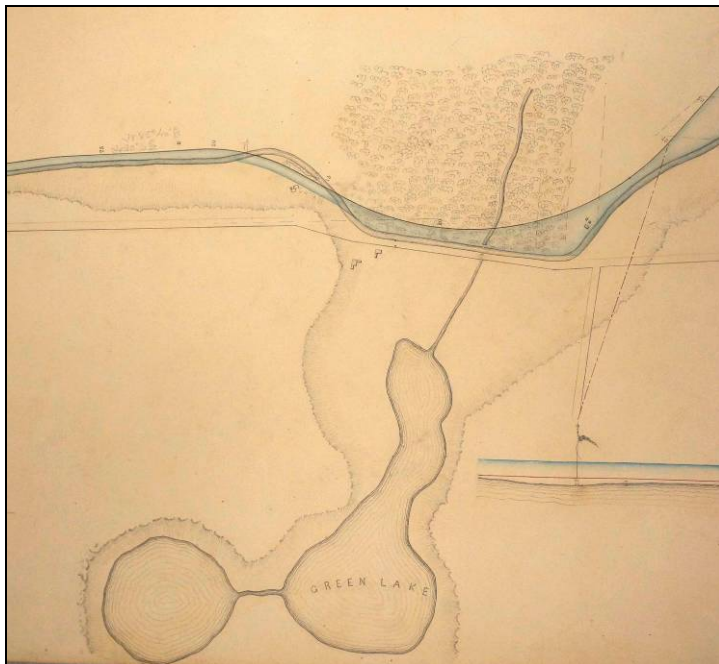
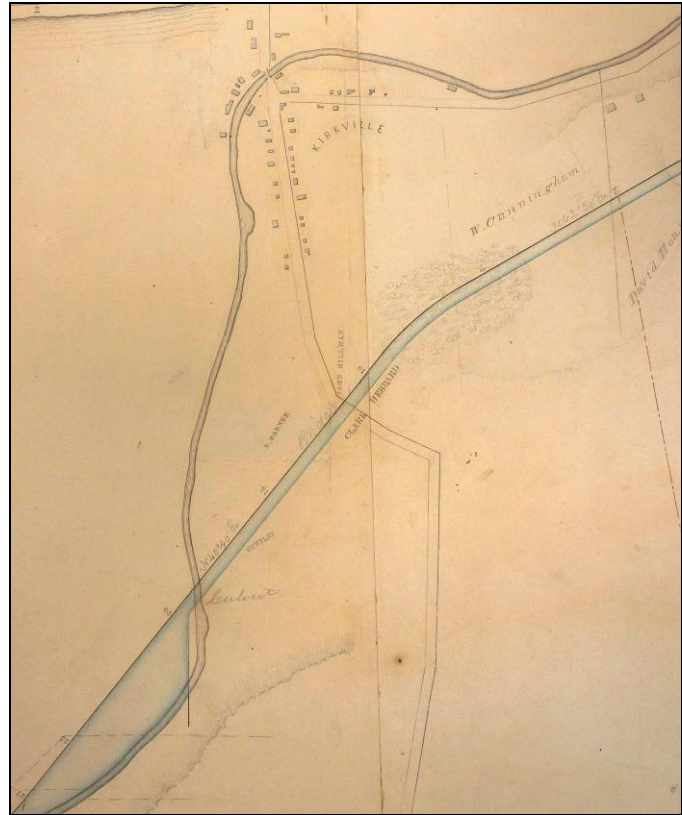


Figure 52 (top). Plan of DeRuyter Reservoir diversion dam, 1863 (New York State Archives).

Figure 53 (bottom). DeRuyter Reservoir diversion dam on the Tioughnioga Creek, 1997.



Figure 54. Map of the proposed Erieville reservoir, c1848 (New York State Archives).



Figures 55 and 56. Map of proposed canal enlargement near Kirkville and Green Lakes, c1850 (New York State Archives).

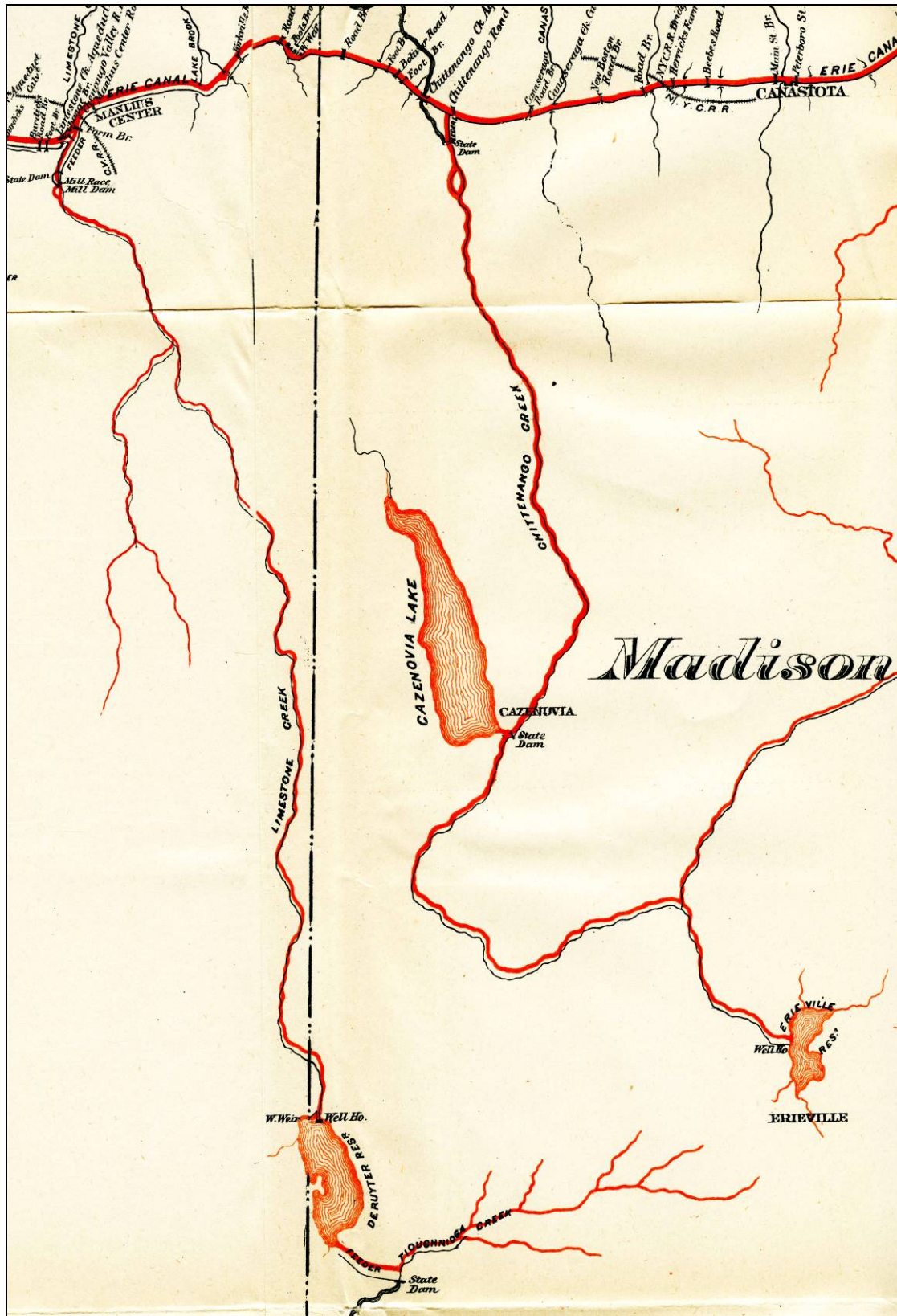


Figure 57. 1892 map of the southern reservoirs.



Map of the Village of Fayetteville, 1874.