The Louisville Water Works Pumping Station Number One

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B.A. Smith College, 1972

A Thesis Presented to the Faculty of the Division of Architectural History of the School of Architecture in Partial Fulfillment of the Requirement for the Degree Master of Architectural History

> School of Architecture University of Virginia

6/8/81 J lide May 1981



Figure one: The Louisville Water Works

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Introduction

The first pumping station of the Louisville Water Works was designed to be a monument to the engineering accomplishments of the water works itself, and to the city which built it. This attitude was a product of the optimism with which the Industrial Revolution was recarded in the early nineteenth century. Advanced technology was the carrier of prosperity and culture to the people, and in this instance it specifically brought healthy clean water in luxurious abundance. For the city of Louisville it was not sufficient to have a water works, it was necessary to display it with as much flamboyance as was possible, and tasteful. Louisville had lept from a wilderness outpost to a major city in fifty years. It had a past to overcome and a future to promote, and the water works served this purpose magnificently. It was among the earliest and finest in the United States and was highly visible, on the banks of the Ohio to the multitudes of travellers who passed up and down that major waterway.

As a grand gesture this was a great success. The engineering was of such high quality that the works survived decades longer than later built works in other cities, and the architecture insured that the pumping station would survive even after obsolescence could no longer be denied. The Louisville Water Tower, as Pumping Station Number One is now called, has been registered as a national landmark of industrial architecture since 1976.

This remarkable pair of buildings is a unique survivor from a past that has been more obscured by changes in attitude than the passage of time. It is the purpose of this thesis to explore those attitudes, as well as the skills of the people responsible for giving us these buildings, in the hope that the many people interested in them today might come to better understand and appreciate them.

The Water Tower has many friends and countless numbers of them have given me enthusiastic support in this work, for which I am very grateful. However, I must especially thank Wm. Brown Morton III, who recommended the Water Tower for its landmark status, and who helped me to see with new eyes these buildings I have known all my life. Another great friend to the Water Tower, and to my work, is Walter Barney, whose extensive collection of photographs and drawings of the buildings in nearly every stage of their development proved to be my single most valuable source of information.

I would also like to thank Mr. Jerry Ford, Vice

President of the Louisville Water Company; Lynne Landis and Julie Bader of the Louisville Art Association; and Ron Gascoyene, architect advising the Louisville Art Association on the Water Tower restoration, for their patience and eager help with all my questions. Finally, special mention must go to Tom Beckman of the Milwaukee Art Center who, while pursuing similar research, pointed out to me many valuable sources of information. My thanks go to all of these people who contributed greatly to my own understanding; but to the Louisville Water Company itself and its officers, and employees over the 120 years of its existence, I offer my special gratitude. Without the care with which this company has preserved its records and its buildings this thesis would have been impossible. Its high standards are more than architectural.

Finally I must give my deepest thanks to the members of my thesis committee, Frederick D. Nichols, Dora Wiebenson, and Richard G. Wilson for their valuable assistance and unfailing patience; and to Joan Baxter, my typist whose skill at translating my scribbled notes to neat pages was truly remarkable.

Chapter I

A westbound traveller approaching Louisville, Kentucky, on the eve of the American Civil War would have passed through miles of undeveloped land, still thickly forested where it was not dotted with small farms. If he came down the Ohio even the farms would have been obscured by the lush growth along the river banks. Thus the size and vigor of the city might have come as a surprise to him as he rounded a bend in the river and saw it in the distance. Louisville lies in a curve of land where the river swells out above a limestone shelf called the Falls of the Ohio (see figure two). In 1860 many church steeples and smokestacks broke the skyline behind the busy dock yards and warehouses, but these were common to most cities and offered Lousiville no particular distinction. It was the group of buildings on the river bank appearing before the traveller while he was still some three miles east of the city that marked Louisville as different (see figure three). Here was a complex of moderate size, laid our in a Palladin manner and decorated with Roman classical motifs. If it had not been for the tall smokestacks terminating the side wings, and the one hundred and thirty-two foot tower standing directly in front of the principal facade on the land side, the

traveller might have thought he was seeing a particularly fine county house, or a misplaced public building, like a small court house or a customs house. The smoke stacks denoted an industrial purpose for the complex, but the traveller in 1860 was unlikely to recognize the tower as a stand pipe and conclude that this must be a water works. Water works of this quality were very rare before the 1870's in the United States.

It is not that water works in general were unheard of, it is just that the concept of municipal water works was foreign to most Americans. Roman aquaducts and other feats of civil engineering were well known to educated people, and many were aware that steam pumping engines had long been used in England and France to supply urban dwellers with clean water and to provide for fountains and fire hydrants.¹ The problem in this country was two-fold. Primarily the cities and towns were smaller and their people were reluctant to exchange the rural solutions of wells and cisterns for more expensive and complicated new technologies.² Also, tax systems in the first half of the nineteenth century provided state and federal governments with the greater portion of the revenues, and left very little for cities and counties.³ Even where a clear need and a known solution existed, it could take years to raise the funds necessary for action to be taken on a problem. As a result,

American water works were slow to develop and, for the first half of the nineteenth century, those that existed were predominantly privately owned.⁴

The privately owned water works were usually very simple in operation. A group of investors would dam a stream or spring, or find a suitable pond on high ground above a town. They would then sell subscriptions for this water to be piped into the dwellings and businesses. Though gravity was the principal source of energy and bored logs formed the pipe system, such companies provided cleaner and more ample supplies to many cities whose ground water was inadequate or polluted.⁵ Even, as in Manhattan, where steam pumps and reservoirs were required to meet the demand, the water company still operated under a private charter.⁶

The first major city in this country to accept the responsibility for providing its citizens with adequate supplies of clean water was Philadelphia. The need was brought home to the city commissioners by a series of devastating summer epidemics which came in the late 1790's. When the disease (yellow fever) was linked to the poor quality of Philadelphia's water, urgent steps were taken to bring in clean supplies from the unpolluted Schuylkill River. Benjamin Latrobe designed and engineered the system which arranged for water to be pumped from the river to a reservoir on the high ground of Center Square, from which it could be fed by gravity to the rest of the city. Two steam powered pumps were required for this operation, one at the Schuylkill and another in Center Square.⁷ Though Philadelphia's controversial works dated from 1799 it was not until the mid-nineteenth century that other cities began to see the advantages of owning their own water systems. The early water pumps were not fuel efficient and required frequent repairs, while the bored log pipes were leaky and subject to rot. Furthermore such a system was extremely difficult to expand to keep up with the rapid growth of nineteenth century cities.⁸ For Louisville and many other American towns it was easier to keep digging wells.

The change in attitude came about gradually as pumping engines improved in quality and cast iron became more frequently used for pipes. The growing cities faced increasing danger from fire and epidemics as their populations outgrew and polluted the available water sources. As it became desirable for cities to provide fire hydrants, street cleaning, and even fountains to cool and clean the air, wells and even private water companies could not meet the demands.

The City of Louisville with a major river at its feet was among the first to recognize the advantages of a municipal water works. As early as 1819, in his 7.

book, Sketches of Louisville, Dr. Henry McMurtrie wrote:

The well water of Louisville. . .which is the one commonly used by the inhabitants, is extremely bad, containing besides a considerable quantity of lime, a large portion of decomposed vegetable matter. . .

The water of the wells after standing a little time becomes nauseous to the taste, and acquires a smell highly disagreeable to delicate stomachs. . .

This bad quality of water in general use is one great cause of a variety of complaints (particularly diarrhea) that are common in the summer months, and calls loudly for a remedy, which may be found easily in a steam engine and the Ohio, whose waters being extremely pure, might with a little expense be distributed throughout every part of the town, an arrangement which will probably take place at no very distant period.⁷

Dr. McMurtrie may have been optimistic in his assessment of the time it would take to provide Louisville with clean water, but in his description of the problem and its solution he was completely accurate. Louisville had ample ground water but the wells were shallow and easily contaminated. So serious was the problem that the city acquired the reputation of being "the grave yard of the western country."¹⁰ Yet at the time McMurtrie wrote, bad water was only one of many problems with which the city was burdened.

Louisville began its life in the middle of the American Revolution as a fort at the Falls of the Ohio. These "falls" were in reality a dangerous rapids which at times of low water necessitated the only portage

in the two thousand mile waterway from Western Pennsylvania to New Orleans on the Gulf of Mexico. The site was perfect for commercial development, but years of Indian unrest, even after the war, and the difficulty of transporting goods to the Eastern markets against the river's current, prevented rapid growth in the eighteenth century. Political stability that came with the end of the Indian wars, and the incorporation of the Louisiana territory, and New Orleans, the western country's major seaport, into the United States, brought the security necessary for Louisville to emerge from the wilderness. In 1811, when it had a population of little over a thousand people, the final ingredient for success arrived when the first steamboat docked there awaiting high water before navigating the falls.¹¹ Steam powered shipping turned Louisville into a boom town. In 1820 the population was 4,012, and by 1850 Louisville was the tenth largest city in the United States with a population of 43,000.12

The problem with boom towns is one of keeping up with their own growth. An imbalanced tax system and immature banking institutions left such cities prey to rapidly fluctuating periods of economic boom and bust. Credit was hard to get and confidence was easily lost. Financial panics in the 1830's and 40's halted or interrupted many projects among them the completion of

a new County Court House.¹³ Many far more important programs than a controversial water works had to be carried out first. In his book McMurtrie pointed out even greater problems than the poor quality well water. There was no hospital, the streets were filthy and unpaved, and ponds and wetlands around the city provided an even more visible source of disease than the wells.¹⁴ Louisville opened its first hospital in 1823 after serious epidemics struck the city in 1817 and 1822. At the same time the "Pond Fund" was begun. Money was raised by benefit theater performances and a \$60,000 lottery to begin draining the land. It was not until 1828, when Louisville had a population of 10,000 and an annual budget of \$40,000, that a program of grading and paving the streets began.¹⁶

These basic improvements were successful in combatting the epidemics but more was needed to change the city's image. Its citizens were ambitious, and actively promoted its cultural and industrial growth. The first free public school east of the Alleghenys opened in Louisville in 1829 (months ahead of the arch rival Cincinnati's).¹⁷ Ten years later the city had a new medical school which was the cornerstone of the University of Louisville, chartered in 1846.¹⁸ This is the oldest municipal university in the United States. The first bank was chartered in 1833 and the Louisville

Hotel and the Galt House were acclaimed by such international travellers as Charles Dickens to be the equal of any in Europe.¹⁹

More importantly, Louisville was becoming a center for industry as well as commerce, with a reputation for quality rather than quantity of production. In 1857, the year the water works was begun, the city had, among its many industries, twenty-one machinery and iron works, and factories for making agricultural implements, jewelry, books, organs and pianos, steamboats and many other items working with everything from alcohol to zinc.²⁰

The decision to build a municipal water works was a product of this growth and ambition even more than it was a response to need. It was to be constructed wherever possible with the products of local skills and manufacturing, and in the excellence of its engineering and its architecture the water works would promote the industrial talents of the city and its cultural accomplishments. It would also be a visible sign of a healthy city with a progressive government and a concerned population.

This works was, however, not the first to be built west of the Alleghenys. Several of the larger cities in Ohio and Indiana, which were strong competitors in the race for industrial and commercial

growth, had already established steam pumped water works at the time Louisville began. Such a trend may have been encouraged by the abundant supply of clean river water in the Ohio Basin, as well as the growing sophistication of steam technology, at any rate, Cleveland and Cincinnati, Ohio, and Madison, Indiana, were even earlier than Louisville to employ Theodore R. Scowden as a water works engineer. Yet only in Louisville did Scowden extend his skill into the field of architecture with such outstanding results. Unlike the others, this water works was designed to be seen and remembered. Such an ambitious program required public rather than private financing, and therefore the backing of an enthusiastic city government. Though the Louisville Water Company was technically a private company with a charter first issued in 1853, the largest share of the financial responsibility for construction was met by municipal bonds, and the city continued to subsidize the works as long as necessary to keep the water rates down and enable This is a common the service to expand as needed. pattern for public utilities in this country, but such industrial projects no longer receive the architectural embellishment which in the nineteenth century reflected the city's pride and accomplishment.

Louisville was among the first American cities to promote itself in this way, and its works are almost unique in their survival.

Chapter II

Though the Louisville Water Company was first chartered in 1853 it was not until 1856 that the city passed its first bond issue to raise money for construc-That year surveys were taken to determine the tion. best location for the pumping station and reservoir, and in 1857 construction began under the design and supervision of Theodore R. Scowden. Scowden was an engineer. His specific field of expertise was steam engines, but he designed everything at the Louisville Water Works from the intake pipe to the classical lantern on top of the Standpipe Tower. To understand the breadth of Scowden's abilities one must look beyond his education to the attitudes and circumstances that influenced his life. Of these, the most important was the condition of the engineering sciences in the early and middle nineteenth century.

Engineering as a field of professional study barely existed in this country when Scowden was growing up. It began as an outgrowth of architecture, specifically Neo-Classical architecture, whose leaders, Benjamin Latrobe, Robert Mills, and even Thomas Jefferson, were not slow to apply their creative genius

to mechanical as well as architectural design. When the state of Virginia was seeking to hire an engineer in 1816 it consulted Benjamin Latrobe, then architect for the Capital. He recommended his own former pupils who had worked with him on the Philadelphia water works, and Robert Mills who had worked on the Chesapeake and Delaware Canal, (and who later advised the city of Washington on its water works). Latrobe also recommended his son Henry who was then in New Orleans working on that city's water works. There were at this time also a few men, notably the Frenchman, Maximilian Godefroy, whose training was entirely engineering, and such men were in demand for jobs like those in Virginia, canal and road construction.²⁰ These early engineers, if they were not trained in Europe, got their education through apprenticeship. Engineering curriculum was not offered in American colleges and universities until 1864 and 65, yet in 1850 there were about 512 engineers listed in census reports.²¹

Scowden was born in 1815 in Pittsburgh, too early to have gone to a technical school. He attended Augusta College in Kentucky until he was seventeen and then was apprenticed to the steam engine business in Cincinnati for about four years. For the next eight years Scowden was an engineer on a steam boat on the Cincinnati

to New Orleans run, during which time he continued to study mechanics, hydrolics and civil engineering. At last in 1844 he left the river boats and began to design steam engines.²²

Education through apprenticeship is as broad or as narrow as the apprentice chooses to make it. There is no record of where Scowden learned to design and build buildings, canals, or even whole water systems, but in his life time he did all of those things very well at least once. Two factors may have contributed to the broadening of his skills. The first was the growing number of periodicals in the nineteenth century which covered developments in both architecture and engineering. Such magazines as the The Analytic Magazine of Philadelphia, The American Quarterly Review, and The Young Mechanic wrote frequently and thoroughly on the works of leading American architects and engineers, ²³ and newspapers covered the debates and developments of their day in the areas of public improvements such as canals and water works. Very little of this material has survived to the present but from published reports of engineering projects by Robert Mills and others it is possible to gain a picture of part of Scowden's background.

The other factor which contributed to Scowden's abilities was his many travels. He was thoroughly

familiar with the Ohio and Mississippi river systems and probably had opportunity to visit civil engineering projects along this route while he worked on the river boats. He would have passed through the first of the canals built at Louisville to bypass the Falls and seen firsthand the early water works of cities from New Orleans to Cincinnati and probably beyond. Then in 1851 when Scowden was hired to design the improvements to Cincinnati's water works that city sent him to England and France to observe European mechanical and civil engineering projects, principally their water works, public docks and street paving and draining.²⁴

By the time he came to Louisville Scowden was demonstrably capable as an architect in the classic tradition of the day; as a civil engineer able to lay out canals and water supply systems; and as a mechanical engineer able to design complicated steam pumping apparatus and pipe systems. Of all these things which he did in Louisville, only his architecture survives, but to better understand that architecture some picture of his engineering must be formulated.

The Louisville Water Works was designed around two Cornish beam type pumping engines which, with the aid of a stand pipe to equalize the pressure, pumped water from the Ohio River to a reservoir of 10,000,000 gallon

capacity, located on a nearby hill. The site was chosen because of the cleanliness of the water. It is upstream from the city, and the almost seasonal inundations of the surrounding flood plain has kept development and subsequent pollution to a minimum. The river itself is broad and deep there and runs over a gravel bed so the water is freer of sediment as well.²⁵

The Reservoir was constructed on a bluff 90 feet high overlooking the Pumping Station less than a mile away, and the city a mile and a half down river. It was totally destroyed in the twentieth century when a veteran's hospital was built on the same site but some descriptions remain. The basin was a five hundred by three hundred and two foot rectangle whose raised walls were ninety feet wide at the base and twenty feet wide at the top. It was lined with brick on the inside and sodded on the outside with landscaping touches of iron fences, gravel walks and evergreen and shade tree plantings. In appearance it was probably similar to the reservoir Scowden designed for the Cleveland water works in 1852 (see figure four). This reservoir could not meet the demands created by Louisville's rapid growth after the Civil war so construction was begun on a new one in 1877 which was located two and a half miles from the river, and was not visible from the Pumping Station.

This problem of rapid obsolescence is the primary reason for the loss of all or part of most early water works. In only one area did Scowden successfully anticipate the demands that would be placed on his water works and that was in the use of two well crafted cornish beam engines for pumping. Ironically, these engines which remained in full operation for thirty years and continued as a back up system for another twenty years, do not survive today even in drawings; yet their high quality in design and performance is the factor most responsible for the survival of the architecture designed to house Due to their long life the Pumping Station had them. become emotionally, if not legally, a landmark, irreplaceable to the city of Louisville.

The pumps were of the Cornish Beam design which originated in Cornwall in the early eighteenth century for the purposes of draining the mines. This type was chosen as most efficient for the London water works in 1837 and later was used in Paris. The principal behind the pump is fairly simple. Steam is piped into a cylinder sealed by a plunger which rises when the steam enters and falls when the steam cools and condenses. This plunger is attached to a horizontal walking beam which operates like a seesaw raising and lowering another plunger in the pump cylinder which causes a

vacuum to suck water into the intake pipe, from which it can be discharged to pipes leading to the reservoir. The engine's efficiency is dependent largely on its tight and durable construction and the proper coordination of its parts. The Louisville pumps were excellently designed and built at the Union Iron Works in that city. They were the first Cornish pumps built west of the Alleghenys and were a fine example of the quality of Louisville's manufacturing.

It is known that the walking beams were thirtytwo feet long and seven feet wide in the middle. The pump plunger was thirty-six inches in diameter and the steam cylinder was seventy inches, and both had a ten foot Thus the pumps themselves fully occupied the stroke. central chamber of the pumping station whose exterior dimensions were forty-six feet wide by fifty-one feet deep and fifty-one feet high to the cornice. The walking beams pivoted on a twenty inch diameter shaft supported on an entablature carried by four iron pillars.²⁶ This structure now carries only the mezzanine at the second story level but that comparison gives a picture of the visual size of these engines and the the dramatic power they must have displayed in operation. The water company allowed visitors in the pump chambers in the early twentieth century and probably in the

nineteenth so it is possible that the pumps were designed with as much attention to visual display as was the engine house itself. Today there is no way of knowing except by looking at other pumps of the same time.

The Ridgewood water works for Brooklyn, New York, were under construction in 1860 and were very similar in engineering design to Louisville's. Two cornish engines filled a central chamber powered by coal-fired boilers located in the side wings. These engines were built in Hartford by Woodruff and Beach²⁷ and were very handsome pieces of machinery (see figure five). The walking beam was pierced with Gothic motifs while its support structure was articulated with pointed arches and grouped colonettes giving the whole structure a graceful Gothic Revival effect. The various cylinders lent themselves less easily to such motifs so they were crowned with moldings of a more classical style. Conformity to one style was not, in this instance at least, a driving consideration since the engine house itself was designed in a Renaissance manner (see figure 6). Ridgewood required no standpipe and was not located on a highly visible site but its pumps and engine house were well decorated. It is not likely that Louisville's engines were treated plainly, and probable that similar Gothic motifs were used where possible, but so far there

is unfortunately no way of knowing for sure. One indication of their possible state of decoration is in the surviving architecture. The side wings, which contained the coal fired boilers, were not generally open to the public and received no elaborate architectural finishing, while the pump chamber was richly endowed with door and window trim and a heavy cornice molding beneath a coved ceiling. The mezzanine, though supported on plain iron pipe columns and reached by a very utilitarian spiral stair, has a heavy balustraded railing (see figures seven and eight.) Figure seven gives something of the effect of the pump chamber as it once looked though the pumps shown are those that replaced the original pumps in 1912. Figure eight shows the later changes made when the pumps were completely removed in 1937. Note that the bracket supporting the mezzanine near the door is carved in an acanthus leaf pattern while the one farther into the room is unembellished. The original pumps probably showed a similar juxtaposition of elegance and utility that survives in the main pump chamber. Scowden's design could at times be very uninhibited.

Chapter III

The unconventionalities in Scowden's architectural design contributed to, rather than detracted from, the overall polish of the Pumping Station. It is not an easy task to combine a conservative Palladian organization and Roman Classical ornamentation, with an industrial function requiring two enormous smoke stacks, a 132 foot stand pipe, and necessary storage for large quantities of coal. Add to this a lack of extensive architectural experience on Scowden's part and one realizes how remarkable his accomplishment truly was.

Only two other buildings are on record as having been designed by Scowden before he came to Louisville, both were water works.²⁸ He updated the Cincinnati system in 1845, and designed the engine house with more concern for utility than grace. (see figure nine). The austere Greek Revival structure was crowned with smoke stacks clearly derived from his steamboat days. The water works designed for Cleveland in 1852 (see figure ten) shows some improvement in that the stand pipe dominated the single smoke stack, but the proportions of both were still awkwardly tall. They were attached to a building which, without them, would resemble a simple country house, similar to those shown in books by Asher Benjamin and Minard Lafever, and Scowden did give the tower the form of a Doric column on a pedestal base which helped to join it to the structure. This shows he was looking at some of the great variety of architectural material available to him at the time, which would explain the sophistication of his designs for Louisville.

Aside from the widely distributed books by Benjamin and Lafever, Scowden could have easily availed himself of architectural prints showing popular classical designs like Trajan's Column or the Temple of the Sibyl at Tivoli. In addition to this, as was true with engineering, newspapers and periodicals of the early and mid nineteenth century reported frequently on new architectural developments.²⁹ Such coverage extended the influence of the earlier Neo Classical and Greek Revival architects like Benjamin Latrobe, Robert Mills, and Ammi B. Young, but Scowden also had direct access to the works of their diciples farther west. The buildings by William Strickland in Tennessee and Gideon Shryock in Kentucky were probably well known to him from his travels. It is how Scowden distilled these influences and produced from them the Louisville Water Works that is remarkable.

In many ways the design for this pumping station complex is quite conservative. The Palladian arrangement of the engine house, with its two lower wings for the boilers, and symmetrical outbuildings for coal storage,

is more common to country houses in the eighteenth and early nineteenth century than the late 1850's. By that time Minard Lafever and other architects, particularly those working in the early Gothic Revival Style, had begun to introduce asymmetrical arrangements based on function. These developments came to be closely associated with the engineering sciences because they adapted more readily to new building materials and techniques promoted by engineers. Gothic Revival was the most frequently used style for the great number of water works begun in the 1870's and 80's, of which the Chicago Water Tower is probably the best known example.³⁰ It could be that Scowden's lack of formal architectural training made him more cautious in the area of style, but other factors also contributed to his reliance on symmetry.

The first of these is the arrangement of pumps and boilers. In both Louisville and Brooklyn the works were designed around two pumps so that one could be serviced while the other was working. Each pump had its own set of boilers in a separate wing of the engine house, though the pumps shared the central chamber where they were both close to the water intake. Advancing technologies and the subsequent reduction of maintenance needs in the latter half of the century made such duplication of services unnecessary, so that later water works were more likely to have only one wing for boilers, and therefore an asymmetrical organization.

Another factor affecting Scowden's design was the need to balance horizontally the height of the stand pipe tower. Stand pipes, like the cooling towers of modern nuclear plants, have a more dominant physical presence than functional importance. In Cleveland Scowden tried to integrate the tower with the pump chamber but the result was still over powering. In Louisville he made the stand pipe free standing, and gave it a separate identity as a symbolic landmark. This allowed the Engine House to assume a greater degree of architectural independence, while at the same time serving as a visual transition between the Tower and its sweeping landscape. This effect has been lost since the outbuildings used for coal storage, and the lesser towers of the smoke stacks have been removed, but in the nineteenth century this complex was beautifully proportioned with a hierarchical arrangement as effective visually as it was functionally. (see figure eleven)

The need for functional efficiency and visual balance can explain Scowden's conservative approach to the form, but not the style of the Louisville Water Works. In this he stayed with the Roman Classical Revival although, like asymmetry, a more eclectic and less classical approach to design had been increasing in this country since the 1840's. Considering the ambitions of the city of Louisville, and the high standards met by the

engineering of the water works, it is at first surprising that a more "modern" style was not used. The lingering influence of Greek Revival in more provincial areas of the country, and the informal nature of Scowden's training, do not sufficiently explain this choice. Instead it is evident that the Roman Classical style was chosen deliberately for its symbolic references, specifically to Roman achievements in both architecture and engineering, and to a continuing tradition of cultural superiority which Louisville wished to be a part of.

The Roman contribution to engineering was a part of the cultural background of the early nineteenth century. Scowden's formal education at Augusta College probably followed the standard pattern of classical studies in Latin and perhaps Greek, with heavy emphasis on history and literature, and little emphasis on the sciences. In that atmosphere Roman roads and aquaducts were better known than the principles of Cornish pumps. To Scowden and the board members of the Louisville Water Company no style could have been more appropriate to a water works than one which recalled earlier geniuses in the field of hydraulics. But this style held even more significance in that it also recalled a time of advanced civilization and imperial might. Such references were very attractive for a city recently emerged from a wilderness, in a country that had more than doubled its size in a generation.

Though the water company records give no reasons for the choice of style which would prove the strength of these attitudes, there are other sources of information which show that they were prevalent.

As to the bond of nineteenth century water works with ancient Rome, the Johnson <u>Memorial History of</u> <u>Louisville</u> published in 1896,³¹ the proposal for a water works for Washington, D.C. by Robert Mills published in 1853,³² and the report on the Brooklyn Water Works published in 1867³³ all make strong reference to Rome in detailing the historical development of urban water supplies. The purpose of such historical passages was to justify the cost and labor of developing such supplies on the grounds that other advanced civilizations had done so and were continuing to do so.

Louisville was not the only city to translate such references into architecture but probably derived considerable inspiration from the Fairmount Water Works in Philadelphia. These were the second influential water works of that city, started in 1812 as a replacement for the inadequate earlier works by Benjamin Latrobe. They were built on the Schuylkill River which had been dammed to provide a reservoir and improve navigation. They were also designed as a tourist attraction and formed the nucleus around which Fairmount Park was later developed. The water wheels and pumps occupied a series of buildings designed like classical temples and sited on a high stone terrace overlooking the reservoir.³⁴ These temples in their picturesque landscape were well known and frequently illustrated, and undoubtedly served as a model for the idea, if not the actual form, of the works in Louisville.

The idea of the Roman Classical style as a reflection of American political and cultural ambitions can be seen in public architecture throughout the United States. If the Louisville Water Works is regarded as a public building rather than an industrial one, then it fits into a continuing tradition of American architecture. The Corinthian order used here, was regarded as the highest classical order, suitable for the finest and most important buildings, like the capital in Washington and many other state capitals, as well as customs houses, banks and the most elaborate homes and churches. In the water works, use of this architectural style embellished with a complete cornice entablature, pedimented windows, and Corinthian pilasters at every corner, proclaim this complex to be more than a pumping station. It is a symbol of the city itself.

This feeling is expressed most strongly in the stand pipe tower which takes the form of a Doric column resting on a balustraded base supported by a Corinthian colonnade, the whole topped with a domed lantern in the form

of a circular temple. Use of a Doric column as a triumphal monument goes back to the well known column of Trajan, mentioned earlier, and the Nelson monument in Trafalgar Square, but in the United States this motif had become part of the architectural language through Robert Mills' designs for the Washington Monument in Baltimore. The use of a circular colonnade as a base for a towering monument is also seen in his original design for the obelisk in the nation's capital. Even the domed lantern on top of the Doric column is seen in Mills! design for Baltimore, where it supports a statue of General Washington in the finished monument. Scowden made use of these motifs but in a very different way. The Doric column supports no national hero, and the statues of classical figures mounted on the balustrade above the columns were more for decorative appeal than symbolic reference, as the original drawings of the Tower show small urns in those locations. The Tower, while designed in the form of a triumphal monument makes reference to no specific person or event. It represents the water works and the city itself. A final confirmation of this can be seen in the fact that the Tower was open to the public with a stair leading to a look out in the "cupola." 35 It was used as a tourist attraction just as the Fairmont Water Works were.

What makes the Louisville Water Works outstanding,

is not the originality of the architectural concept but the great beauty of the finished product. The individual parts, and their various architectural and cultural sources, came together in Scowden's hands with a harmony and grace that almost disguised their power. The whole complex is not large in comparison to a factory or, even the Jefferson County Court House, designed by Gideon Shryock and completed a few years before the water works. Yet Scowden managed to increase its impact by slightly exaggerating the scale of the ornamentation and by breaking up the massing. Then by painting the buildings white to heighten even more the effects of light and shade, Scowden gave the pumping station the ability not only to be beautiful at close range, but also to project itself visually over a great distance.

Another architectural detail that shows great skill and inventiveness is the design of the smoke stacks. Like the Tower they are composed of a Doric column on a pedestal base. While the repetition of this motif helps tie the Tower to the engine house, the absence of decoration on the smoke stacks insures that they do not compete with it. At the same time, however, this repetition reemphasizes the dramatic effect of the unconventional combination of the Doric and Corinthian orders.

Though it has been changed over the years (see Appendix B) and it has acquired neighbors less compatible

than its original pastoral site, the Louisville Water Works which Scowden built still shows much of the vigor and idealism in which it was conceived. It has always been worthy of its landmark status. Yet a question of great importance still remains to be answered. Why is it unique? What prompted the City of Louisville to turn a public utility into a gesture of optimism and celebration at a time when the rest of the country was about to fall apart?
Chapter IV

The first Pumping Station of the Louisville Water Works has been praised for its high quality in both architecture and engineering. At the time it was built it was unusual for a city to invest so much in a water works, particularly when it was that city's first. It was in the later decades of the nineteenth century, after the Civil War, that water works enjoyed a brief period of architectural significance as symbols of municipal glory. That Louisville should have been so far ahead of most other American cities in this respect has been explained by its need to project a progressive, healthful and civilized image. Yet Louisville had aspirations for this water works that went even further. It was the intention of Scowden, and the Water Company, to develop the land between the pumping station and the reservoir as a landscaped garden with lakes, fountains, and oranmental plantings. The Civil War intervened before these plans could be carried out but some idea of what they entailed can be determined from the annual reports.

In the Second Annual Report written when the works were still under construction and Scowden was chief engineer, he wrote: Around the Reservoir the lands are undulating, covered with forest trees, and are susceptible of the highest improvement at a comparatively small expense. Thus improved it cannot fail to become a most attractive place of public resort, to both citizens and strangers who may be in quest of fresh air, beautiful scenery, and relaxation from the cares of business, and the heat, turmoil and bustle of a crowded city. On the crest of the cliff the eye of the observer takes in perspective the landscape overlooked from the Stand Pipe Tower.

Under the cliff there are forty acres of table land intended for a Park, to be laid out in walks and drives similar to the Engine House grounds, in the center of which a fountain will be erected that will play a jet one hundred feet high.³⁶

Two years later when Charles Hermany had taken over the job of chief engineer he claimed that the "land is susceptible of being beautified, embellished, as a park, to an extent that will rival if not surpass anything in American landscape gardening." Work to this end, already begun under his supervision, included the planting of trees and excavating of basins for two lakes, and the building of a fountain.³⁷

These plans were not unusual in their content but in their scope. Nearly every nineteenth century water works made some effort to improve its landscape, and fountains in particular were closely associated with them. Though these fountains and, often flower beds and walking paths, were sometimes found around the pumping stations, more typically they were associated with the

reservoir or even displayed separately in a prominent site. In Cleveland, where Scowden built the water works before coming to Louisville, the Pumping Station received little attention. However, the Reservoir grounds were planted with trees and shrubs and laid out in walkways (see figure four), and the water company built Fountain Square on Superior Street. The degree and location of landscaping around water works seems to be associated with the location of those works in relation to the cities they served. There was no point in improving reservoirs that were too far away, or pumping stations that were located in too industrialized a part of the city, for the public to be eager to visit them. But many other water works, built before and after Louisville, found their grounds very "suitable for improvement." The Reservoir in particular has many features desirable for public parks. High ground sometimes provides attractive vistas as well as gravity pressure, undeveloped land which offers little fear of pollution also offers room for paths and gardens, and the reservoir itself can be an attractive water feature. However, development of such properties as parks usually came after the water works was well established or even after obsolescense made the reservoir available for an alternative use. Many nineteenth century water towers

suffered a similar fate. They were preserved as monuments after the rest of the water works was abandoned. In cities like Chicago and Milwaukee they are all that remain of the very fine Gothic Revival complexes of the 1870's.

The first city to make its water works part of a large scale park development was, not surprisingly, Philadelphia.

The Fairmount Water Works were located in an area mentioned by William Penn himself as suitable for a park, and over the years the banks of the Schuylkill became dotted with the summer homes of prominent Philadelphians who agreed with him. In 1812 Frederick Graff, a pupil of Latrobe's, designed the new water works to accommodate the public already eager to use the river for recreation. The five acres of land around the Greek temples of the pumping station (mentioned earlier) were laid out with gardens as well as a reservoir. Then in the 1850's this plat of land was expanded to include several adjacent properties which Graff had already envisioned as landscaped with pleasure gardens.³⁸ (see figure 12)

The planning and land purchases for Fairmount Park were well under way when Louisville was looking into water works. There is no question that this great enterprise was the inspiration behind the similar effort on the banks of the Ohio, but the motivation was slightly

different. In Philadelphia the water works were disguised as Greek Temples and the land and the river were the principal attractions. In Louisville the water works were enshrined in a nineteenth century temple dedicated to them. The landscape was to be just a further embellishment, and this part of the plan was never completed.

The Fourth Annual Report of the year 1861 contains the last mention of any effort to develop a park. The opening statement of Alfred Harris, then President of the Water Company, speaks of the "political panic" resulting in Civil War and the subsequent "dispensing with everything that could possibly be done without." For this reason work on the landscape was halted but the intention was clearly to proceed with the plans as soon as possible. Mr. Harris was optimistic enough at this time to believe "that the troubles of the country [would] soon be brought to a successful termination." And that the Water Company could then prosper. 39 What happened was quite different. The war lingered on with devastating effect. When it was over, though materially undamaged, the City of Louisville suffered like the rest of the country with a kind of spiritual depression. There was no continuation of the plans for a park. The grounds were only mentioned briefly in subsequent years. Hermany reported the need to replace a fence torn down by soldiers quartered near the Reservoir, ⁴⁰ and to pay someone to

cut the grass as it was too weedy to be suitable for hay and could not be given away for the cost of mowing it.⁴¹ At one point he even complained about the difficulty of keeping the white paint fresh on the Engine House with all the coal dust.⁴² The "place of public resort" disappeared in the realities of soldiers, weeds and coal dust.

That the Water Company's plans for a park should fail was not surprising in view of the cost of laying out and maintaining such a landscape. What is surprising is that the city, which raised the funds for the whole project should have allowed even the first attempt. Provision of a public park had been discussed in Louisville since the city was founded by George Rogers Clark, but the land he allocated for such a purpose was sold for development. Nor did any other effort to donate or present land for a city park succeed until 1880.⁴³ Why then, in 1856 when the water works was first planned, did the community leaders think the Pumping Station was a suitable focus for a park?

It seems clear that this idea was present in the planning from the very beginning. It explains why the land facade of the Engine House dominated the river facade even though the building was likely to be seen by as many (if not more) people from the water, than from the lightly travelled River Road. If the Pumping Station

was designed to be seen from the Reservoir as prime attraction in a "tastefully improved" landscape, then the elegant form and overemphasized details make sense. What has been difficult to accept from the start is the idea that coal fired boilers and pumping engines should have been the functional excuse for any of this: the fine architecture, the park, even the idealistic view of industrial progress they represent. Yet it is this nation of a park which best explains the attitudes that led to the development of these water works.

In his book The Machine in the Garden, Leo Marx explores the early nineteenth century "mythology" of American that they could create a society in the image of a garden. 44 This garden was not the formal flower beds and fountains of a Persian Paradise but the neat and productive farmlands of a predominantly agricultural In this setting the early stirrings of the nation. Industrial Revolution carried no threat of urban slums and smog and the other later visions of human degradation. Instead, new industry promised only prosperity and improved social conditions for the small towns and villages. For Louisville this myth almost reached reality. The "garden" was there in the abundantly productive fields and beautiful horse farms of Ohio and Kentucky. In the 1850's people still remembered the dark and savage wilderness they had struggled to conquer,

and they rejoiced in the new technologies and the increased prosperity that had helped them prevent epidemics, transport goods against the river's current, fight fires, and build a clean and civilized city. This optimism is reflected in the many early histories of Louisville, in its effort to promote a reputation for manufacturing high quality rather than high quantity, and in its surprising degree of political tolerance and stability at a time when the rest of the country was headed towards civil war. This does not mean Louisville was a peaceful haven or a perfect city, only that its inhabitants seemed to believe that their problems had solutions that would become apparent with time and compromise. Slavery existed in Louisville, but so did labor unions, and the traffic on the Ohio went north and south, carrying past the Falls the produce of both regions. The Water Works was built in the sincere belief that this state of affairs could continue and even improve. In its sole use of locally manufactured products from the pumps to the terra cotta and cast iron architectural details it was a reaffirmation of the excellence of Louisville's "machine." In the superiority of its architecture and the plans for its landscape the city reaffirmed its belief in "the garden." The Louisville Water Works is unique because it was built, not as a public utility but as a monument to a dream that is no less inspiring for having failed.

CONCLUSION

It is that monument which survives today. The formal order of its Palladian arrangement, which once perfectly echoed the functional needs of pumps, boilers and coal storage, now gives a timeless grace to a building dedicated to promoting the arts in Louisville. When this first pumping station could no longer be adapted to serve the increasingly sophisticated engineering needs of the Water Company, it survived because the Classical Revival architecture was too fine to destroy.

This brings up the final questions, for which the answers are more speculative than proven. Why was the Louisville Water Works so far superior to other nineteenth century water works, and could this outstanding design have been produced solely by a little known engineer who never repeated this performance?

In answer to the first question, it is the writer's opinion that the use of the Classical Revival style for the works in Louisville was a major reason for its long term success. Scowden's design is not purely Greek or Roman or even Palladian, but an American interpretation of classical themes. As such it transcends the barriers of time imposed by "style" and becomes a part of the body of American Classical architecture, well known and well appreciated. Public buildings like court houses, customs houses and state capitols, continued to be built with classical motifs throughout the nineteenth and well into the twentieth century; and for the finest private homes the style has never lost its attraction. In buildings like the Water Works, when the classical design is well executed and beautifully proportioned, the final result is a quality of timeless elegance. It is this which appealed to the young and still raw city of Louisville. Along with all the other statements about clean water and excellent manufacturing, the city proclaimed its cultural roots with the Water Works.

Few other American cities attempted such an ambitious They possessed neither the means to execute it program. nor the need to so dramatically declare their coming of Exceptions to this can be seen in Philadelphia, where age. Latrobe's first water works was used as a means of combatting both the epidemics and the reputation of the city for having epidemics; and in Brooklyn, where rapid growth and the desire to be seen as separate but equal to the better known neighbor, New York City, produced the Ridgewood Engine House. Other cities in the early nineteenth century, even those like Cleveland and Cincinnati which employed Scowden as chief engineer, failed to fully exploit the more dramatic qualities of pumping water because they lacked either the means or the imagination to do so.

After the Civil War, in the decades of the seventies and eighties when water works were rapidly being developed throughout the country, decorated pumping stations became very popular. They were embellished in the prevailing style, generally Gothic Revival. These water works, and the style in which they were designed, suffered a decline as rapid as their ascent. Engineering advances, population growth, and the need to filter water as well as pump it, brought about the functional obsolescence of nearly all the earlier water works before the turn of the century. Compounding this was the reaction against the Gothic Revival and other historicist architecture which followed so quickly the use of those styles. It is far easier to tear down an obsolete and unfashionable building if it is twenty years old than if it is fifty years old. Even in Louisville where all factors combined to encourage its continuation, from the finest architecture to the most adaptable engineering, the first Pumping Station did not survive unscathed. The loss of the coal houses and the smoke stacks greatly diminishes the design. Nevertheless the major portion exists today in a fine state of preservation.

This brings up the final question which may never be completely answered: Did Theodore R. Scowden, who was an engineer, and untrained in architecture, design this building alone, and then never create another building of anything near this quality? In the annual reports of

the Water Company and in newspaper accounts of the day there is no mention of any other architect. The entire design is attributed to Scowden. His name is on the drawings, and his assistant Charles Hermany, who later became chief engineer, reaffirms Scowden's preeminence in subsequent reports. If there was another architect who advised, or even gave a critique of the plans, there is no mention of him; and judging from the thoroughness with which the building is covered in the reports it seems unlikely that such a person would have been overlooked, even if his role was only minor. It is true that Gideon Shryock was hired to design the Water Company offices in 1863,45 but by that time the Pumping Station was complete, and different in style from Shryock's more massive and less embellished works. It is the writer's opinion that Scowden designed these works himself using the experience he gained in Cincinnati and Cleveland, and leaning heavily on the published works of other architects, particularly Minard Lefever, Asher Benjamin and Robert Mills. Such precocity was more possible in the mid-nineteenth century when architecture was still a popular and widely discussed subject, much as environmental quality and other scientific questions are today. What is more surprizing than Scowden's ability to produce such a design once, is his failure to ever do so again.

The biographical material on Scowden that has surfaced

to date, is so thin that one can only speculate on his true character and ambitions. He appears to have been a confirmed wanderer whose primary dedication was to mechanical and civil engineering. Though he was involved in the design and construction of many projects, he did not remain long as supervisor to any of them. In short, he seems to have been a man of a great and versatile intelligence, but very specific interests. In Louisville, an architectural masterpiece was required and he produced it, but in no other place were his inclinations and those of the clients equally directed towards architecture.

The Louisville Water Works is a product of ambition and luck. The bright dreams of a growing city were reflected in the work of a talented man at a time just barely missing the social and cultural upheavals of the Civil War. Today it is the city of Louisville itself which is lucky to have preserved here the dreams, the talents and the time.

Footnotes

¹Nelson Manfred Blake, <u>Water for the Cities, a</u> History of the Urban Water Supply Problem in the United States (Syracuse: Syracuse University Press, 1956), p. 17.

²Ibid. p. 17.

³George H. Yater, <u>Two Hundred Years at the Falls of</u> the Ohio: a History of Louisville and Jefferson County (Louisville: Heritage Corporation of Louisville and Jefferson County, 1979) pp. 41-42.

⁴Blake, Water for the Cities, p. 17. ⁵Ibid., p. 63. ⁶Ibid. ⁷Ibid., pp. 35-36. ⁸Ibid., pp. 76-77. ⁹Henry McMurtrie, M.D., <u>Sketches of Louisville and Its</u>

Environs (Louisville: S. Penn, 1819; reprint ed., Louisville: G. R. Clark Press, 1969) pp. 138-40.

¹⁰Ibid., p. 149.

¹¹Yater, Two Hundred Years at the Falls of the Ohio, p. 34.

¹²Ibid., p. 61.

¹³Ibid., pp. 76-78.

¹⁴McMurtrie, Sketches of Louisville and Its Environs, p. 5.

¹⁵Yater, Two Hundred Years at the Falls of the Ohio, pp. 41-42.

¹⁶Ibid., p. 48. ¹⁷Ibid., p. 52. ¹⁸Ibid., pp. 49-50. ¹⁹J. Stoddard Johnston, <u>Memorial History of Louis-</u> ville From Its First Settlement to the Year 1896 (Chicago: American Biographical Publishing Co., 1896) p. 276.

²⁰Daniel Hovey Calhoun, <u>The American Civil Engineer:</u> <u>Origins and Conflict</u> (Massachusetts Institute of Technology, The Technology Press, 1960) pp. 18-19.

²¹Raymond H. Merritt, Engineering In American Society 1850 to 1875 (Lexington: The University Press of Kentucky, 1969), p. 70.

²²Maurice Joblin, <u>Cleveland Past and Present: Its</u> <u>Representative Men</u> (Cleveland: Fairbanks Benedict and Co., 1869) p. 459.

²³Talbot Hamlin, <u>Greek Revival Architecture in the</u> <u>United States</u> (New York: Dover Publications Inc., 1944) p. 320.

²⁴Joblin, Cleveland Past and Present, p. 460.

²⁵The Louisville Water Company: Second Annual Report of the President and the Directors to the Stockholders, 1859, p. 4.

²⁶Ibid, pp. 8-10.

²⁷James P. Kirkwood, <u>The Brooklyn Water Works and</u> <u>Sewers: A Descriptive Memoir</u> (New York: D. Van Nostrand, 1867) pp. 19-24.

²⁸Joblin, Cleveland Past and Present, pp. 459-460.

²⁹Hamlin, <u>Greek Revival Architecture in the United</u> States, p. 326.

³⁰Merritt, Engineering in American Society, pp. 16-17.

³¹Johnston, <u>Memorial History of Louisville</u>, pp. 347-48.

³²Robert Mills, Water Works for the Metropolitan City of Washington (Washington, Robert Mills Architect and Engineer, 1853) p. 8.

³³Kirkwood, <u>The Brooklyn Water Works and Sewers: A</u> Descriptive Memoir.

³⁴The Story of Philadelphia Water (Philadelphia Water Department, 1960).

³⁵The Louisville Water Company Second Annual Report, p. 10.

³⁶Ibid., p. 12.

³⁷The Louisville Water Company Fourth Annual Report, p. 22.

³⁸Richard C. Schirmer, <u>Philadelphia Fairmount Park</u> (Philadelphia: Richard C. Schirmer, 1910) pp. 6-7.

³⁹The Louisville Water Company Fourth Annual Report, p. 2.

⁴⁰The Louisville Water Company Seventh Annual Report, p. 14.

⁴¹The Louisville Water Company Ninth Annual Report, p. 10.

⁴²The Louisville Water Company Seventh Annual Report, p. 14.

⁴³Johnston, <u>Memorial History of Louisville from Its</u> First Settlement to the Year 1896, pp. 338-39.

⁴⁴Leo Marx, <u>The Machine in the Garden: Technology</u> and the Pastoral Idea in America (New York: Oxford University Press, 1964).

⁴⁵The Louisville Water Company Fourth Annual Report, p. 22.

APPENDIX A - Condensed Biography of Theodore R. Scowden [Compiled from <u>Cleveland Past and Present</u> and <u>The Manual</u> of American Water Works]

June 8, 1815 - Born in Pittsburgh, Pennsylvania

- 1832 Finished his education at Augusta College in Kentucky and entered apprenticeship to the steam engine business in Cincinnati.
- 1836 Became an engineer on a steamer plying between Cincinnati and New Orleans.
- 1844 Became a designer and planner of steam engines and appointed by the City of Cincinnati to design a new water works.
- 1849 Assisted Thomas J. Goodman in the construction of a reservoir for Madison, Indiana.
- 1851 Sent to France and England to observe public docks drainage paving and water works by the Commissioners of Cincinnati.
- 1852. Sent to Milwaukee to examine a pumping engine by Cincinnati. Then became chief engineer for the Cleveland Water Works which he designed and supervised until their completion in 1856.
- 1857 Appointed chief engineer to design a new water works for Louisville.
- 1861 Resigned as chief engineer of Louisville Water Works but remained in Louisville to design and supervise the enlargement and extension of the Portland canal around the Falls of the Ohio.
- 186? Returned to Cleveland to build an iron rolling mill for the American Sheet and Boiler Plate Company.
- 1871 Appointed by Cincinnati again to design a new water works.
- 1872 While still working for Cincinnati Scowden also repaired the reservoir of Newport, Kentucky, and
 1873 - built small reservoir for Sidney, Ohio.

- 1874 Went to San Francisco to advise that city on the development of a water supply system.
- 1875 Published his report to San Francisco.
- 1877 Again consulted by Cincinnati for expanded water works.
- 1881 December 31, Theodore R. Scowden died in Jacksonville, Florida.

- Appendix B A chronology of events in the history of the Louisville Water Works, taken from the material prepared by the Louisville Art Association when it applied for a grant from the Department of the Interior to restore Pumping Station Number One in 1978.
- 1853 Application made to Legislature for purpose of obtaining a charter and incorporating a company.
- 1854 Company chartered and incorporated by an Act of Assembly of the Kentucky legislature, approved March 6.
- 1856 First survey made in December, site selected (early '57). General Council of the city passed an ordinance approved June 30 to promote the creation of the Water Works in the City of Louisville. City was quthorized (September 6) by popular vote to subscribe for \$550,000 of company's stock and to issue bonds in that amount.
- 1857 Ground breaking for pumping station #1. Ground breaking for reservoir in primeval beech forest (April). (Site of today's Veteran's Hospital.) Construction began in September although little done because of financial panic in the region.
- 1858 Work resumed in March.
- 1859 Cornish pumping engines placed in engine house in the fall.
- 1860 First water pumped into the city on October 16. (Population 68,000) Cost: \$837,680 including 26 miles of pipemains and reservoir.
- 1861 Charles Hermany became chief engineer and superintendent.
- 1865 Need for larger reservoir cited. In-take pipe half filled with silt.
- 1876-79 Crescent Hill reservoir constructed.
- 1889 Pumping Station Number Two was begun necessitating the removal of the west coal house.

- 1889 A tornado broke the Stand Pipe Tower off 30 feet above the ground, destroyed most of the statues around it, and did other damage to the Engine House.
- 1893 Repairs to Pumping Station Number One completed. Pumping Station Number Two finished and assumed the primary role in supplying water. The Cornish pumps remained as a back-up system.
- 1906 The Louisville Water Company became a department of the city government.
- 1910-14 Pumping Station Number One remodelled to accommodate a new pump. The Cornish pumps were removed. A new radial yellow brick chimney stack replaced the original stack of the west wing. The pump chamber floor was raised three feet and the new pump was installed there.
- 1931 The original smoke stack of the east wing was removed.
- 1932-36 The Pumping Station was remodelled as a storeroom, garage and warehouse. The chimneys and the new smoke stack were removed (the east coal house is not mentioned but doesn't appear in later photographs). The engine and boilers were removed. Garage doors were added on the east and west wings. The entrance porch was enlarged, and given new concrete steps, and the ground level was raised on the river side and around the west wing. Other changes included widening interior doorways and closing and filling other doors and windows, removing the terra cotta wainscotting and making repairs to the roof and cornices.
- 1960-68 Building rented to the Louisville Potomological Institute.
- 1970 The Pumping Station was awarded a National Water Landmark.
- 1976 The structures were placed on the National Registry of Historic Places and registered as National Landmark.
- 1977 Efforts to raise money for restoration began.

- 1980 Completion of restoration by the Louisville Art Association entailed repairing and reglazing the doors and windows, installing new plumbing, wiring and air conditioning, inserting a second floor level in the boiler wings and refinishing the interior surfaces. The exterior was also cleaned, repaired, and repainted.
- 1981

The Tower is now being restored. Another statue was destroyed in a storm in 1980.

Appendix C - Architectural Drawings of the First Pumping Station of the Louisville Water Works, courtesy of the Louisville Water Company

1) Site plan revised in 1887.

2) Plan

3) Front Elevation

4) Side Elevation

5) Rear Elevation

6) Stand Pipe Tower Section and Elevation



1) Site plan revised in 1887.



2, Plan



3) Front Elevation



4) Side Elevation





6) Stand Pipe Tower Section and Elevation

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Figure two: View of Louisville in 1854.



Figure three:

View of the Water Works from the River.



From an old cut THE FIRST FOUNTAIN ON THE SQUARE, 1856, LOOKING WEST ON SUPERIOR STREET



The Kentucky Street Reservoir in 1856, when first used

Figure four: Views of the Reservoir and Fountain Square in Cleveland.



Ridgewood Engine. Figure five:



SOUTH MDE.

RIBSEWOOD ENGINE HOUSE

Scale 16 H. I inch.

Figure six: Ridgewood Engine House.


Interior of the Pump chamber with 1911 pump. Figure seven:



Figure eight: Pump Room interior in 1977.





The first pumping station, 1856. Shows the "lookout" on the tower; old river bed just beyond, and the newly built railroad.



CITY WATER WORKS, SECOND STAGE, 1872 CITY WATER WORKS The building on the right is the original pumping station

Figure ten: Views of the Cleveland Water Works.



Figure eleven: Earliest known photograph of the Louisville Water Works.



Plan by Frederick Graff dated 1851. It is possible that Graff foresaw this area as a public park and so made a plan of it as a record.

Figure twelve: Plans for Fairmount Park.