“. . . and elegant water Tibbs run water is:”
The Story of Bringing Clean Water to Morgantown

by Michael Caplinger and Barb Howe

for the

West Virginia Botanic Garden, Inc.

www.wvbg.org

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1938 aerial photo, with labels added by the authors, identifying the Tibbs Run reservoir, some key engineering features, and general stream flow. The rectangular outline in the impoundment, starting beside the gate tower, is the wooden wall and walkway around the sedimentation/chemical treatment basin added in 1935. Photo courtesy of the United States Department of Agriculture.

The “elegant water” quote on the cover is from “Water Works,” New Dominion, August 3, 1889: 3.

Cover photo: Tibbs Run Reservoir with outlet tower, 1979. Photo courtesy of Triad Engineering.

This brochure is condensed from Barb Howe and Michael Caplinger’s article entitled “‘No More Wiggle-Tail Water:’ Bringing Water to Morgantown,” Proceedings and Papers of the Monongalia Historical Society, No. 8 (December 2010): 43-68.
We all need clean water! However, it took a very long time for Morgantown residents to have access to a reliable source of this basic necessity. The Borough of Morgantown first discussed providing water to its residents in 1859, but no real progress was made.\(^1\) Then, sometime after May 1865, John Edwards started his water-hauling business. Water from the Monongahela River cost ten cents a barrel, while water from Deckers Creek cost fifteen cents a barrel.\(^2\) Edwards provided water until 1889, outlasting several attempts to establish water companies.

For example, on October 31, 1883, the Morgantown town council granted the Morgantown Gas and Water Company a right-of-way through city streets for gas and water pipes.\(^3\) For reasons unknown, nothing ever came from that effort. Then, on November 15, 1884, the Morgantown Improvement Company (MIC) was organized to drill for natural gas and establish a water works. The incorporators were all prominent local citizens: George C. Sturgiss, I. C. White, Luther S. Brock, and Daniel Boardman Purinton.

A “Tax-Payer,” on April 4, 1885, suggested that voters approve subscribing $5,000 for a water works. If “private enterprises” contributed another $15,000, “we could sink a well on town hill and have water for all by the 4\(^{th}\) of July.”\(^4\) There was much more interest in drilling for gas, but, gradually, it became clear that investing in water was more important. On April 10, 1885, the town council authorized the MIC to “have the sole and exclusive right and privilege” for thirty years to supply water and to erect fire plugs.\(^5\) The town council next decided to ask voters whether the council should subscribe to $5,000 in MIC stock.\(^6\) Both local newspapers supported the vote. A water works meant cheaper water and you would not have to find “‘a water man’.” There was not enough “healthy drinking water” during dry summers, and “the amount of filth that may find its way into our wells ought to be reason enough to support a water works.” Also, the water works would make it easier to fight fires and be good advertising for Morgantown. Optimistically, one newspaper proclaimed that “The expenses will be light after the
reservoir and pipes are laid. Nature is the engine that will do the pumping. She will never get out of repair.” In addition, “A town that has been drinking and washing in the hardest kind of water for fifty or one hundred years is entitled to a change.” Morgantowners liked to “live nicely” and “live cleanly.” The ladies were “a little fastidious about their houses, about their cooking, about their complexions—soft water [was] essential to all these things.” Soft water, which meant water with a low concentration of dissolved minerals, especially calcium and magnesium, was easier to lather with soap. In addition, the water works would increase property values “quite as much as a railroad,” while bringing “comfort and health to every home.” The railroad reference was timely because construction on Morgantown’s first railroad link, the Fairmont, Morgantown, and Pittsburgh Railroad, had just started late in 1884.

Of the 157 votes cast on May 13, 119 men voted for “Pure Water.” No women then voted. This vote placed Morgantown residents “on the record of progress, and advance[d] the interests of our community in every respect,” while giving “Morgantown a boom for health-giving pure water.” The next step would be to annex Durbannah (now known as the Wharf District) and the Fair Grounds (then located in what is now Greenmont), for “they must have pure water, also!” The Morgantown Weekly Post reported the local reaction to the vote results in two separate articles on May 16, 1885. There would be “No danger of drinking nasty woolly water worms in Water Works water!” The clear consequences to the winners were: “No more washing in ‘wiggle-tail water’ now. How nice to have sprinkled streets and pavements! . . . Washerwomen will save hundreds of dollars every year for soft water. Poor John Edwards! His occupation will soon be gone; but, John can hitch to a cart and work on the railroad. Step this way into our new bath room, please, you old fogy who voted against Water Works, and let us wash the moss off your back! Throw away that brick-bat that you use to hammer on the hoops of leaky old barrels at the approach of a rain storm. Our people will hereafter take pure water from the bowels of the earth, in preference to impure drainage from the bowels of humanity – so to speak. . . .” Unfortunately, despite the vote and clear community support, the MIC never did establish a water works, for reasons still unknown.

The Union Improvement Company
Brings Tibbs Run Water to Morgantown

Late in 1888, Thomas B. Grant, Edward M. Grant, Austin M. Comstock, James W. Rowland, T.B. Gregory, and Lyman N. Hale, all from Pennsylvania, formed the Union Improvement Company (UIC). The Morgantown Weekly Post rhapsodized that “A New era [was] dawning” because of the county’s “natural gas, railroads, slack water [navigation], water works and other modern improvements and advantages.” On March 19, 1889, the Common Council gave the UIC...
“the sole and exclusive privilege and right” for twenty years to supply “pure soft water to the inhabitants and corporate authorities” of Morgantown.  

The new company started to lay pipes in early June 1889 and purchased a tract of 210.86 acres from George K. and Ella B. McMechen for $200 on July 30th. This is now owned by the City of Morgantown. It lies high on Chestnut Ridge roughly seven miles from town, in the uppermost headwaters of a branch of Tibbs Run (see map below). For many years, the Tibbs Run watershed was recognized as the most reliable, clean water supply in the area, while also possessing various geographical/topographical advantages which allowed a gravity-fed flow to town. The McMechen tract is on two tributaries of Tibbs Run south of the future reservoir. It is not clear what development took place on this tract, other than an early small dam built during the summer of 1889, but it did supply the first water from Tibbs Run to city residents. A ca. 1902 photo is the earliest image of a dam on Tibbs Run, but it is on an adjoining tract of land. Apparently, this dam backed up enough water to keep a steady flow of water directed into the pipeline which began at the dam and carried the water into town by gravity, an engineering technique that has been used for thousands of years. The first pipeline followed along Tibbs Run and then Deckers Creek for about seven miles, taking advantage of the streams’ natural slope. The first reference to an in-town reservoir, actually a tank, was on “Rogers hill across the ravine from the residence of Prof. Purinton” in the area then known as Sallytown, just north of the city boundary (Wiley Street) and east of High Street. From a point along Deckers Creek near today’s Marilla Park, the force of miles of piped water was enough to force the last portion of water from the low point around 750 feet in elevation up to about 1100 feet and to the hilltop water tank located three-quarters of a mile east of the courthouse. If this was the same as the tank on Rogers hill, ‘northeast” would be a more appropriate reference. From there, the water was dispersed to the pipe system throughout the town. 

Consumers who wanted to connect to the mains paid rates beginning at $6.00 for one or two pipes. On September 6th, the UIC opened its mains, and “the sparkling water from the mountain springs on Decker’s Creek” flowed in. The company demonstrated its success by attaching a hose to a fire plug on Front Street (now University Avenue) and throwing a stream of water one inch in diameter 100 feet into the air over the smoke stack of the Victor Mills at the southwest corner of Maiden Alley, just north of Walnut Street. “‘Oh, who’d ‘a’thought it?’ ‘Geeminy, don’t she spit madly?’ and similar expressions were heard from the excited denizens on all sides.” The next evening, some boys
grabbed the hose and “threw a stream of water right onto Patrick Henry’s face . . . and several feet over his head.” This was the nine-foot-high wooden statue of the governor of Virginia when Monongalia County was formed that stood atop the 1851 courthouse. Today, he stands inside the 1891 courthouse. The “feat was cheered loudly and brought forth all the populace of Main street [now High Street] to witness it.” The Parkersburg Journal praised Morgantown for having water pure water from “a cluster of unfailing springs on Cheat Mountain.” Pure water would bring good health, and physicians would “find their occupation gone.” John Edwards did retire. The new water works also led to calls for “a sewerage system to convey the drainage from water closets and bath houses, to the river.”

The UIC acquired the land for what is now the main tract of the West Virginia Botanic Garden on July 7, 1892, when Frederick Reifer’s widow, Henrietta, and his children and their spouses sold about seventy-five acres for $1125. Then, on May 8, 1894, Thomas Field sold 2.47 acres along the southeast side of Tyrone Road and northwest of the adjoining Reifer tract for $24.50; this is now the access road to the botanic garden. Reifer got the land from Thomas Mellon, the Pittsburgh industrialist and banker, who had received it through a court case related to the Valley Iron Furnace along Deckers Creek.
Improvements in Infrastructure
Address Water Cleanliness, Supply, and More

Tibbs Run alone could not supply all the water Morgantown needed, so the Monongahela River, regardless of its poor quality, remained a critical nearby source. Thus, the UIC acquired land along the east bank of the river between the river and railroad, above the mouth of Cobun Creek, in August 1894. Eventually, the water works would occupy over three acres there. The first water plant installed there in the 1890s was likely a minor combination of steam-powered pumps and holding tanks. By 1897, the company had dug three wells, and this water was piped to the water works. The seepage from outhouses infringed on the wells, and the river was often made putrid and foul tasting by industrial and farming waste upstream towards (and beyond) Fairmont. Dry summer months could negatively affect all the sources. Tibbs Run water, while considered good at the beginning and usually flowing throughout summer months, became less clean due to buildup of algae and vegetation, compounded by problems with the miles of wooden pipeline.

By 1897, the UIC installed “ditches” as the first filters at the water works. Exiting these trenches, the water was transferred to a small brick-lined reservoir filled with crushed stone and sand to act as a filter. Here, the water from the river, wells, and even Tibbs Run were sometimes mixed. Other times, the supply was altered from one source to another. Pumps then pushed the water through the pipes. The water was turned on during a Saturday in August of 1897, and the “the contrast with the filthy stuff we have been drinking [was] very great.” Additions to the plant and system would recur every few years.

The Union Gas and Water Company acquired the assets of the UIC in 1900. In March 1902, the Morgantown City Council transferred the rights and franchises of the UIC to the Union Gas and Water Company. No private family could be charged more than $21 per year for water service. This was a substantial sum, given that the average annual income for Monongalia County wage-earners in manufacturing was $400.68. The City of Morgantown would pay the company for hydrants or water plugs to provide water to put out fires, clean streets and alleys, and flush gutters and sewers.

The Union Utility Company (UUC) was formed in 1903 and then acquired the assets of both the Union Gas and Water Company and Morgantown Electric and Traction Company. The UUC built a new pumping station on the riverfront that year and pumped water to a new reservoir near the top of South Park for distribution to the rest of the city.

Yet, by this time citizens (and the university) had begun pressing for better quality water, fearing that a water supply so reliant on the river could cause a typhoid or cholera outbreak. Most people still considered that, if the water was clear, it was safe, but water from the river was most often brown or muddy, with poor taste and odor. The UUC
managed the street railway system, drilled for gas, generated electricity, and provided water. That company was sold to the Union Utilities Company on July 20, 1909.\textsuperscript{35}

**Construction Begins on the Tibbs Run Reservoir**

The next step was to build the Tibbs Run reservoir. The tract purchased in 1892 was in a unique natural “bowl” along the stream’s main artery where the company could build a larger dam. Construction began in the spring of 1911.\textsuperscript{36} Then, on January 1, 1912, the UUC signed agreements with James and Emeline Shaffer; B.E. and Myrtle Cress; and Mary, Nimrod, and Maggie Mayfield for water rights over 42.394 acres on three tracts.\textsuperscript{37} On March 12, N. H. and Mary Jane Moser and Cosby McCollum sold water rights on 46.91 acres.\textsuperscript{38} The grantors reserved the water and water rights “for domestic use” and pasturage, while selling “all the water and water rights now or hereafter being upon, within and underlying” the land”. The company also got “the right to store, convey and transport” water from the land, while the grantors promised that they would “not pollute, or permit to be polluted” in any way.\textsuperscript{39} These water rights are on lands southeast of the reservoir and do not adjoin the reservoir property. The rights transferred through subsequent deeds, and some of that land is now part of the Snake Hill Wildlife Management Area.\textsuperscript{40}

During the two years of reservoir construction, the Tibbs Run valley evolved into an excellent example of public works-related hydraulic engineering. Here, Tibbs Run and two branches--Jones Run (sometimes called Collins Run) flowing in from the north, and the smaller un-named branch (informally titled Fields Run) trickling in from the west--combine to flow out of the “bowl” through a pronounced gap in its southeastern corner. Tibbs Run then continues through a steeply sided hollow (meeting with the branch flowing in from the McMechen tract) for a mile before returning to a wider valley, then flows southwest one-half mile to another gap at Pioneer Rocks where it enters Deckers Creek. The pipes ran down through the creeks so no further property was needed to get the water to Morgantown.

When construction began, the natural bowl was still heavily forested by oak, pine, and chestnut.\textsuperscript{41} Dense undergrowth and saplings grew throughout the basin. Further up the Tibbs Run hollow, old-growth timber apparently remained in some places. Tibbs Run’s upper watershed on Chestnut Ridge had remained largely undeveloped and unpopulated due to the rugged terrain, thus providing the highly desired “clean” water. To the north and west, however, farming and homes made Jones and Fields Run water questionable for human consumption, so it was decided to exclude these streams from the water entering the reservoir basin. Multiple teams began simultaneously, some as small private contractors, while others worked directly for the company. The lead engineer was Mr. McCoy, who specialized in water
The plans first entailed diverting the flow of water from all three streams away from the basin where clearing (or “grubbing”) got underway, while also ensuring that a water supply from Tibbs Run was still flowing through pipes to town. So, about 100 yards up Tibbs Run from where the creek enters the open basin area and (today) meets Jones Run, a small diversion dam was built. Tibbs Run water pooled behind this dam to be diverted to the pipeline leading to town. Jones and Fields runs would be redirected around the outside of the reservoir’s embankments allowing only the clean Tibbs Run water to be diverted into the reservoir.

Other crews began clearing the 28.1 acres on the main site. Company employees used hand saws and axes to remove the trees and surface growth, while teams of horses or oxen pulled away the debris and possibly usable timber. Next, a small contractor’s team grubbed out stumps. A “stump pulling device” was constructed on-site under the guidance of Victor Hammel. The power of two horses, strategically placed chains, and the use of nearby stumps still anchored in the ground allowed the workers to uproot any stump to which they could properly connect. In difficult places, the men used mattocks and shovels, aided by blasting. Every piece of the entangled root systems needed to be removed before horse-drawn scrapers could excavate the “loamy sand, clay and gravel.” Many days, the sound of dynamite echoed through the woods, while smoke from burning piles of stumps drifted into the sky. The subsequent soil removal limited subsurface decay of organic matter once the reservoir filled, while shaping the bottom of the impoundment area and collecting fill material for the main dam and embankments.

The grubbing and stump pulling was finished during the summer of 1911. Late in the
process, a relatively new type of machine, a steam shovel, replaced the horse-drawn scrapers.\textsuperscript{47} Next, crews began working along the site of the main dam, designed as an “Embankment with core” dam.\textsuperscript{48} Outside this embankment’s downstream base, Fields Run flowed in a new channel to meet Tibbs Run. An overflow spillway was located on the northeasterly running portion of the dam. This section stretched off about 1250 feet from there, quickly becoming a low-level embankment before returning to the hillside and completing the impoundment enclosure. Along the outer side of this embankment, the waters of Jones and Fields runs meet to flow south into the main Tibbs Run channel. To erect the main earthworks, the crews probably dug the foundation trench and blasted into the bedrock to help ensure strength and impermeability of the core and prevent leakage beneath the base. The top was a flat surface, which is now part of the Reservoir Loop Trail, as are portions of the northeasterly embankment.\textsuperscript{49} Clay, sand, and gravel scraped from the basin may have aided in making the concrete, with the remainder of larger stones used for riprap on the outer surface of the embankments. McCoy’s judgment and experience prevailed on site, but we do not know if he created the overall design. The core resistance to permeation was critical to the dam’s safety and, while being formed, required the engineer’s close guidance and inspection.

![Cross-section of Outlet Tower, Outlet Pipe, and Primary Earthen Dam](image)

To expedite construction, a dinkey locomotive engine and dumper cars were brought to the site. It is likely a trestle was erected along the dam and topped with light-gauge railroad tracks; the dinkey engine then pulled loads of dirt and other materials out along the dam to the work crews. Or, ties and rails may have been placed along the working surface of the embankments and periodically raised as the embankment grew taller. After the small train dumped the loads, the work force spread the dirt layer by layer while heavily compacting the soil. In the final phase, the train likely carried fresh concrete from the on-site batch plant for the spillway construction and stone riprap for the embankment’s final layer. We do not know how the steam shovel and dinkey engine were brought to the site, or transported off when the
project was finished. They could have been moved by teams of horses or oxen pulling strong wagons, or maybe the steam shovel arrived by its own power. Regardless, their transit to and from the construction area was likely a sight never before seen along Tyrone Road. The nearest railroad which may have carried the heavy machines close to the site was the Morgantown and Kingwood, but even it was inaccessible anywhere nearer than two miles away.

There also had to be features to handle the impoundment’s collection and dispersion of water. The most visually striking feature was a concrete gate tower, which you can still see. It had side-intake openings covered by metal intake gates and controlled by hand from mechanisms atop the tower. The reservoir operator reached these mechanisms by traversing a wooden gangway extending from the shoreline to the top of the tower or, sometimes, using a small boat. The incoming water collected at the bottom of the well and entered the main outlet pipe that passed through (or underneath, this is unclear) the dam’s core. A small stairway on the downstream face of the embankment allowed easier inspection of the dam at the outlet pipe’s exit. Where Fields Run met the embankment’s western end, a small concrete dam created a pond, part of which rested on the outside of the embankment, to prevent contamination from nearby properties.

Finally, crews built the emergency spillway and applied stone riprap to the dam. The “stepped” spillway (or overflow weir) was poured in place and set into heavy embankments on either side. A wooden walkway over the spillway allowed the reservoir caretaker to walk around the reservoir. The spillway would prevent overflow of the dam’s earthen portions due to the worst possible rainfalls, but such overflow rarely, if ever, occurred. The final step was to bring Tibbs Run water into the completed reservoir basin. A valve installed beside the diversion dam, which had supplied the town with water during the construction, now routed water into the main impoundment through a ceramic clay conduit. The pipe was carried inside a short aqueduct elevated over Jones Run. Then, it pierced the embankment to deposit the Tibbs Run water in the impoundment near the shoreline.

Construction on the Tibbs Run Dam was finished in November 1912. The West Virginia Traction and Electric Company, which had assumed ownership the previous July, anticipated laying a 12-16 inch line to Morgantown to provide “pure, soft water from this well-guarded mountain stream.” The Morgantown Post Chronicle reported on the completion of the impoundment on November 27th, 1912: “Last Thursday night the water from Tibbs Run was turned into the big lake,
the valves of the gatehouse in the big dam were closed, and the reservoir, capable of storing 90,000 gallons of water, began to fill…. The four days run has formed a lake of goodly area and of seven or eight feet depth in the deeper places. It is an attractive looking sheet of beautifully clear, pure mountain water…. The cost of the improvement to the company was probably approximated $50,000.”

Arlington Field, whose family had owned land in the area for many years, was a supervisor (perhaps a private contractor) on the project at least during the completion of the impoundment. He also owned the location of the Fields Run pond along the western end of the dam and much of the plateau above this section. This property became a popular destination for picnics and swimming, and the Field family opened a park with a baseball field, fire pit, general store, and dance hall by 1920. The Fields’ land, centered at the intersection of Tyrone and Fields Park roads, was also the site of the first 4-H summer camps in Monongalia County until Harry Muffly developed the current camp in 1931.

Later Developments at the Reservoir and Water System

With the engineering complete, long-term maintenance was needed. Groundhog burrows or overgrowth of vegetation and roots could lead to seepage through or under the dam, threatening a major embankment failure, or trespassers might contaminate the water. The constant needs to guard against damage to the dam and impoundment, make adjustments to the outlet tower gates, and, eventually, to treat the water required an employee to constantly oversee operations. David Fields was the first identified reservoir caretaker, followed shortly thereafter by Ralph Lemley. At first, he commuted from his home in Morgantown. About 1940, though, he helped construct a house along Tyrone Road for his family. The pieces arrived by train packed in boxes, and the floor plan closely resembles that of a Sears Roebuck Crafton model house.
Eventually, the water system expanded to serve Westover and communities along Scotts Run. West Virginia University researchers in the 1920s repeatedly identified the problems with the Monongahela River water and its causes as lying upstream, but also found lesser issues with the Tibbs Run water.\footnote{55}

\begin{center}
\textit{Left: Cross-section of chemical feed house. Drawing courtesy of Morgantown Utility Board. Above: Reservoir and chemical feed house. Photo courtesy of Ralph Cale and Barbara Boggs.}
\end{center}
To help improve the Tibbs Run water, in 1935, a continuous “wall” of wooden sheet pilings was placed around the outlet tower’s section of the impoundment to create a 250 foot by 100 foot settlement/chemical treatment pond. There, the lake’s water deposited much of its particulate matter and was chemically treated. At the same time, a chemical feed house was built about 200 feet west of the outlet tower. It was a single-story wooden structure on an extant concrete foundation. It housed scales, mixers, and an electric-driven Gould pump used to pull water out of the impoundment, through the feed house to mix the chemicals (lime and chlorine at first), and into the mixing chambers. Water from outside the treatment basin entered the mixing chambers and was treated there. The clean water could then enter the outlet tower and eventually the pipes to town.

To test the water, Mr. Lemley walked out to several different locations along the walkway atop the pilings each morning and evening. He filled bottles with water, took the bottles back to the chemical feed house to test the water, and recorded everything he had done in a log book.

In 1947, a small wooden weir, pipe into the reservoir, and control box were built to allow Jones Run to act as a supplemental water supply, augmenting the supply coming from Tibbs Run. The concrete control box with a steel plate on it can be seen below, in these photos by George Longenecker, and along the Reservoir Loop Trail.

Over time, the large surface area of the reservoir took in natural contaminates and promoted algae growth. Siltation slowly lowered the
reservoir's capacity, and the impoundment could be quickly depleted during extended dry weather. Problems also developed in both the water and sewer lines in town, and repairs could not keep up with ever-expanding needs in the growing community. Plans for a larger impoundment and a major new pumping station on the site were considered but never undertaken.

By 1950, there were over 147 miles of main water lines in and around Morgantown, and many more were needed along with numerous major upgrades. The City of Morgantown acquired all the property of the Morgantown Water Company, a subsidiary of the American Water Works Company which then owned the land and water works, on September 15, 1950. WVU's new Evansdale campus and medical complex required that the Water Commission solve the water problems. This set the new Water Commission on course to carry out major upgrades, including the construction of the Cobun Creek Reservoir (1957-58) that could hold about 80 million gallons, while the Tibbs Run reservoir held about 40 million gallons. Even the river water improved as filter technology steadily advanced, the industrial plants and communities upstream developed better waste and sewage treatment facilities (as did Morgantown), and the lock and dam system along the Monongahela and its tributaries reduced chances of limited river water supply. Among the last additions at Tibbs Run was a small chemical and meter building built in 1961 across Fields Run from the southern face of the dam. In 1961, fluoride was first added to Morgantown's water supply at the new building and at a similar installation at the water works. By the late 1960s, the Tibbs Run reservoir supplied water primarily for Sabraton, Rock Forge, Marilla Park, and the Jerome Park area, with Cobun and the river supplying the rest of town.

The City stopped using the Tibbs Run reservoir in 1969. Although Fields Park had closed some thirty years before, and the landmark dancehall burned in early 1949, the public still visited the pond and abandoned reservoir as this became an informal recreation site for
fishing, swimming, and picnicking. The reservoir was finally drained in 1980, with the basin returning in many ways to its natural state. The embankments, spillway, diversion dam, and outlet tower remain, but other features have decayed to the point of being barely visible, if they have not disappeared completely.

In 1999, the West Virginia Botanic Garden, Inc., signed a lease with the City of Morgantown and Morgantown Utility Board to establish a botanic garden on this 82-acre site. The property is now open daily from dawn to dusk.

Morgantown residents no longer have to drink wiggle-tail water. Now, they are invited to visit the wetlands at the WVBG - where they just might see, and delight in, something wiggling through the water!

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3. Record of the Meeting of the Town Council of the Town of Morgantown, October 31, 1883, Morgantown City Clerk, Council Journal Number 2, May 21, 1878 to May 28, 1889, pp. 190-192 (hereafter MCC, CJ #2).
5. Record of the Meeting of the Town Council of the Town of Morgantown, April 10, 1885, MCC CJ # 2, May 21, 1878 to May 28, 1889, pp. 229-230.
6. Ibid., pp. 231-232.
8. “Morgantown Will take It,” *New Dominion* (hereafter ND), May 2, 1885, 2.
16. Record of the Meeting of the Common Council of the Town of Morgantown, March 19, 1889, MCC CJ #2, 448-449, with revisions related to fire plugs in Record of the Meeting of the Common Council of the Town of Morgantown, March 28, 1889, Ibid., 451-452.
17. George K. and Ella B. McMechen to Union Improvement Company, July 30, 1889, Deed Book 26, p. 145, Monongalia County Clerk’s Office, Morgantown, W.Va. (hereafter DB, with all deeds located in this office). You can follow the pipe-laying and construction of the water system in the Morgantown *New Dominion* from June through early September, 1889.
21. “Water Works Completed,” *MWP*, September 14, 1889. September 6th is deduced from the fact that the paper was published on Saturday and referred to a Saturday evening, which must have been the previous Saturday, the 7th.
22. That courthouse had 2 stories, a gable roof, and a cupola, so the top of Patrick Henry’s head may have been as high as 50 feet above the ground (Core, *Monongalia Story*, vol. 3, 308).
23 “Water Works Completed,” MWP, September 14, 1889, 3.
24 Untitled, MWP, September 21, 1889, 1.
26 Frederick Reifer’s heirs to Union Improvement Co., July 7, 1892, DB 36, p. 405. The acreage for this tract varies, depending on the scale used in mapping it.
27 Thomas D. and Mary L. Field to Union Improvement Co., May 8, 1894, DB 38, 489-90. Thomas got the land from Arthur Field (December 1, 1866, DB 4, p. 601), who got it from Joseph Fields. He got it from Alpheus E. Wilson, Virginia Wilson, and John K. and Elen [sic] L. [Wilson] Ewing (husband and wife) (June 12, 1854, Old Series DB 21, p. 9.). This was part of the “Tibbs tract” (see note below). This is almost certainly the same family, although the name is spelled as both “Field” and “Fields.”
28 Commonwealth of Virginia to James Tibbs, February 3, 1787, Monongalia County Land Grants Book 3, p. 182 (this deed is supposed to be for 640 acres but only plots at 353 acres); James and Catherine Tibbs to Eliza Willson, March 9, 1832, Old Series DB 11, p. 202; Eliza Wilson to Alpheus E. Wilson, Virginia Wilson, and Elen [sic] and John Wilson in undivided 1/3rd interests, January 16,1851, Old Series DB 19, p. 629; James Kinsley to Thomas Mellon, May 19, 1859, New Series DB 1, p. 692; Ralph L. Berkshire, Commissioner, to Thomas Mellon, March 4, 1862, DB 2, p. 353; and Thomas and Sarah Mellon to Frederick Reifer, November 15, 1870, DB 7, p. 353. Mellon got this land from James Kinsley, owner of the Valley Iron Furnace, via a court case that involved Ralph Berkshire as a commissioner. The 1862 deed references the “Tibbs tract.” The Willsons sometimes spelled their name as Willson and sometimes as Wilson. The spellings used here are those used in the deeds.
29 Hosea and Lucinda Stansberry to Union Improvement Co., August 31, 1894, DB 40, p. 451 and January 18, 1898, p. 289; Edward M. and Florence Grant to Union Utilities Co., June 4, 1904, DB 70, p. 128.
31 Union Improvement Co. to Union Gas and Water Co., July 17, 1900, DB 55, p. 160.
33 Core, Monongalia Story, vol. 4, 299; and Morgantown Electric and Traction Company to Union Utility Co., March 27, 1903, DB 72, p. 156.
34 James Morton Callahan, History of the Making of Morgantown, West Virginia: A Type-Study in Trans-Appalachian Local History (Morgantown, W.Va.: Morgantown Printing and Binding, Co., 1926), 286.
35 Core, Monongalia Story, vol. 4, 292, 299-300; and Union Utility Company and Harry R. Warfield to Union Utilities Company, July 20, 1909, DB 104, p. 109. Warfield seems to have acted as an agent for the Union Utility Company.
36 “Engineer McCoy Finishes Job on Tibbs Run Dam,” Morgantown Post Chronicle (hereafter MPC), November 27, 1912, 1:6. The spring date is deduced from the reference to the dam construction taking twenty months.
37 James and Emeline Shaffer to Union Utilities Co., January 1, 1912, DB 119, p. 252 (this parcel calculates at 12.2 acres when mapped); B.E. and Myrtle Cress to Union Utilities Co., January 1, 1912, DB 19, p. 255; Mary, Nimrod, and Maggie to Union Utilities Co., January 1, 1912, DB 119, p. 253. Mary Mayfield was the widow of Joshua, while Maggie was the wife of Nimrod.
38 N. H. and Mary Jane Moser and Cosby McCollum to Union Utilities Co., March 12, 1912, DB 120, p. 81.
39 This was standard language in all four water rights deeds.
40 See, for instance, James McCollum’s heirs (Cosby McCollum and Mary J. and N.H. Moser) to B. E. Cress, March 24, 1913, DB 124, p. 336; and Charles T. and Patricia M. Young to State of West Virginia, Bureau of Commerce, Division of Natural Resources,
Public Land Corporation, DB 1136, p. 408, with the Moser et al. water rights reference in parcel 6 on p. 412.

43 Ibid., p. 158.
44 Hammel, *Methods and Costs*..., p. 158.
46 Ibid.
47 Ibid., p. 158.
48 "Engineer McCoy Finishes Job on Tibbs Run Dam," *MPC*, November 27, 1912, 1.
49 Alfred Flynn, Robert Weston and Clinton Bogert, *Waterworks Handbook* (New York: McGraw Hill Book Company, 1916), 199. A later drawing of the impoundment indicate wooden sheet piling lining much of the northerly running embankment, but it is not known if these were original or a later addition.
50 "Tibbs Run Reservoir Spillway," Construction Drawing, date unknown, Morgantown Utility Board files.
51 "Engineer McCoy Finishes Job on Tibbs Run Dam," *MPC*, November 27, 1912, 1. The West Virginia Traction and Electric Company purchased the assets of the Union Utilities Company on July 12, 1920 (DB 121, p. 120).
52 "Engineer McCoy Finishes Job on Tibbs Run Dam," *MPC*, November 27, 1912, 1.
56 "Chemical Feed House," Construction Drawing, 1936, Morgantown Utility Board files.
57 The West Virginia Botanic Garden thanks the Lemley family, especially Ralph Cale, Barbara Boggs, Linda Bentley, Joe Alvarez, and June Ball, for their assistance with all references to Mr. Lemley's life and work at the reservoir.
60 These are enumerated in Morgantown Water Company to City of Morgantown, September 15, 1950, DB 454, p. 410ff.
64 "Postmortems," *MP*, November 25, 1964, 8.
65 The survey for the access road and reservoir tracts shown on the lease from the City of Morgantown to the West Virginia Botanic Garden, Inc., do not exactly match the 1950 deed descriptions for these parcels, but the authors could find no further property transactions in the deeds for these tracts.