MILL RUINS PARK RESEARCH STUDY

West Side Waterpower Canal Era (1857-1858)

Prepared for
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The Construction of the West Side Waterpower Canal

When construction began on the West Side Waterpower Canal in 1857, Minneapolis, on the west bank of the Mississippi River, had been legally opened to settlement only two years earlier. The village of Saint Anthony on the east bank was a separate entity. While Charles Christmas, under the aegis of John Stevens, had laid out the streets of the new village, only about one hundred buildings had been constructed, and these were scattered close to the riverfront. By 1857 the population was calculated at 2,000, an increase of 1,800 in two years.¹

![Saint Anthony Falls as seen by the early settlers (Minnesota Historical Society)](image)

The leaders of the new municipality knew that future prosperity lay in harnessing the power of Saint Anthony Falls. The most expeditious way to do that was to dig a canal adjacent to the falls on the west bank, divert some of the water from the river and the falls to the canal, then run the water from the canal through turbines connected to main line shafts that could power the adjacent Cataract Flour Mill and nearby sawmills. The Minneapolis Mill Company, headed by W. D. Washburn, had been formed in 1855 to establish a series of businesses that took advantage of the falls.

¹ George E. Warner and Charles M. Foote, eds., History of Hennepin County and the City of Minneapolis (Minneapolis: North Star Publishing Co., Inc., 1881), 378.
Lucile Kane has succinctly described the project:\(^2\)

In 1857 the company engaged Charles H. Bigelow, an engineer from Lawrence, [Massachusetts], to design the water-distribution facilities it planned to construct.

Central to the design of the new installations was the company’s objective of carrying water through a large manufacturing center. . . . Although Minneapolis Mill also included in its plan a dam which could be used by sawmills to draw power directly from the river, it was a minor part of the whole design. The most important feature in the west-side system was a canal angling inland from the millpond and then paralleling the shore. Reaching numerous sites and offering facilities for carrying water to other nearby locations, the canal opened a large area for mill building.

Work on it began in 1857. Men blasted their way through the surface of hard limestone and dug out the soft sandstone beneath to excavate a passage 14 feet deep, 50 feet wide, and 215 feet long. The ‘great canal,’ as it was dubbed was lengthened in later years. More than any other part of the installations harnessing the falls, this waterway nourished young Minneapolis. Along its shores would rise the huge flour mills that were to bring the city world renown. ‘There is probably,’ an engineer wrote, ‘no example in existence of so large an amount of power derived from so short a canal.’

A local newspaper, the *Minnesota Democrat*, described the work and noted the role of Charles Bigelow: “They are to cut a canal or mill race, and build a dam this week. The services of Capt. Bigelow, of Lawrence, Mass., a distinguished engineer, have been engaged by the company. An experienced dam builder from Penobscot, Me., is here having charge of the building of the dam, which will be completed this fall. The cutting of the mill race has been let, and sufficient length of it is to be opened by the first of May to allow parties a water privilege to improve the same. The building of a block of saw mills the coming winter and spring is contemplated.”\(^3\)

Later in the season, the *Minnesota Republican*, set forth the progress of the work: “The mammoth Dam which the Minneapolis Mill Company have been building across the Mississippi at this place, . . . is being vigorously pushed forward towards completion . . . . It is one of the most substantial structures of the kind ever built, and will stand for ages, . . . The whole bottom is bolted with heavy iron bolts to the solid rock which forms the bed of the river, . . . The building of the Dam has been under the immediate supervision of Mr. Thos. McDaniel of Orono, Maine, . . . Some of the largest dams and mills on the Penobscot were built by him. . . .”\(^4\)

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\(^4\) *Minneapolis Republican*, December 4, 1857, 2.
The Workers

Numbers, ethnicity, wages
Who did the work to construct the great canal? It would appear that during this first construction phase that the Minneapolis Mill Company hired workers directly. The names of the workers and the types of jobs are recorded in company ledgers. Actual total numbers seem to be in the hundreds, although the *Minnesota Republican* article stated that seventy five to one hundred men were employed in building the dam. A review of the names suggests that most originated from New England, especially Maine, and were of English and Scots background; others came from Canada and Ireland.  

Workers fell into skilled and unskilled categories. Among the skilled jobs were: millwright (someone who supervised the construction of a mill), bricklayer, carpenter, stone cutter or stonewright, lumberer (someone who cut logs into more finished pieces), raftsman (someone who floated one or more rafts of logs down river), and teamster (someone who drove a team of horses). Among those listed in the company logs are George Campbell, raftsman; Gilman Connor, millwright; J. W. Pride, lumberman; O. A. Pray, millwright; and Stephen Rogers, teamster.  

Unskilled workers were usually just classified as laborers, and they performed the vast majority of the work, sometimes assisted by horses or other work animals. Wages varied with the type of work; more skills generated higher wages. Wages were paid by the day, ranging from $1.50 to $5, for ten hours of work. The workweek was six days, with only Sunday off, although not all


6 Connor and Pray went on to become very prominent in the field, and Pray established a major iron works. Gilman Connor, born in 1810 in Maine, came to Saint Anthony in 1857 as an expert millwright and was considered one of the important builders of waterpower at the Falls. Major R.I. Holcombe and William H. Bingham, eds., *Compendium of History and Biography of Minneapolis and Hennepin County* (Chicago: H. Taylor and Co., 1914), 262. Otis Arkwright Pray, a native of Maine, learned to be a millwright from his father. He arrived in Minneapolis in 1856. He is credited with building some of the first mills in Minneapolis. He later supplied all the driving machinery for both Pillsbury A and B mills, as well as installing the first roller mills in the Northwest. See Marion Daniel Shutter, *History of Minneapolis: Gateway to the Northwest* (Chicago and Minneapolis: S.J. Clarke Publishing Company, 1923), 1:797-798.
workers worked for six days because work was not always available. This was especially true of the laborers.\(^7\)

Cost of living\(^8\)

Local newspapers published the prices of food commodities. The *Minneapolis Gazette* published weekly market retail prices categorized into provisions (flour, buckwheat flour, cornmeal, mess pork, fresh pork, cheese, fresh beef, potatoes, and salt-cured ham); groceries (tea, coffee, sugar, dried apples, golden syrup, maple syrup, butter, eggs, lard, molasses, white beans, codfish, mackerel, white fish, smoked halibut, vinegar, and tallow and star candles); bread (Boston crackers, soda crackers, butter crackers, sugar crackers); and fruit (currants, citron, figs, and raisins).\(^9\) In 1855 the *St. Anthony Falls Democrat* had commented, “We saw a load of new potatoes brought into Minneapolis one day last week by a son of Mr. Day, who found plenty of purchasers at two dollars per bushel. These are rather high figures for potatoes yet we would rather give two dollars for new than one for old.”\(^10\)

In this early period, there was very little cash or currency available in Minneapolis, and several local businessmen opened banks in conjunction with their other businesses. Examples of advertisements in local newspapers reinforce the idea that currency was scarce, and many exchanges were based a sort of barter. For example, the *Minnesota Republican* contains many advertisements with phrases like “Cheap for Cash” or “Less than cost for cash” or “State scrip, city scrip and county orders at par. Uncurrent money taken at best quotations” for goods ranging from clothing and shoes to hardware and groceries.\(^11\) All this suggests there was no set price for goods or services, and that everything was negotiable.

\(^7\) Writing in 1857, Wenzel Petran noted: “Limestone and bricklayers are paid very well, higher here than in the East. Bricklayers are paid from $2.25 to $3.00 a day; carpenters from $2.00 to $2.50 a day; day laborers $1.50 per day without board. These prices should become lower, however, in a few more years.” Carlton C. Qualey, ed., “A Pioneer Businessman, The Letters of Wenzel Petran,” *Minnesota History* 39 (Summer 1964): 71. Those wages are high compared to those cited in Scott Derks, ed., *The Value of a Dollar: Prices and Incomes in the United States, 1860-1989* (Detroit: Gale Research, Inc, 1994), 11. In 1860, Massachusetts bricklayers earned $1.53 a day, Connecticut carpenters $1.65 a day, and New York farm laborers 88cents a day. These wages were based on weeks of 60 to 66 hours.

The *Minneapolis Gazette*, May 4, 1858, citing the *Chicago Democrat*, stated that city was “overrun” with women seeking employment at $1.50 per week. The highest wages offered by the best hotels paid $1.50 per week; in other words, it was an employer’s market. The article stated the wages of female help in Minneapolis ranged from $2 to $4 per week. Presumably, these workers received room and board along with their wages. Compared to men’s wages, women took roughly a week to earn what men did in a day.

\(^8\) To get an idea of what that present-day equivalents are of 1857-1858 dollars, we consulted the Columbia Journalism Review Dollar Conversion Calculator at [www.cjr.org](http://www.cjr.org). An 1857 dollar was the equivalent of $20.41 in 2002 dollars, while an 1858 dollar equaled $21.74 in 2002. So, the $1.50 per day laborer wages cited by Petran was the same as $30.61 or less than today’s minimum wage of $5.15 per hour.

\(^9\) *Minneapolis Gazette*, June 20, 1858. Many of these prices reflected large quantities of a particular commodity such as a 100 pounds of buckwheat for $2.50 or a bushel of white beans for $2.00. The average laborer would have neither the storage space nor the kitchen facilities (or time) to turn these raw food stuffs into meals.

\(^10\) *St. Anthony Falls Democrat*, July 2, 1855, 2.

\(^11\) *Minnesota Republican*, June 4, 1858.
Workers for Minneapolis Mill were paid on account. The costs of food, lodging, clothes, tools, etc. were withdrawn from the account and paid to the company boarding house, other local boarding and lodging establishments, and local merchants with whom the company had made arrangements. Whatever wages remained might be paid in scrip, and it would then be up to the worker to make the best deal he could with local merchants for items like tobacco, liquor, newspapers, and patent medicines.12

**Workers’ Housing and Transportation**
Workers on the dam and canal lived close to the work site, on both sides of the river, but within walking distance. By 1857, two bridges crossed the Mississippi; the suspension bridge over Nicollet Island opened in 1855. The suspension bridge was a toll bridge that charged five cents for a pedestrian. A truss bridge about a mile below the suspension bridge was described as “one of the most prominent objects of interest around the falls.” It did not charge a toll. Smaller bridges extended from Main Street in Saint Anthony to Hennepin and Nicollet Islands.13

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12 See Minneapolis Mill Company Journal 1858-1862 for listings of workers’ accounts. A yearly subscription to the *St. Anthony Express* was $2.00 per year, but, as its first editor Isaac Atwater noted, if a subscription was paid at all, it was usually in produce or clothing. See Isaac Atwater, *History of Minneapolis, Minnesota* (New York: Munsell Publishing Co., 1893), 1:356. A year’s subscription to the *Minnesota Republican* (a weekly) was listed at $2 per year or 5 cents a copy (January 8, 1857). A year’s subscription to the *Falls Evening News* (a daily) was $7 per year or 15 cents per week. Derks, 51, cites an 1877 source that places the cost of a pack of cigarettes at 15 cents. See also, Theodore C. Blegen, “Minnesota Pioneer Life as Revealed in Newspaper Advertisements,” *Minnesota History* 7 (June 1926): 99-121.

13 *Minnesota Republican*, February 12, 1858, 2. The privately owned suspension bridge charged tolls to recapture the costs of construction and to generate revenue for its owners. It also linked the business districts of Minneapolis and Saint Anthony.
Based on addresses that we have been able to trace from city directories and census records, more Minneapolis Mill Company workers lived in Saint Anthony, both north and south of Nicollet Island, than in Minneapolis. In 1857 Saint Anthony was six years older and more developed than Minneapolis. Many of the workers lived in boarding houses, some of which seemed to be company owned. The Saint Anthony Falls Democrat recorded in 1855 the “the Mill Company are putting up a large boarding house on Hennepin Island for the accommodation of their employees. A good move as it will insure greater regularity in the extensive business they are carrying on.” In a company-owned boarding house, the cost of the worker’s room, probably shared with others during this period, and meals, would be deducted from his account weekly. In a privately owned boarding house, the worker might pay directly, usually by the week, or the company might have made arrangements to pay the proprietor.

The model of accommodating workers in company-owned boarding houses can be traced to the experiences of textile mills in Lawrence and Lowell, Massachusetts. The New Englanders who founded the Minneapolis Mill Company were familiar with this precedent, having brought Charles Bigelow from Lawrence to plan the canal and dam construction. However, the development of company boarding houses in Minneapolis never approached the scale of Massachusetts.

Marital status and ages
Based on an examination of census records during this period, it can be determined that at least two-thirds of the male workers in Minneapolis and Saint Anthony were single and white and in their 20s and 30s. There is no reliable way to match the majority of names in the Minneapolis Mill Company ledgers to specific census records or to determine which laborers listed in the census worked on the Minneapolis Mill Company canals at any particular time. Unskilled

14 For example, Minneapolis Mill Company ledgers list a C. Cooper and the 1857 census shows a Charles Cooper from Ohio living in Saint Anthony as well as a Carleton Cooper, born in Maine and living in Minneapolis. Both of the Edward Dunns listed in the 1857 census live in Saint Anthony. Edgar Hill lived in Saint Anthony. O. A. Pray lived at the corner of Second Street and Helen (present-day Second Avenue South) on the Minneapolis side. S. S. Rogers, a teamster, boarded at the corner of Second Street and Pine (present-day Second Avenue SE) in Saint Anthony.

15 St. Anthony Falls Democrat, June 9, 1855.

16 Hotel prices listed in the Minneapolis Gazette, June 22, 1858, range from $4 (Minnesota House) to between $8 and $15 at Winslow House per week for what they call “full board.” A bricklayer earning $3 per day (or $18 per week assuming he worked a full six days) might be able to stay at one of these hotels, but it would be difficult financially for ordinary laborers. Presumably, prices charged in private homes or boarding houses for room and board were a little less, but even so it appears that workers might spend up to half of their weekly income on food and lodgings.

The State Atlas, February 4, 1860, had an advertisement for the St. Charles Hotel, St. Anthony, which was “prepared to receive both transient and permanent boarders at greatly reduced prices.” Board per single day was $1; per week was $3-$4.

laborers tended to be young as the work was physically demanding. They were often unmarried because their low wages could not support a family. Skilled workers, like millwright O. A. Pray, made more money so could afford to marry.

The wives listed in census records were often described as “at home” or “keeping house.” But they might take in laundry or run a boarding house. Most single women of this period, unless sufficiently educated to work as a teacher, might be working in a boarding house, saloon, or restaurant, or living with a family as a domestic servant.18

**Work conditions**

As discussed above, skilled workers were paid higher wages and supervised unskilled laborers who did the majority of the work. Much of the work was done using rudimentary machinery like wedges, pulleys, levers, picks, and shovels for digging, excavating, and moving timbers into place. Horses and other work animals were used to pull heavy loads. Rock and sand removed from the site was used in nearby building construction.

As might be imagined, this work was dirty and often dangerous. Without present-day safety glasses, hard hats, or other safety equipment, workers could be injured by falling debris, blasting powder, or accidents with their tools. Without antibiotics, even a small wound could become infected and lead to permanent injury or death. On-site amenities were minimal.

**Neighborhood conditions**

The streets had been laid out but were unpaved. A photographic panorama made by B. F. Upton in 1857 shows a settlement composed of simple frame structures. Bridge Square was the center of government, business, and commerce on the west side of the river, although secondary business areas were located near Woodman’s Hall at Washington and Second Avenue South and the area near the Land Office and the Cataract Hotel at Washington and Sixth Avenue South.19

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18 The *Falls Evening News*, October 3, 1857, carried this advertisement: “House to Let—The house owned and occupied by the subscriber corner of Third and Pine Streets (present-day University and Second Avenue SE), one and half stories containing seven rooms and three chambers, connected with the pantry is a large cistern capable of containing about seventy-five bbls. of water. The above premises have facilities for keeping about 8 regular boarders and can be entered on immediately by applying to Mrs. O’Fall, proprietor, Rent $300, quarterly in advance.” If Mrs. O’Fall’s successor charged $4 per week and had eight boarders, based on a 4.3 week month she would make about $137. Depending on what she spent for food, help, and maintenance, she certainly would be able to cover the $100 per month rent. If she took in “table boarders,” that is those who only ate their meals there, she would make even more money. Keeping a boarding house was a typical female job of the time and the successful keepers could earn more money than regular female wage earners, if they had the capital and management skills to open a boarding house in the first place. A woman working in any of the other occupations listed would spend much of her time preparing and/or serving food and cleaning.

Shops selling “imported” groceries and dry goods were close to the business areas. Some shoemakers and tailors were also in this area. Forty-two businesses were recorded in 1857. An equivalent business and shopping area was located on the east side along Main Street. Traveling peddlers were also a source of food, dry goods, hardware, etc. The diet of residents in the 1850s was monotonous. Permelia Atwater, the wife of Isaac Atwater, an attorney, investor, and chronicler of Minneapolis history, recalled eating salt pork, dried codfish and mackerel, white beans, flour, cornmeal, tea, and coffee. Eggs and milk were scarce. During the short spring and summer growing season, gardens were planted. Local produce, as well as wild grapes, was made into preserves. Proprietors of boarding houses may have had small household gardens, but the average laborer would not have been so fortunate.  

There were no central utilities or infrastructure. Water was drawn from wells or from the Mississippi River, or collected in cisterns from rainwater runoff. There was no municipal sanitation system. Backyard privies served buildings and houses. (A privy was similar to an outhouse, but was a more permanent structure. The pit was lined with wood or brick and cleaned out periodically.) A 1994 archaeological study in the vicinity of North First Street (now the site of the Federal Reserve Bank building) reveals that the inhabitants used the privies for their designated purpose as well as the disposal of all manner of other debris such as broken crockery,

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\( ^{20} \) Warner and Foote, *History of Hennepin County*, 378. Penny A. Petersen, *Hiding in Plain Sight: Minneapolis’ First Neighborhood* (Minneapolis: Marcy-Holmes Neighborhood Association/NRP, 1999), 25. Atwater, 1:65-66, 72. Writing in 1857, Emily Goodridge Grey describes the diet as very monotonous. “At the first meal in our new home, the bride and groom, were our first company and we had that same old dish, ham and eggs.” She also mentions the New England dish of pork and beans. See Emily O. Goodridge Grey, “The Black Community in A Memoir,” *Minnesota History* 49 (Summer 1984): 50.
kitchen waste, discarded clothing or toys. This study found evidence of several intestinal parasites such as tapeworm and roundworm, noting that such infestations were common in the nineteenth century. “The effects of intestinal parasites range from the moderate loss of blood and nutrients to disability and even death. Because they are extremely wide-spread, it is estimated that these creatures have caused greater damage to humans than more dramatic bacterial and viral diseases.”21 The lack of a formal sewer system that kept wastewater away from the drinking water supply facilitated the spread of these parasites. Alderman George Brackett first proposed the Minneapolis sewer system in 1869, with the start of construction two years later when the main Washington Avenue sewer was built.22 However, it would many years before all of Minneapolis was connected to municipal sewer lines. As late as 1934, researcher Calvin Schmid found that more than seven percent of Minneapolis dwellings lacked indoor plumbing.23

During evening hours, the only indoor lighting was from candles or lamps that burned sperm whale oil.24

Churches and schools25
A handful of churches had been established in Minneapolis: one Congregational, one Methodist, two Presbyterian, two Baptist, one Episcopal, one Swedenborgian. Three of the congregations met in public halls. Saint Anthony had seven churches: Congregational, Methodist, Presbyterian, Baptist, Episcopal, Universalist, and Catholic.

The Union School, the one public school in Minneapolis, was under construction in 1857 and located at Third Avenue South between Fourth and Fifth Streets. The first Saint Anthony public school had been established in 1849 and was at Second Street near Pine Street [Second Avenue SE] Another public school, which served as the University of Minnesota, was built in 1851 on what is now Richard Chute Square, but few if any college-level courses were taught there. This school was more like a high school and had very few pupils. The Second Ward School was built the same year on University Avenue between Sixth and Seventh Avenues NE The public schools, classified as primary schools, grammar schools, and high schools, served pupils ranging in age from 6 to 16. Universal education was a goal but not a given, and it is not clear how many children of workers would have gone to school. Even when they attended, it was often only for short periods. Education for children between the ages of 8 and 16 was not made compulsory until 1885. Even then they only had to attend school for twelve weeks of the year.

21 John P. McCarthy and Jeanne A. Ward, “Archaeological Investigations at the Bridgehead Site, Minneapolis, Minnesota, The 1994 Season, vol. 2, Site Area B: Residential and Commercial Occupations in the Vicinity of 1st Street North: Working Life in an Emerging Industrial District,” 54-55, prepared by Institute for Minnesota Archaeology, October 1996. This study also cited the presence of tapeworm eggs, noting that “this is the first discovery of these parasites from an archaeological context in North America.” Tapeworms are believed to have been brought to North America by Scandinavian immigrants.
23 Schmid, 275.
24 Blegen, 99-100.
25 Warner and Foote, 463-480; Millett, 84-85; Petersen, 25.
Recreational activities
In a pioneer community the opportunities for recreation would have been limited. However, it is likely that laborers would have enjoyed activities like horseracing and card playing.²⁶ Woodman’s Hall at Washington and Second Avenue South was the only meeting hall in Minneapolis. It provided a site for lectures, concerts, and other performances, as well as meeting space for several early church congregations. On the other side of the river, David Edwards’ three-story commercial block, located on the site of the present-day Pillsbury A Mill complex, had an auditorium on the third floor that was used for concerts, lectures, and church meetings.²⁷

Boarding houses and hotels might provide social activities in the evenings like reading, singing, and games. For those workers who were literate, letter writing was also important. The area got its first newspaper, the *Saint Anthony Express*, in 1851. Within a few years, several other newspapers served the two towns, such as the *Northwestern Democrat*, the *Saint Anthony Republican*, and the *Daily Falls Evening News*. Permelia Atwater recalled that residents in the 1850s were forced to rely upon themselves for entertainment. She described “a series of lectures, all by home talent, helped relieve the monotony of winter and even provided a bit of controversy and amusement when one of the speakers condemned Charles Dickens’ novel *Martin Chuzzlewit*. Life was made a burden to him for many days until he finally confessed that he had never read a word of it, and his ear only had been caught by its absurd name.”²⁸ Evening activities would be limited by the amount of natural daylight and availability of candles and oil lamps. Many boarding house keepers, concerned with keeping costs down, would have been reluctant to keep their common rooms well lit into the evening.

²⁶ See Robert M. Irving and Kenneth Carley, “Horse Racing on Ice was Popular in the Twin Cities,” *Minnesota History* 41 (Winter 1969): 372. “Horseracing on ice was probably coincident with the first permanent settlement in the Twin Cities. Among the earliest participants doubtless were the lumbermen who had moved from Maine to Minnesota and continued to indulge in the ice sport they had enjoyed in their native state.”
²⁷ *Minneapolis Tribune*, July 29, 1900. The Edwards’ Block, built in 1855, was probably the first stone building in Saint Anthony. Congregations such as Andrews Presbyterian used the upper room as a meetinghouse until they were able to build a church of their own in 1860.
²⁸ Quoted in Petersen, 25.

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