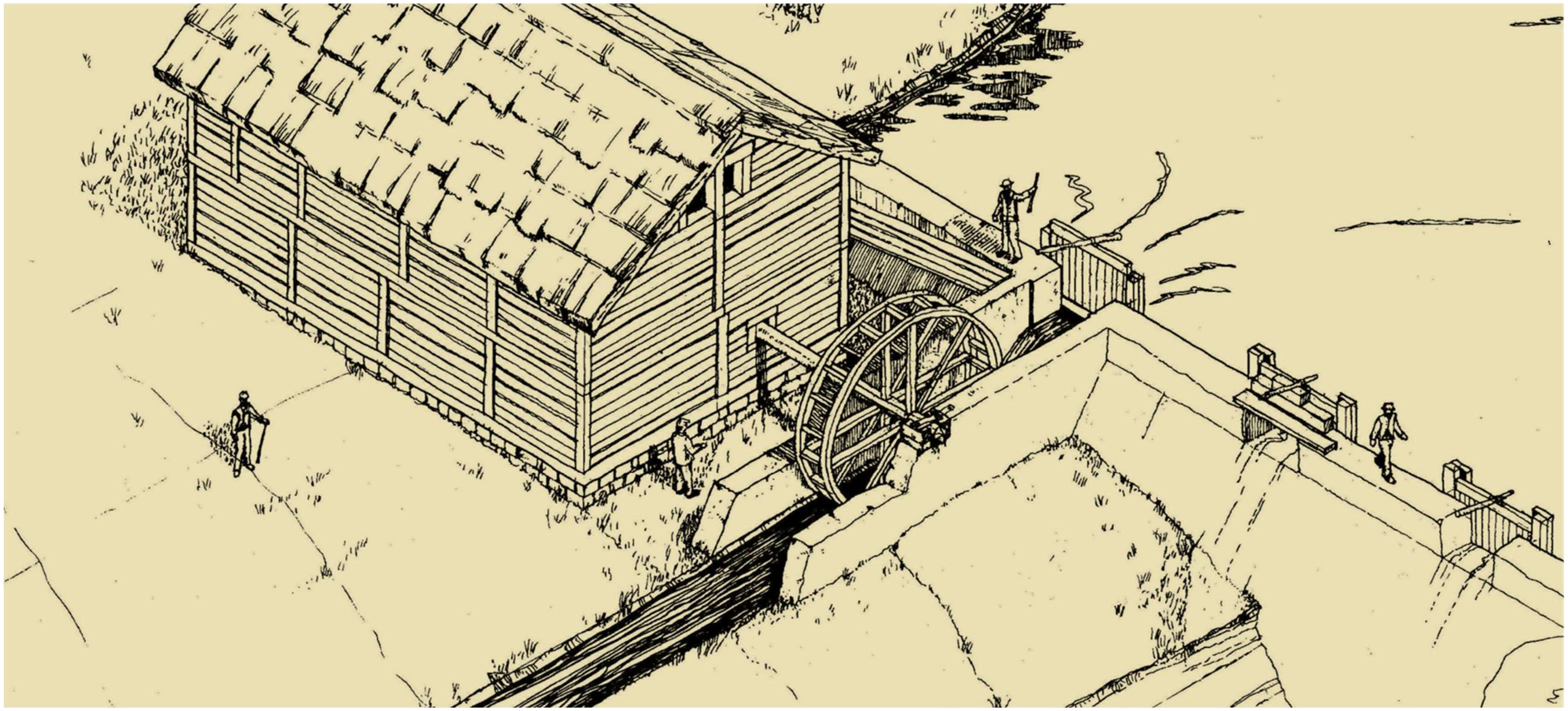
John Gunn’s Water Mill

A Graphic Recreation of a Mid-Nineteenth Century Manitoba Landmark



David Butterfield
2015

Dado

Heritage Manitoba

John Gunn's Water Mill: A Graphic Recreation of a Mid-Nineteenth Century Manitoba Landmark has been developed by Dado Projects, a Manitoba heritage research initiative of Maureen Devanik and David Butterfield. These projects are supported by Heritage Manitoba, an informal coalition of heritage associations dedicated to the appreciation and preservation of Manitoba's history. The project is part of a series focusing on Manitoba's early industrial development, especially in small-town or rural situations. Other projects in the series include:

The Former Manitou Gas Company Plant
The James White Sash and Door Factory of Carberry
The Leary Brick Factory
St. Peter's Dynevor Windmill

Introduction

In the summer and fall of 1854 and the winter of 1855 John Gunn, a farmer and entrepreneur in the Lockport area, undertook a daunting task – the construction of a water-powered grist mill.

It is likely that Mr. Gunn was developing the plan for the mill in the early 1850s—given the family's ownership of the land through which Gunn's Creek emptied into the Red River—and that he and others were also fashioning the various components and features required for the milling operation – wheels, axles, gears and various other pieces of equipment. They likely also were gathering building materials—logs and stones primarily but also grasses for roofing thatch—required for the mill building and for the large dam that would be required to create a mill pond, an essential part of the operation.

There is nothing left of the mill, 160 years later, and only a scattering of loose stones that suggest the existence and location of a main feature of the operation – the dam.

But imagining the thought that went into its creation, then the actual back-breaking work attending its construction, and finally the impressive vitality of its daily operation (at least during the spring and summer months), is to encounter the kind of robust can-do character that continues to inspire respect and admiration. Such an imagining also recalls the ingenuity and sophistication that attended this and other early Manitoba industrial works.

This report is mainly an attempt to "recreate" Mr. Gunn's mill – to suggest what it looked like, how it operated.

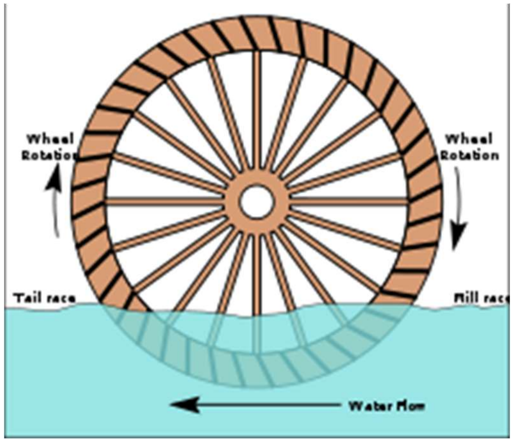
We are fortunate to have a wealth of information as starting points: general histories of water mills; an excellent overview of Manitoba's nineteenth-century water mills by Professor Barry Kaye; and most importantly an account by John Gunn's son, George Henry Gunn, concerning the construction and operation of the mill. And there is an actual identified location of the old mill site, which helps when certain recollections need to tested against physical realities.

View of Gunn's Creek looking west to the Red River, 2012. The swath of small stones visible at the centre of the image is the detritus of the old dam and mill. It is likely that larger stones from the mill site were recycled for other local building projects.

Brief History of Water Mills

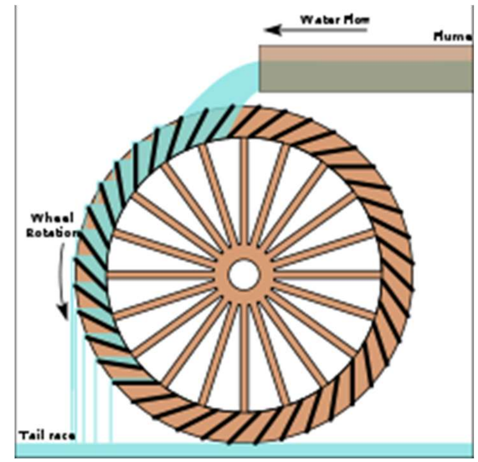
The construction in 1853-54 of John Gunn's watermill was based on centuries of human experience with converting the energy of running water into the kind of useful power that could drive grist stones (for the production of flour), saw blades (for the production of cut lumber), and many other types of machinery for essential community services and products. Those centuries of experimentation with watermill technologies are summarized here.

First, a definition: a watermill is a structure that uses a water wheel to drive a mechanical process. There are two basic types of watermill, one powered by a vertical waterwheel through a gearing mechanism, and the other equipped with a horizontal waterwheel without such a mechanism. The former type, the most common (and of which Mr. Gunn's mill is an example) can be further divided, depending on where the water hits the wheel paddles, into undershot, overshot and breastshot waterwheel mills. Illustrations of each type, right and on the following page, suggest their basic operations.



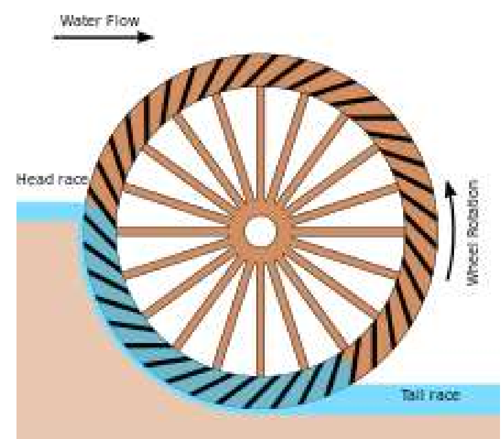
Undershot water wheel, the simplest of the three basic types, with the water flow moving the wheel at its lowest points.

A typical overshot wheel has the water channeled to the wheel at the top and slightly beyond the axle. The water collects in the buckets on that side of the wheel, making it heavier than the other "empty" side. The weight turns the wheel, and the water flows out into the tail-water when the wheel rotates enough to invert the buckets. The overshot design can use all of the water flow for power and does not require rapid flow. Unlike undershot wheels, overshot wheels gain a double advantage from gravity. Not only is the momentum of the flowing water partially transferred to the wheel, the weight of the water descending in the wheel's buckets also imparts additional energy. The mechanical power derived from an overshot wheel is determined by the wheel's physical size and the available head, so they are ideally suited to hilly or mountainous country. On average, the undershot wheel uses 22 percent of the energy in the flow of water, while an overshot wheel uses 63 percent, as calculated by English civil engineer John Smeaton in the eighteenth century.



Overshot water wheel, in which the flow of water is directed over the topmost points of the wheel.

Breastshot wheels were the most common type used in the United States and are said to have powered the American industrial revolution. Breastshot wheels are less efficient than overshot wheels. The individual blades of a breastshot wheel are actually buckets, as are those of most overshot wheels, and not simple paddles like those of most undershot wheels.



Breastshot water wheel, in which the flow of water is directed over the mid points of the wheel.

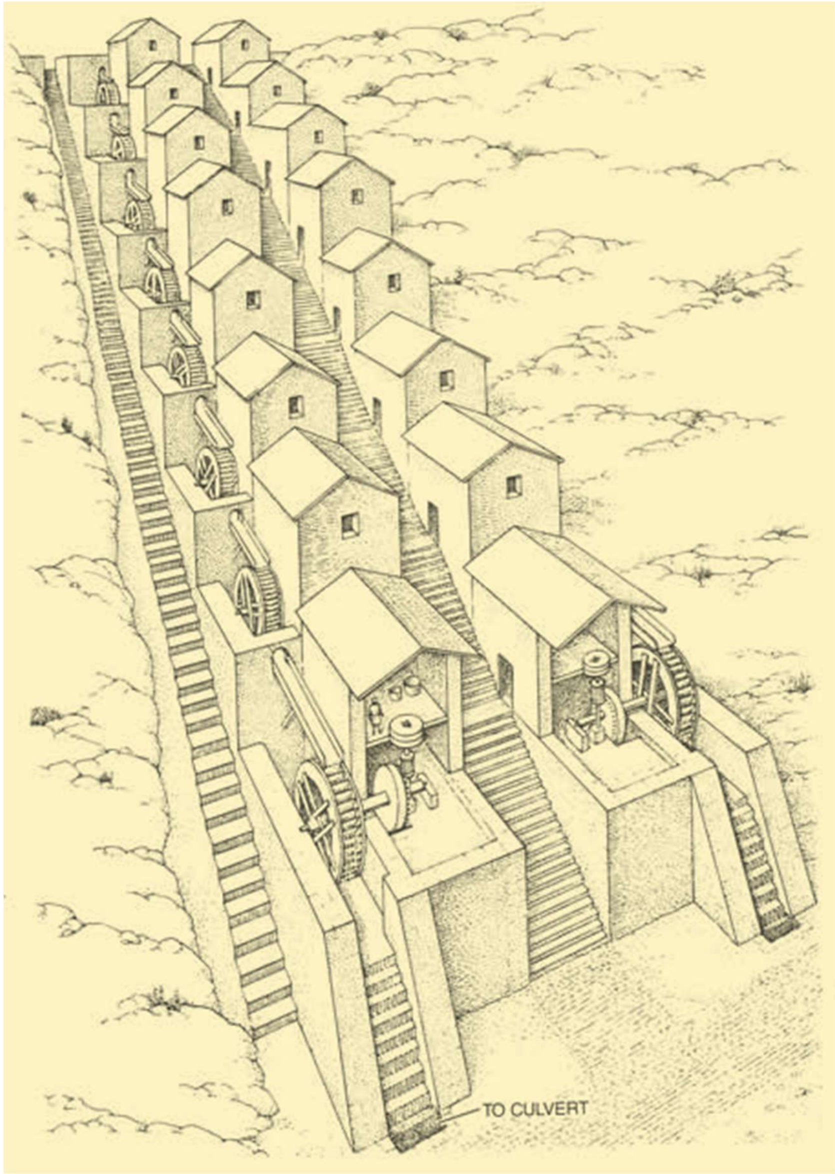
Ancient Greek engineers invented the two main components of watermills, the waterwheel and the toothed gearing used to power internal machinery, and were, along with the Romans, the first to operate all three types of waterwheel mills. The Greek geographer Strabon reports in his *Geography* a water-powered grain-mill that was said to have existed near the palace of King Mithradates VI, Eupator at Cabira, Asia Minor, before 71 B.C.

The Roman engineer Vitruvius provides the first technical description of a watermill, dated to 40 BC – the device was fitted with an undershot wheel and power was transmitted via a gearing mechanism. The Greek epigrammatist Antipater of Thessalonica tells of an advanced overshot wheel mill around 20 BC/10 AD. He praised the mill for its use in grinding grain and the reduction of human labour: "Hold back your hand from the mill, you grinding girls; even if the cockcrow heralds the dawn, sleep on. For Demeter has imposed the labours of your hands on the nymphs, who leaping down upon the topmost part of the wheel, rotate its axle; with encircling cogs it turns the hollow weight of the Nisyrian millstones. If we learn to feast toil-free on the fruits of the earth, we taste again the golden age."

The Roman encyclopedist Pliny mentions in his *Naturalis Historia* of around 70 AD that water-powered trip hammers were operating in the greater part of Italy. There is evidence of a fulling (cloth cleaning) mill in 73/4 AD in Antioch, Roman Syria. It is likely that a water-powered mill was used at Dolaucothi to crush gold-bearing quartz, with a possible date of the late 1st century to early 2nd century.

The 1st-century AD multiple mill complex of Barbegal in southern France has been described as "the greatest known concentration of mechanical power in the ancient world." It featured 16 overshot waterwheels to power an equal number of flour mills. The capacity of the mills has been estimated at 4.5 tons of flour per day, sufficient to supply enough bread for the 12,500 inhabitants occupying the town of Arelate at that time.

A similar mill complex existed on the Janiculum hill, whose supply of flour for Rome's population was judged by Emperor Aurelian important enough to be included in the Aurelian walls in the late 3rd century.



The Barbegal flour mills were an ancient 1st century AD Roman water mill complex, in this case using the overshot wheel process (drawing from Scientific American).

Model of a Roman type water-powered grain-mill described by Vitruvius. The millstone (upper floor) is powered by an undershot waterwheel by the way of a gear mechanism (lower floor). This essential mechanical organization will be seen later in Mr. Gunn's mill.

By the early 7th century, watermills were well established in Ireland, and began to spread from the former territory of the empire into the non-romanized parts of Germany a century later. At the time of the compilation of the Domesday Book (1086), there were 5,624 watermills in England alone. In 1300, this number had risen to between 10,000 and 15,000.

The 12th century water mill at of Braine-le-Château, Belgium (Courtesy Jean-Pol Grandmont). While situated in a completely different physical environment than John Gunn's mill, this ancient operation suggests some of the same basic attributes that will be seen at the Lockport-area mill – an undershot design, large wheel, heavy axle leading into the mill building, and even the rushing water that one can imagine spilling through the wheel pit to make the wheel spin.

Naturally these essential services, and by now well known and sophisticated technologies, were quickly adapted to North American situations as this continent was gradually opened to European settlement beginning in the seventeenth century. Thousands of water-powered mills dotted the countryside, from Upper Canada down to Florida. And of course such important facilities were also developed as the western reaches of the continent were opened for settlement in the eighteenth and nineteenth centuries.

An overshot water mill at Crawford New England.

Operation of an Undershot Water Mill

It is presumed that all eight water mills identified by Professor Kaye's research (next section) operating in the Red River Settlement in the 1850s and 1860s were undershot mills. This is supposed not only because the undershot mill is the simplest and cheapest of the three types to build—a key consideration in a frontier community—but also because the topography of the Red River Valley—flat and with fairly shallow streams—lends itself perfectly to the undershot technology.

The ultimate purpose of a mill, whether for grinding grain, sawing logs or fulling (beating and cleaning) cloth (usually wool), was dependent on a variety of wheels, axles, gears and specialized equipment within the mill building. But the initial power source, the large double wheel with its paddles or buckets, which was turned by the force of running water, was a completely separate entity, with its own specific technical and positional requirements.

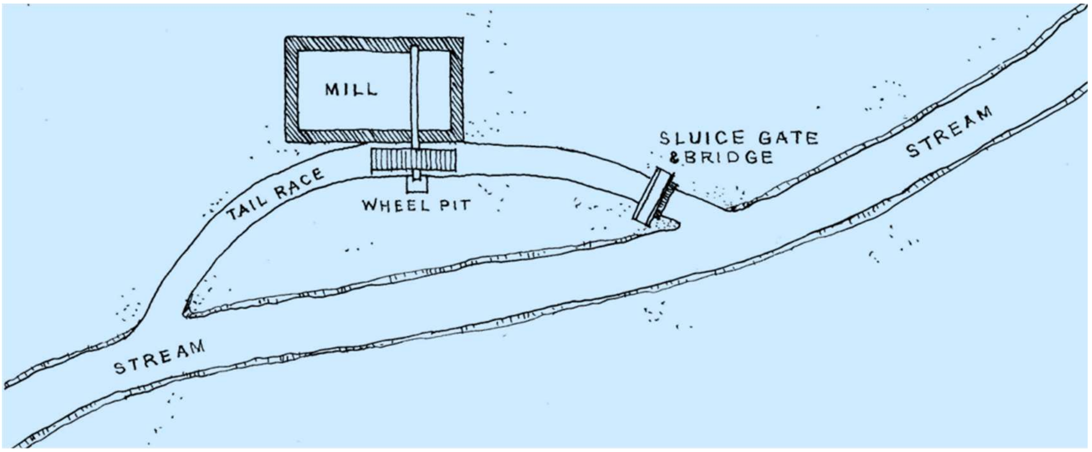
The essential fact of the undershot mill—that it was powered by water hitting the wheel's paddles at their lowest point in a rotation—generally meant that the only "technical" consideration was ensuring that sufficient water was diverted or converted for this function. In fact, neither of these was particularly easy. The diversion of water usually involved the excavation of a trench or channel leading off from the main water source and then directed to the wheel site. And the conversion of a water source typically involved the construction of a dam that created a mill pond, and thus converted the existing stream or creek to a large body of water that could be channeled through a small opening to the wheel site.

The trench option might be more common with a larger stream – like the Seine River, which would have a considerable volume of water and thus might be hard to control. The dam option was more reasonable for something smaller, like Gunn's Creek, which was more easily managed. It is worth noting that rivers like the Assiniboine and certainly the Red were not good candidates for mill operations, with much larger and more unruly water volumes. At the same time, it is interesting to note that in ancient Europe and Asia undershot mills were occasionally built on floating platforms and situated in fast-flowing rivers.

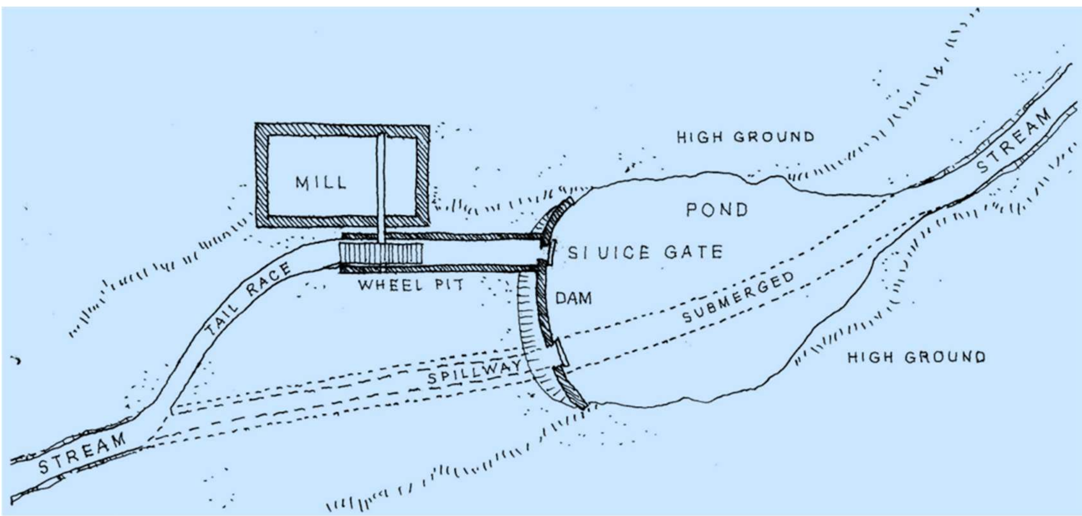
Another consideration that would have been noted in the planning of the water source type—trench or dam—would have been the reasonable success of a dam: that is, would the local geography have provided sufficient side heights to make a dam practical. Without these heights—of approximately eight feet to give a reasonable mill pond depth—a dam would have been unfeasible.

A key technical feature required in both the trench and dam aspects of an undershot mill operation was a sluice gate. Sluice gates, often of sturdy wooden or metal construction, were vital, ensuring that there was sufficient water flow and especially good water pressure to drive the large wheel. Where a dam was used, the gates could be closed to build up a reserve of water. And in both dam and trench schemes, the gates could also be closed when the mill was not running, ensuring that machinery was not spinning at inopportune times.

The two images following provide a schematic sense of each type.



This sketch plan shows an imaginary mill situated on generally flat ground, and thus with a trench that is used to divert water from the main stream course. A sluice gate and bridge shown at the right-hand side were used to control water volumes that entered into the trench.



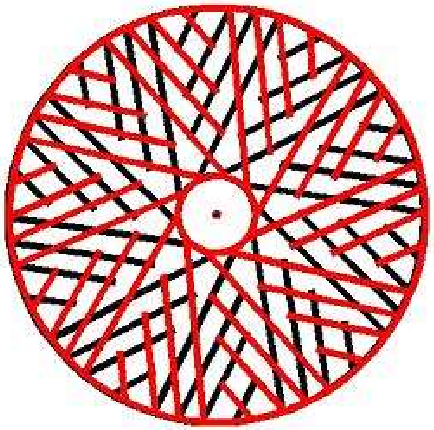
This sketch plan shows an imaginary mill situated on ground where the stream-bank heights allow for the construction of a dam. This situation creates a large pond whose flow to the mill site is controlled by a sluice gate. An additional gate at the lower area of the dam would have been used to discharge excess water entering the pond via exceptionally heavy rain storms or at flood periods. The original course of the stream, submerged under the pond and used on the lee side of the dam only for excess water, is shown with a dotted line.

Besides the obvious differences in organization, each type also had distinct differences attending the area around the wheel pit (upstream called the headrace and downstream called the tailrace). In the trench type it would be necessary to dig the trench deep enough to attain a suitable flow and volume of water capable of turning the wheel at a sufficiently high speed. And for the dam-pond type it would be necessary to build stone sluice walls (as well as wheel pit walls) high enough to contain the necessary water flow to the wheel. And in each case it would have been necessary to ensure that the channels were sloped down to the wheel pit area to ensure good water flow. In either case this was major, even daunting, work.

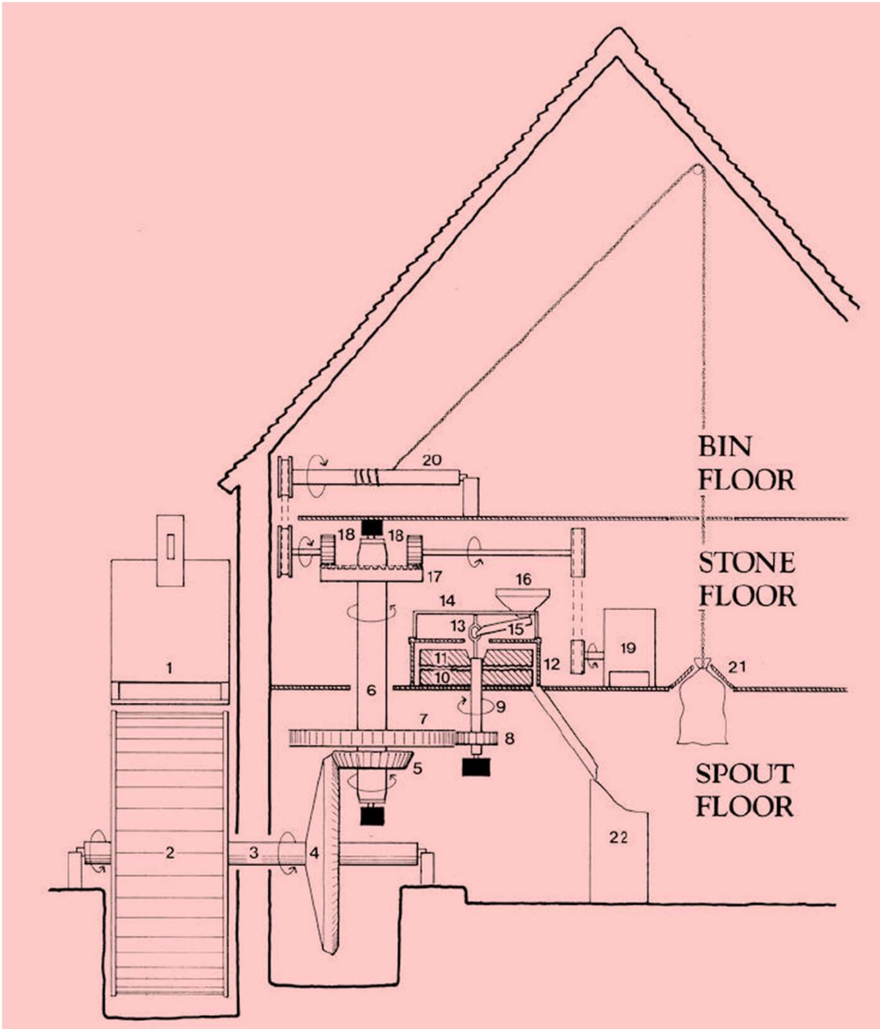
In a place like Manitoba, construction of these kinds of mill operations, and especially of the support dam or trench infrastructure, would have to take place in the fall and winter – when rampaging spring floods and high summer levels usually describe our water courses. And so to a point made earlier in this section, that undershot mills were simpler and cheaper to develop than the overshot or breastshot types: this may be true by comparison, but it is clear that building a mill, and developing the support infrastructure, was a major undertaking, one requiring considerable planning and enormous labour.

The actual interior functions and activities of any water mill—undershot, overshot, breastshot—were of course defined by the mill's purpose – grain grinding, timber sawing, cloth cleaning and preparation, etc. The following images are included to suggest at least what the Gunn mill might have looked like inside, and also how interior functions might generally have been organized.

The interior of a functional watermill at Weald and Downland Open Air Museum in England. This image shows the various wooden axles, wheels and gears required in a grist mill operation. Tthe large circular stone leaning against the brick wall is one of the grind stones required in a flour milling operation.



These images show the typical pattern cut into a millstone. The diagram on the right shows the kind of intricate patterns that were cut into the static bedstone and the moving runner stone in such, comparable to the action of hundreds of pairs of scissors when the runner stone was moving. The angle of the crossing lines tended to push the grain towards the outside of the millstones where the flour could be collected.



This image describes a more complex operation than obtained at John Gunn's mill, but it does provide a clear graphic sense of some key parts of mechanisms and of likely operations: the water wheel (2) on the large axle (3) turning the large gear (4) which engages other gears (5, 7 and 8) and finally the smaller axle (9) that turns the millstones (10 and 11). Different sizes of gears where used to gradually reduce and refine power levels to the grinding stones.

Grain would have been poured into a hopper (16) and then via a spout (15) directed to the slight gap between the stones; the stones themselves were housed in a hopper (12 and 14). All of this corresponds exactly to the descriptions provided by George Henry Gunn (included following), with the main machinery in the lower floor, the grinding stones on the second floor, which was also where raw grain was delivered.

In this illustration the resulting ground flour would have dropped down a chute to a sack or bin (21) – the same process described in the Gunn article, where "the finished product was bagged and delivered to its waiting claimants through a postern door in the north end of the building."

Manitoba Water Mills

In the 1850s, when John Gunn was building and operating his grist mill, Manitoba was still 20 years away from provincial status as part of the Canadian Confederation. In 1850, this was still known as the Red River Settlement. This fledgling agricultural colony, which had been established by Lord Selkirk in 1812 with the arrival of the first farming settlers west of the Great Lakes, had a population of about 6,000, and a fairly well established political and economic culture. It also had, by the 1850s, a solid infrastructure of water- and wind-mills to provide flour production.

In his very useful 1981 article in *Manitoba History*, "Flour Milling at Red River: Wind, Water and Steam," Professor Barry Kaye (Department of Geography, University of Manitoba) provides important background context for the exploration of John Gunn's mill. Professor Kaye's article focuses on both watermills and windmills; it is the section on water-powered mills that is reprinted here:

"The Red River settlers harnessed not only wind power but also the energy of flowing streams. With flows regulated by dams, the numerous small creeks that drained into the Red and the Assiniboine provided a source of energy for mills that processed wheat. By 1870 many of the creeks that crossed the colony to one of the major rivers had been dammed, some of them at several places.

"The person who first undertook the construction of a water mill at Red River was the Métis leader Cuthbert Grant of Grantown. The stream he chose was Sturgeon Creek, which flows south into the Assiniboine a few miles upstream from the Forks. As early as 1817 Miles Macdonell identified this stream as suitable for a mill site. Construction of the mill, dam and stones was completed in September 1829. But Grant's enterprising venture was not a success; there were repeated problems with the dam and after three frustrating years Grant abandoned the mill and went on to build a windmill at the White Horse Plain.

"Grant's lack of success did not deter others and a second water mill, owned by James Monkman, was in operation by 1830. However, water mill construction did not proceed as rapidly as windmill construction during the 1830s [which is discussed in great and interesting detail in preceding parts of the essay]. In the various Red River censuses prior to 1849 no more than one water mill was counted in any census year. Within the next few years the rate of water mill construction increased, however, so that by 1856 nine water mills were in operation. Water mills were tied to streams and consequently were more scattered throughout the colony than windmills, which as indicated earlier, were concentrated on the west bank of the Red River below the Forks.

"Lack of sufficient milling capacity, which brought complaints from the settlers, provided the main impetus for the spurt in water mill construction during the late 1840s and during the 1850s. The Irish settler Andrew McDermot commented in 1848 that "All the mills in the Settlement cannot furnish half the wants of the people." The expansion of the colony's milling capacity was also encouraged by the Hudson Bay Company.

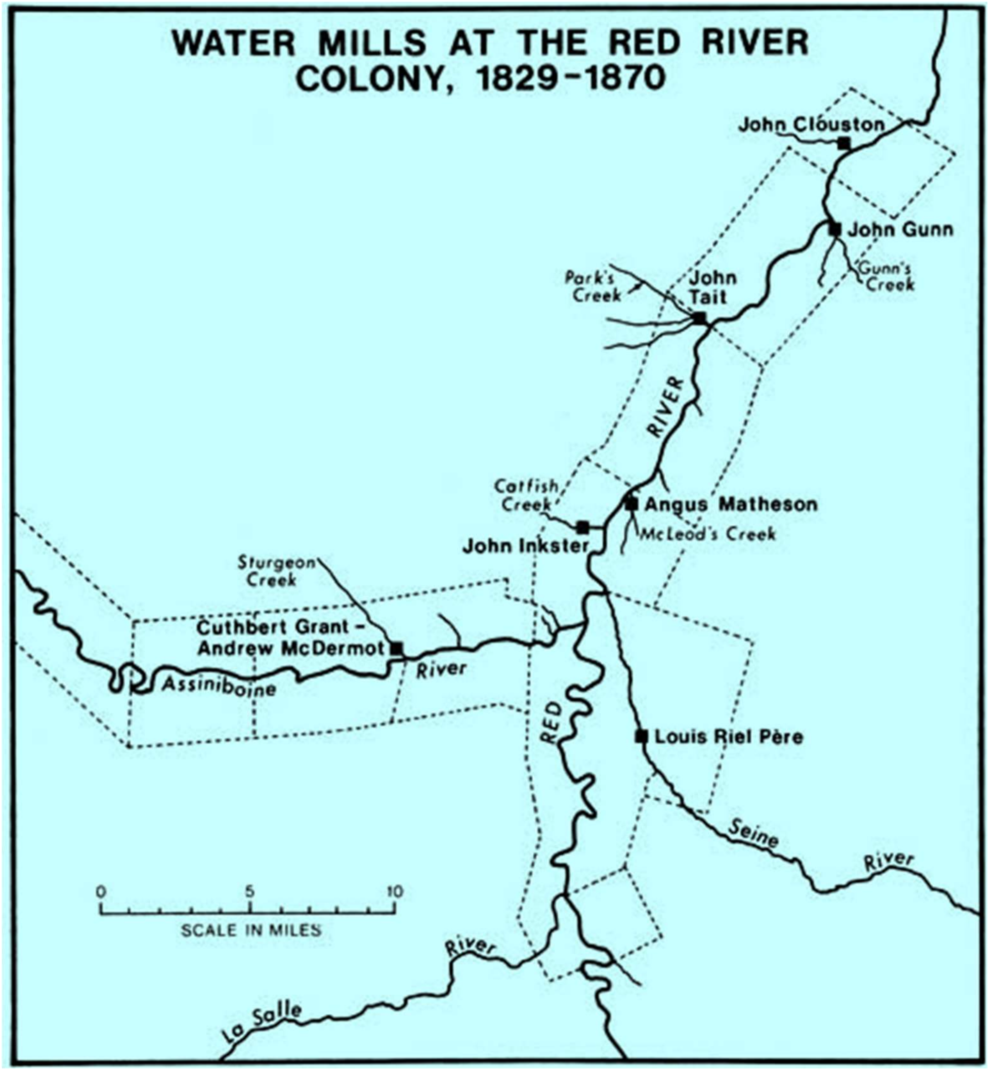
"There were several disadvantages to water mills. The mill dams were frequently washed out and the lack of substantial relief and fast-flowing streams made it difficult to develop a good and steady head of water on the small creeks in the Red River region. According to Macbeth, "except during freshets that were strong enough to drive the wheel, the mill-ponds fell into the somewhat ignominious use of vessels in which to wash the sheep before shearing." Moreover, since water mills could not be operated at all in winter, they were only used on a seasonal basis. Adding to this unreliability was the occasional Red River summer drought which stopped the water mills. The two hot, dry summers of 1863 and 1864, for example, caused the back-country swamps and many of the prairie creeks to dry up completely. Samuel Taylor, a resident of the lower part of St. Andrew's parish, noted in his journal for September 1863 that "the water mills are all dry and will not be able to grind this fall," and again in May 1864 that "this spring the water mills cannot grind for want of water." The failure of the mills to grind brought flour production to a standstill and further intensified food shortages, which had to be relieved by imports of flour from Minnesota in 1864.

"Four of the most notable operators of water mills at Red River were Andrew McDermot. John Tait, John Gunn and Louis Riel Pere. For many years McDermot was the colony's principal miller. He entered the milling business by building, probably during the early 1840s, a windmill about a mile north of Upper Fort Garry. Between 1848 and 1851, urged on by the Hudson's Bay Company, he expanded his milling activities by constructing a water mill on Sturgeon Creek, succeeding where Cuthbert Grant had failed twenty years earlier. Like Grant. However, McDermot had repeated problems with the dam, which burst on several occasions. The flour it turned out was reported to be "of a superior quality" and the colonists thought the mill "the best thing ever done for the Settlement." McDermot's success at Sturgeon Creek encouraged him to begin the construction in 1854 of a second water mill, this one at Rowling's (Rowland's) Creek in St. Paul's parish.

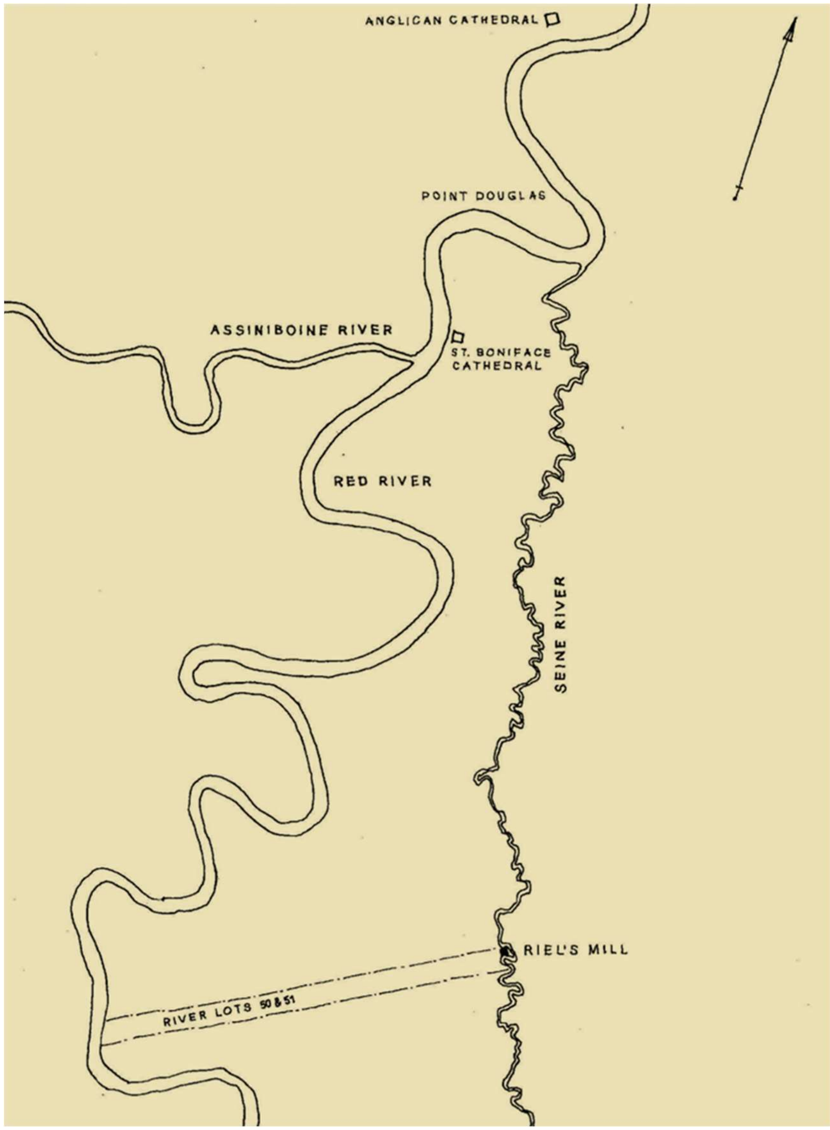
"A prominent man-made feature in the Lower Settlement was the large millpond confined behind the dam constructed by the Orkneyman, John Tait, on Water-Mill or Park's Creek near the southern boundary of St. Andrew's parish. This creek drained the Big Swamp, a large area of marsh behind the parishes of St. Paul and St. Andrew that was swollen by the 1852 flood. Miles Macdonell identified this creek as a potential source of water power in 1817 but it does not appear to have been dammed until the late 1840s or early 1850s. Tait's mill was a two-run mill, which means that there were four millstones.

"Below St. Andrew's Church, on the east side of the Red, John Gunn built a water mill in 1854-1855 on the lower reaches of Gunn's Creek. The Gunns were a well known milling family in St. Andrew's. John's father was the retired fur trader Donald Gunn, a historian and naturalist who had also run a windmill in the lower part of the parish since at least 1849. John Gunn's son remembered that his father's [water] mill was made out of local timber and stone except for "a few metal gear wheels brought by Mississippi steamer and Red River cart from St. Louis, Missouri and some brass bolting cloth from England." The dam was built with locally quarried limestone and the four millstones, five feet in diameter and eight inches thick, were chiseled out of granite outcrops opposite Grindstone Point on the east side of Lake Winnipeg. George Gunn recalled further that farmers came to the mill "in squeaking Red River carts, in skiffs, in dugouts and York boats, from all over the settlement. They were there from hand-to-mouth yokel of the neighbourhood with a single bag on his back, to the York boat brigades of the Hudson's Bay Company with hundreds of bushels."

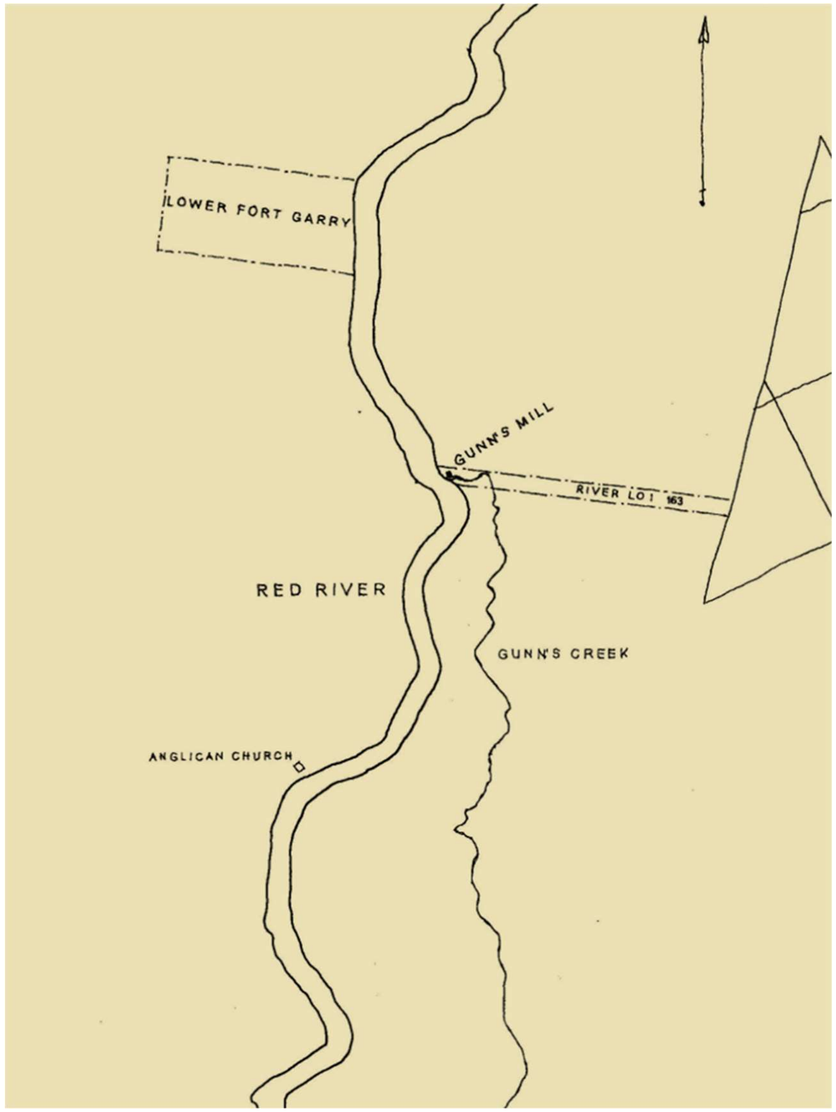
"The most famous name associated with the early milling industry at Red River was that of Riel. The involvement of Louis Riel Pere [the name used to distinguish him from his more famous son, Louis Riel] in a number of different milling ventures earned him the title of "the miller of the Seine." Riel had learned the trade of wool carding in Quebec prior to his arrival in Western Canada in the early 1840s. He maintained his interest in textiles after he settled at Red River and about 1847 erected a fulling mill on his lot in St. Boniface. Lack of success with the fulling mill did not prevent Riel from building a water mill, designed to grind wheat and card wool, on the Seine River, an east bank tributary of the Red, sometime after 1853. Local tradition is that Riel also dug a ditch some ten or twelve miles long from the Riviere a la Graisse to the Seine in order to provide his mill with a more reliable supply of water."



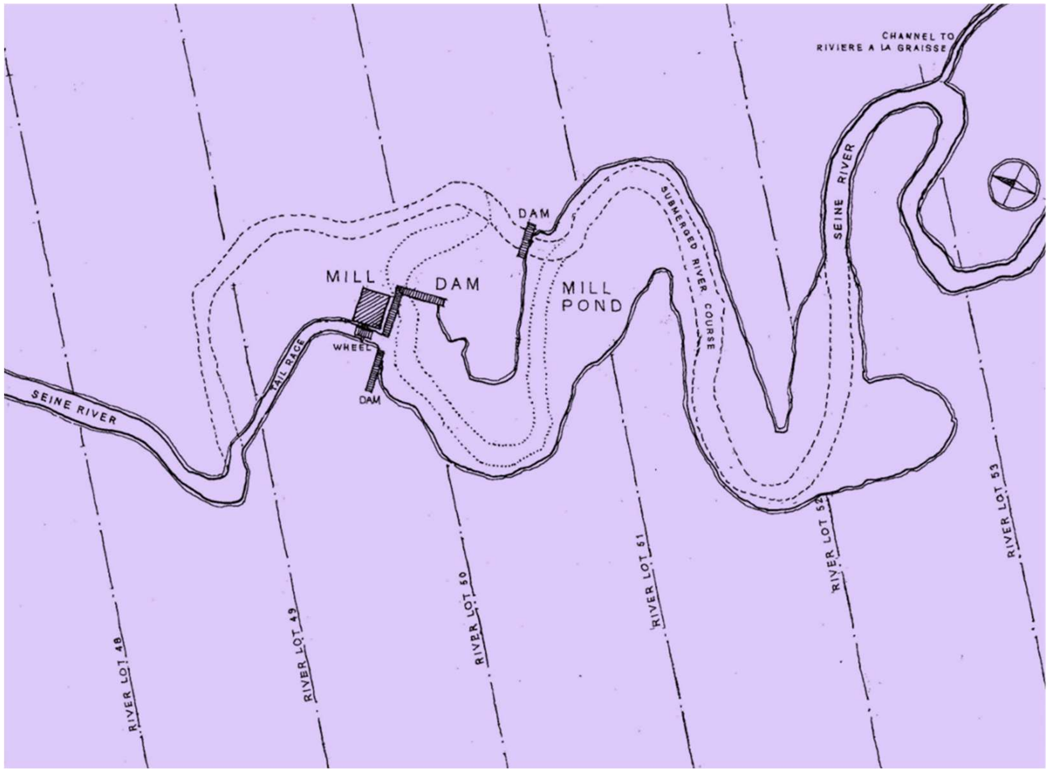
This map, developed for Barry Kaye's "Flour Milling at Red River: Wind, Water and Steam," shows the location of seven of the major water-powered mill sites in the Red River Settlement. John Gunn's Lockport-area mill is at the top right. Louis Riel Pere's mill is at the lower right.



This sketch map (not part of Professor Kaye's article) shows the location and general situation of Louis Riel Pere's water-mill operation. The site, at the lower right, was quite a distance from the mouth of the Seine River – approximately five miles.



This sketch map (not part of Professor Kaye's article) shows the location and general situation of John Gunn's water-mill operation – at the mouth of Gunn's Creek as it enters the Red River. The site was just s short boat ride south of Lower Fort Garry, on the opposite side of the Red.



This sketch map (not part of Professor Kaye's article) provides a more detailed site plan view of the Louis Riel Pere operation. This conjectural drawing was prepared by the Province's Historic Resources Branch as part of an on-site survey of the Riel mill site in the early 1980s. This reworked plan, undertaken for this project, shows the presumed location of the mill building, water wheel and the main dam. A secondary dam is shown further downriver. The dams were used to withhold the Seine River, which is shown in its banks at the upper right (and flowing north – to the left). The dams created a very large mill pond, and the course of the river is shown in dotted lines. It is interesting to note via a closer inspection of these dotted lines how the Seine River course was completely altered by the Riel mill operation – the original course would have gone through the secondary dam, but the mill pond resulted in a new course that looped to the west, the course followed by the river to this day.

“There is no record of windmill construction during the 1860s but during that decade a number of water mills were erected in both the long-established and newly-settled parts of the colony. In the summer of 1861 Charles Fox erected a water-powered mill in St. Peter’s parish (Indian Settlement). The Nor’Wester commented that “It is to be placed on a stream or rivulet which runs all winter—a very important advantage and will have a circular saw attached for planks, boards, shingles etc.” At about the same time James Cunningham completed a water mill, able to turn out 100 bushels per day and produce the best flour, in the Protestant parish of Headingley (established 1856), a section of the lower Assiniboine where there was still too little grinding power. After the failure of a steam mill enterprise in which he was involved, John Inkster diverted his attention to the building of a water mill, with a dam “perhaps the most substantive in the country.” It was located in Catfish Creek in the Seven Oaks area of St. John’s and commenced to grind in the summer of 1862. Two years later John Clouston, a stone mason and already the owner of a windmill at the Indian Settlement, built a water mill a short distance below Lower Fort Garry.

Professor Kaye provides some additional observations about the men who developed these early examples of industrial activity in Manitoba:

“In general, the millers were settlers of energy and some entrepreneurial ability who were trying to escape the stifling economic restraints imposed upon the colony by the all-pervasive fur trade and the Hudson’s Bay Company monopoly. The milling business was one avenue of economic advancement. Included amongst the settlement’s millers were some of the most eminent citizens at Red River, men who were involved in a variety of vocations other than agriculture. The Orkneyman John Inkster, for example, was a store owner, merchant, free trader and member of the Council of Assiniboia, as well as a miller. Andrew McDermot, the colony’s most prominent miller, was also a leading free trader, a shopkeeper, a freighter and a dealer in cattle. Narcisse Marion of St. Boniface owned “a shop of merchandise” and a blacksmith’s shop as well as a windmill. Robert Sandison and Thomas Sinclair combined carpentry with milling. John Tait was a carpenter and boatbuilder as well as the owner of a water mill. In addition to Inkster, McDermot and Marion, several other millers owned both a mill and a store. These included Donald Gunn, Thomas Logan, Edward Mowat and John Vincent. Several of the colony's millers also earned part of their livelihood by private freighting. The boats of John Inkster, Andrew McDermot, Edward Mowat and Thomas Sinclair voyaged twice during the summer months to and from York Factory, carrying goods ordered from England by both the Company and the settlers.

Professor Kaye provides this conclusion to his article, with a focus on steam-powered mills – the death knell for both water and wind mills:

"Windmills and water mills were the only sources of mechanical power at the colony until 1856, when the Red River Valley's first steam mill was erected. Amidst an atmosphere of what one colonist described as a "mania" for steam, during the winter of 1855-1856 a number of prominent Red River citizens organized the formation of a joint stock company, "The Red River Steam Mill Co.," that would raise sufficient funds for the purchase of a steam gristmill and saw mill. The desire for a new source power appears to have been instilled by the shortages of flour resulting from the calm weather that halted the windmills for long periods that winter. The mill, driven by a twenty horse power engine fueled by wood and designed to saw timber as well as produce flour, was assembled in St. John's parish. The steam mill posed mechanical problems and never turned a profit for the proprietors, but nevertheless it gave valuable service to the colony for several years, particularly during the winter season. The new mill was reported to produce "an excellent article." This venture unfortunately ended in 1860, when the mill was totally destroyed by fire.

"At the time of this disaster the ever-enterprising Andrew McDermot was starting to assemble the colony's second steam mill. The mill machinery was purchased by McDermot from the United States government at Fort Abercrombie, Minnesota, in the summer of 1859. The mill was located a few yards back from the Red a mile or so north of Upper Fort Garry, close by McDermot's home of Emerald Grove. It was in operation by November of 1860 [and] settlers were heavily dependent on McDermot's steam mill during the dry summers of 1863 and 1864 when the water mills failed to grind and the windmills were unable to meet the extra demand. This mill suffered the same fate as its predecessor, however, and it was destroyed by fire in December 1872.

"Later in the 1860s steam mills were constructed in other parts of the colony. In 1863 the first steam mill in St. Andrew's was built at the Rapids on the corner of the parish church lot and was expected to begin grinding early the following year. This appears to be the same mill built by E. H. G. G. Hay, a Yorkshireman who settled at Red River in the early 1860s after a number of years in the United States. Hay's mill served the residents of St. Andrew's until 1877, when it too was destroyed by fire. In 1868 J. B. Holmes of St. Boniface built a steam grist and saw mill at High Bluff to the east of Portage la Prairie, an area of rapid settlement in the 1860s. Other steam flour mills were erected at Portage la Prairie itself during the early 1870s, the first by William M. Smith, a former resident of Winnipeg who had been that town's "pioneer flat-boatman." Lower down the Assiniboine in the Silver Heights district of St. James, a steam mill was built at Sturgeon Creek by Robert Tait in 1869. Based on information from 1872, the St. Norbert parish survey map of 1875 locates Joseph Lemay's steam mill, the first in a predominantly French speaking parish, on the west side of the Red a short distance north of the parish church. The year of its erection is not known.

"During the 1860s the Hudson's Bay Company also involved itself in the steam flour milling business at Red River. This involvement stemmed largely from the Company's growing dissatisfaction with its heavy reliance on the inconstant wind and water mills of the colony's private millers. Furthermore, getting the wheat purchased from the settlers to the mills for grinding involved "the Company in a great deal of expensive and time-consuming transportation." The outcome was that in 1865 the Hudson's Bay Company decided to enter the milling business for itself. In that year a steam mill, doubling for grinding grain and sawing wood, was installed at Lower Fort Garry. Fitted with grindstones brought in by cart from the United States, it was in operation by November 1865. It continued to grind until 1879, "when in the face of competition from smaller private mills in the area it was finally abandoned."

"At the same time there was a reduced need for the inefficient and unreliable wind and water mills with their one or two run of stones. These primitive gristmills, therefore, eventually fell into disuse. A few windmills were still working in the Winnipeg area, including one at Colony Creek owned by James Spence, at the time of J. C. Hamilton's visit in the mid-1870s. His comment was that "most of them have been-dismantled and their machinery taken farther west, steam mills here taking their places." The proliferation of steam mills did not, however, immediately eliminate the use of windmills in the settlements along the Red and the Assiniboine. In St. Paul's parish, for example, the windmills continued to operate even after Hugh Pritchard built a "fine" steam mill close by the parish church in the 1870s. The older settlers in particular preferred the parish windmills, believing that they turned out a "stronger and better flour."

An Account Gunn's Creek Flour Mill

The following article, developed by George Henry Gunn, the son of John Gunn, provides the most useful observations about the actual form and layout of the mill and its site infrastructure.

Some modest biographical information about John and George Henry Gunn will make the account even more vivid.

John Gunn, ca. 1895, in his late 60s.

John Gunn was born in 1827, the third child of Donald Gunn and Margaret Swain; there were a total of 12 children in the family. Donald Gunn (1797-1878) was a major figure of the Red River Settlement, a celebrated educator, scientist, historian and politician. When John began to contemplate the construction of his water mill, in the early 1850s, he would have been a young man – perhaps 23 years of age. He was not yet married – that would not transpire until 1855, when he was 28, and engaged to Emma Garrioch. John and other family members (likely brothers Alexander, George and Donald Jr.) as well as hired men operated the mill around this time, and until at least the mid-1860s, when he would have been in his late 30s. John died in 1898, aged 71.

George Henry Gunn, the seventh child of John Gunn and Emma Garrioch, was born in 1865 or 1866, at a time when the water and wind mills of the Red River Settlement were mostly obsolete, as steam-powered operations took over. It is thus either that the Gunn mill was still occasionally operating into the late 1860s or early 1870s, which would allow for George Henry's vivid first-person descriptions, or that the piece is more of a recollection derived from family memories. In any event, the following piece is so lively and the details so compellingly real, that we are assuming the information is mostly reliable.

It is presumed that the following account was actually written down by George Henry Gunn in the 1930s or early 1940s (he died in 1945, aged 79 or 80) – thus about 70 years distant from the mill's actual operating life.

A**mong the earliest and most vivid** of my childhood recollections are those of my father's old watermill. And, while this ancient and primitive institution was by no means unique among its fellows, nor the first of its kind in the Red River settlement, I think it sufficiently typical and the facts connected with its construction and operation sufficiently interesting to warrant my setting down a few of them here, for the benefit of those "moderns" who were not privileged, like a few of the rest of us, to live through such scenes of "history in the making."

This primitive but ambitious enterprise was conceived and carried out in the early 1850's. My father was then a young man, newly married, and possessed of little of this world's goods save an abundance of health and strength, unconquerable optimism and the will to succeed. He had no monied capital; but, some time prior to this, his father, Donald Gunn, the historian, had deeded over to him his original homestead, lot 163, Parish of St. Andrew's, on the east side of the Red River, where the big traffic bridge over the St. Andrew's lock and dam now is; and on this farm was a creek -- or rather, a small part of one -- still known locally as "Gunn's Creek." This little stream, now kept at a uniform summer level by the backwater of the Lockport dam, today forms a picturesque beauty spot well known to travellers approaching the St. Andrew's lock from Winnipeg by the Henderson highway.

Winding sleepily in and out through beautiful groves of oak and elm, and always still as a mirror, it has little to suggest to the casual observer, of the bustle of industry or the stirring activities of commercial enterprise. But sixty years ago, it presented a very different aspect. In those days, before our ubiquitous drainage system had despoiled the marshes of their moisture and desicated the fair face of Mother Earth, Gunn's Creek was accustomed to go on periodic rampages that attracted the attention of even the dullest observer. Taking its rise in those deep and extensive morasses that form the drainage basin of the hill country to the east and south, it galloped down its tortuous, pebbly channel, in the spring of the year or during rainy seasons, like a veritable young “Kicking Horse” -- a phenomenon not long lost upon the new proprietor of the Gunn homestead.

Decide To Use Power

Here was water power-limited and intermittent, it is true, but sufficient for the purpose. And there was wheat to be ground, being produced in ever increasing quantities in the neighborhood. What more logical, in the premises, than a watermill? So a watermill it was to be.

And a watermill it was.

This watermill, however, was not built on the original homestead. A suitable site was purchased a little farther down the stream (on Lot 167), not far from its junction with the Red River, and on this spot building operations were soon under way.

The “log” of the actual building of this old mill would be too long to give here; although I have it, in brief and fragmentary form, in the original account book kept by my father at the time. Many names figure in the record of men now long gone to their rest. They were all men of the neighborhood, all equally “to fortune and to fame unknown,” and blissfully innocent of the seductive blandishments of the “walking delegate.” Their wages, for the unabbreviated days of labor unrelieved by modern machinery that they contributed to its construction, ranged from 25 cents a day, for the ordinary laborer, to 45 cents or 50 cents a day for the skilled artisan, their food, presumably, being furnished in addition. “A starvation wage,” according to the sophisticated “living wage” standard of today.

Work During The Summer
The work of constructing the dam and building of house the machinery was carried on principally during the summer, this being the most convenient reason. During the later summer it was especially convenient to work at the dam, as, the spring freshness and rainy season being past, the bed of the creek became quite dry, thus doing away with the difficulties attendant upon the harnessing of a living stream. The dam was first constructed as a wall, or dyke, of limestone, a plentiful supply of which was quarried from the adjacent river bank; this being subsequently reinforced by a heavy, sloped bank of clay, well packed in on either side. This dam was pierced, at equal intervals along its length, by three spillways about five feet wide, constructed of heavy oak posts and planking, and controlled by strong oaken gates, with oaken levers for raising and lowering them.

These levers were just a stout oak sapling from the woods, about the size of an ordinary fence post, passed over a raised beam across the top of the spillway a few feet back; the business end of it being securely fastened to the top of the gate by shaganappi thongs passed through an auger hole in the framework, the handle-end of it being easily manipulated from the top of the dam in the rear. The lever controlling the "grinding gate" was an exception to this, being passed forward through the end wall of the building, thus providing for the control of the power from within the mill.

The mill building itself was of log-frame construction, about 24 by 34 feet, and two storeys high, the floor of the second storey being just above the level of the top of the dam, behind the most northerly end of which the building stood. A gap of some six or eight feet between the front of this building and the sustaining wall of the dam was bridged by a planked approach to the main entrance of the mill, which was in the second storey, about midway of its length. In this second storey were the stones that ground the flour, the sundry bins for the storage of wheat, all grists being received into the mill over the planked bridge aforesaid. In the lower storey were housed the bolting machinery and the great spindles and wheels that distributed the power to the various working parts. Here the finished product was bagged and delivered to its waiting claimants through a postern door in the north end of the building.

No Glazed Windows

The mill building was quite innocent of glazed windows, sufficient light for operation by day being admitted through the open door and a couple of small square apertures in the centre of the south gable. When necessary to grind at night, some sort of fish-oil lamps, suspended at convenient points, were used. By day, also considerable light was admitted between the unchinked logs; for, from very shortly after its completion to the day of its final demolition, the building remained quite destitute of the chinking and plaster that usually form the finishing touches to structures of this kind. The roof, of course, was of thatch, which was always kept in repair with difficulty, for the same reason that the walls went unchinked -- a reason that will appear later.

It may be truly said, that this old mill was “fearfully” and wonderfully made. Nearly all the machinery housed in the structure above described was, a year or so prior to the first turning on of the water, growing in the forest or reposing peacefully in its native habitat in the ages old strata of the earth. With the exception of a few small metal gear wheels, brought by Mississippi Steamer and Red River Cart from SL Louis, Missouri and some brass bolting cloth from England, every wheel and spindle and every other working part, was manufactured from local materials by local artizans. All the wheels in it, with the exception already mentioned, were constructed out of native oak from adjacent woods. These were made in the seclusion of his workshop, during the winter, by my father, who, though self-taught, was a skilled wheelwright and joiner.

Marvels of Machinery

I can well remember the marvels of these ponderous and skillfully constructed wheels. The largest was, of course, the great water wheel that furnished power. This must have been, at least, 16 feet across, with three-foot face. It was built entirely of native oak, with the exception of the buckets which were of fir or some similar wood. The spindle that it turned, on which it was built, was a great oaken timber 14 inches in diameter. On the other end of this protruding into the lower storey of the mill, was the largest of several wooden gears, similarly constructed. This one, if my memory serves me rightly, was about six feet across, and into it was geared a succession of others, of similar material and construction, which finally connected with the imported metal wheels above mentioned.

These great oaken gears, were, as has already been said, marvels of the wheelwright and joiner's art. They were built up of thoroughly seasoned native oak; the jointing of the great spokes and felloes being so perfect as to almost defy detection. Every cog of these wheels was made and mortised in separately. And some idea maybe had of the strength and accuracy of construction when, it is said, that at the time of the final dismantling of the mill, after twenty years of continuous use, they showed but little trace of wear or deterioration.

The bolting apparatus, with its revolving brushes and other parts, was also made in its entirety in my father's workshop; as were also the hoppers and casings housing and stones; and the lumber for all these things, and for that matter, every other thing about the mill where lumber was needed, being whipsawed out of trees felled in the vicinity.

The mill was equipped with two run of stones - also of purely native material and manufacture. These were ponderous affairs, five feet in diameter and eight inches thick. They were chiseled out of the native granite on the east side of Lake Winnipeg, opposite Grindstone Point, and transported by York Boat to the site of the mill; the pattern on the grinding surfaces and other finishing touches being put on by local stone cutters there.

Plaster Shaken Loose

Only one pair, however, of these giant stones was ever run at a time after the first experiment of trying to run them both simultaneously. Upon this occasion, as I have often heard it told, it was as if a young earthquake had broken loose. The plaster and chinking of the log walls came down in showers and the entire plant was threatened with destruction. Needless to say, the experiment was never repeated. Nor was any attempt ever made to replace the plaster and chinking; it being found that the continuous vibration of the machinery – even with only one set of the stones running - made it impossible to make them stay put.

The task of installing the machinery and of giving the finishing touches to the various parts of this ingeniously-constructed flour manufacturing plant was carried out during the winter so that by the end of March it was ready for the water. At least that was the fond belief indulged by its builder. But the water came a little sooner, and in much greater volume than was anticipated. The winter's snow had been exceptionally heavy; and, early in April, a sudden thaw set in, accompanied by rain, which precipitated the accumulated water into its natural channels with unprecedented dispatch and violence. It came down Gunn's Creek with a roar of triumphant freedom that was not to be lightly checked; and, when it reached the newly constructed dam, there were things doing.

At this time there was only one spillway provided for the passage of the surplus water, the inadequacy of which for this purpose was very soon apparent. Weak points and undetected crevices, too, were soon sought out by the insidious and insistent element; so that, between what was threatening to go over and what was threatening to go through or under, it soon began to look as if the whole dam, mill and all, would be carried into the Red River. In such a crisis, immediate emergency measures had to be taken to save the situation.

Recruit Volunteer Helpers

Gangs of men with barrows and shovels were quickly mustered and put to work, some wrestling with the leaks in the dam, others cutting a ditch around it to let the surplus water away. It was a strenuous day's battle extending far into the night; but when morning dawned the situation had been mastered and the mill saved.

An additional spillway was afterwards put in, thus effectually guarding against any similar menace in the future. Despite such early aberrations, however, the mill proved to be unqualified success. Having "sowed its wild oats" and demonstrated its frolicsome moods in a number of such escapades it settled down to the serious business of producing "the staff of life" for all and sundry who might bring their grist to its hoppers. I am not prepared to pronounce any judgement on the quality of the flour produced, although I consumed my good share of it.

According to the uncritical standards of the time, however, it was considered good--frozen wheat and bin-heating misadventures, of course, being allowed for. The quality suffered too, sometimes no doubt, through the inexperience of the miller. I have often heard if said, for example, that all the flour turned out for a considerable time at the beginning of its operation, was produced with the stones running backwards. I don't remember whether this original output was labelled "New Process" or not. But I don't remember anyone dying of "flour barrel consumption" or any gastric malady through its use so that it could not have been too bad, even at that. At any rate, there was soon no lack of grists. They came in squeaking Red River carts, in skiffs in dugouts and York boats, from all over the Settlement. They were there from the hand-to-mouth yokel of the neighborhood with a single bag on his back, to the York boat brigades of the Hudson Bay Company with hundreds of bushels.

In fact, in the palmy days of this old mill, it was more often the water than the grists that was lacking. In the spring of the year it came down in floods, as described above; and grinding had to be kept up by night as well as by day, in order to get the waiting grists ground, and not to lose any of the available power of its precious volume. In a dry time the grists accumulated and waited on the miller; the miller waited on the capricious favor of the "weather man." My father had a stake driven in one edge of the dam, near the shore, in the top part of which were sawed notches to measure height of the water—this primitive water-gauge being known among us as "the sawed stake" and I can well remember being sent by him, on various occasions, to consult this "sawed stake" oracle, in order to acquaint him with the level of the water; the difference of an inch more or less, registered by those fateful notches, always determining the momentous question, "to grind or not to grind?" In a period of stubborn drought, with no Elijah to intervene, the only recourse for the flour-hungry householder was a resort once more to the "querns" or the "beating block," an alternative that not infrequently presented itself.

From a financial point of view, while not producing dividends comparable to those of our great flouring mills of the present day, I would judge that the venture was fairly satisfactory to its enterprising proprietor. Ordinarily, the system of payment was by moulter this instance, pronounced "mooter" that is, a certain percentage of each bushel of wheat was taken by the miller as his remuneration for grinding the balance. I very clearly remember the old "mooter measure." It was a miniature wooden tub made with staves, one of which was left standing a few inches above the others to form a hand-hold. It would probably hold about a gallon. Pound notes and gold sovereigns were also considerably in evidence; such patrons as the Hudson's Bay Company and other wealthier residents of the community probably preferring to pay in those media. Upon the introduction into the country, however, of steam flouring mills, with improved machinery and methods, the patronage of the "old mill" naturally fell off, making its continued operation unprofitable. It was accordingly closed down, and a number of years later, dismantled.

John Gunn’s Water Mill – A Graphic Recreation

As noted at the outset of this report, the purpose of this project has been to determine what John Gunn’s water-powered grist mill looked like – that is, where the building was placed on the site, what the building looked like, how it operated, and how the site was developed and configured to reorient and repurpose the water of Gunn’s Creek as a source of power.

All the preceding information, especially the account of John Gunn’s son, George Henry Gunn, have lead to this point – the suggested graphic recreation of this important early Manitoba milling operation, which is conveyed by a set of annotated drawings on the next pages.

Following are the key architectural, structural and operational facts drawn from George Henry Gunn’s article:

The Mill Building

- The mill building, two storeys high, was of log-frame construction, with dimensions of about 24 by 34 feet.
- The building stood at the most northerly end of the dam.
- The floor of the second storey of the mill building was just above the level of the top of the dam.
- A gap of some six or eight feet between the front of this building and the sustaining wall of the dam was bridged by planked approach.
- All grists received into mill were moved over the planked bridge aforesaid.
- The main entrance to the mill, which was in the second storey, was about midway of its length.

- The building was innocent of glazed windows, sufficient light for operation by day being admitted through the open door and a couple of small square apertures in the centre of the south gable.
- Considerable light was also admitted between the unchinked logs; the roof was of thatch.

The Dam

- The dam was built as a wall, or dyke, of limestone, this being subsequently reinforced by a heavy layer of clay on both sides of the walls.
- The dam was pierced, at equal intervals along its length, by three spillways each about five feet wide, constructed of heavy oak posts and planking, and controlled by strong oaken gates, with oaken levers for raising and lowering them.

The Milling Operation

- In the second storey were stones that ground the flour.
- In the lower storey were housed the bolting machinery and the great spindles and wheels. Here, finished product was bagged and delivered to waiting claimants through a postern door in the north end of building. A postern door is a small secondary door usually located in a ground floor situation and distant from the main door.
- The great water wheel was at least 16 feet across, with a three-foot face (width).
- The wheel was built entirely of native oak, with the exception of the "buckets." – more likely paddles.
- The spindle that was turned by the water wheel was a great oaken timber 14 inches in diameter.
- On the other end of the spindle protruding into the lower storey of the mill was the largest of several wooden gears.

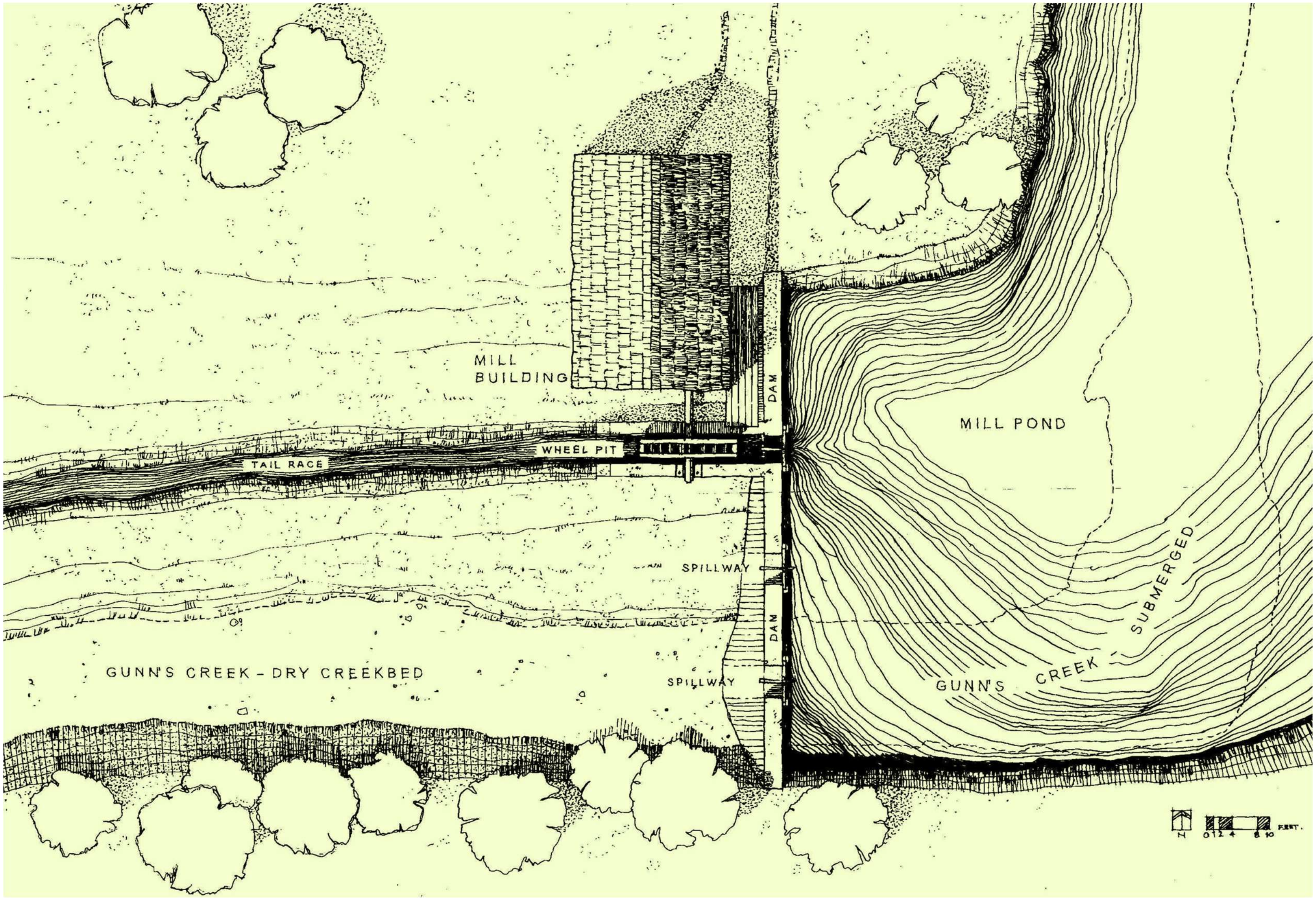
This image of the Lockport dam and bridge also shows Gunn's Creek, emptying into the Red River on the right-hand (east) side. Given remaining stone debris, it is thought that the dam and mill for Mr. Gunn's mill were situated just about at the lower right-hand corner of this photograph.

Gunn’s Mill Site Plan

The site plan opposite has been developed using George Henry Gunn’s account, supplemented with information about the operation of undershot water mills. The plan shows the mill on the north side of Gunn’s Creek – this is not explicitly stated by George Henry Gunn, but is surmised by various details he provides. The site has been selected to correspond to the known stone debris field still visible at Gunn’s Creek, presumed to be the remnants of the dam (it is thought that the larger stones from the dam and building were recycled in other building projects). The building is oriented north-south, with access on the east side and via a planked “bridge” situated between the building and the northern edge of the dam. George Henry Gunn observes that there were three spillways (and sluice gates), shown here, but does not describe a major—and critical—feature of the operation – the wheel pit. This has been determined to be in the position noted on the plan, to give adequate access to the mill building but also sufficient depth for the wheel to turn. George Henry does not describe the trench that must have been excavated to house the wheel and the tail race feature that would allow water to exit the wheel pit, and make its way back to the existing channel of Gunn’s Creek.

The key features to note on this plan then are: the dam that interrupts the flow of Gunn’s Creek and creates the mill pond; the main sluice gate, wheel, wheel pit and tail race that form the main features developed to convert water to power; and the mill building, in which all grain-grinding and production aspects were concentrated. The heavy graphic treatment of the building’s roof describes that feature’s material construction – grass thatch.

The drawing also shows the slightly steeper bank of the south side, and the situation of Gunn’s Creek – submerged under the mill pond on the right and as a dry creek bed on the left.


MILL BUILDING
DAM
MILL POND
WHEEL PIT
TAIL RACE
SPILLWAY
DAM
SPILLWAY
GUNN'S CREEK - DRY CREEKBED
GUNN'S CREEK SUBMERGED
N
FEET

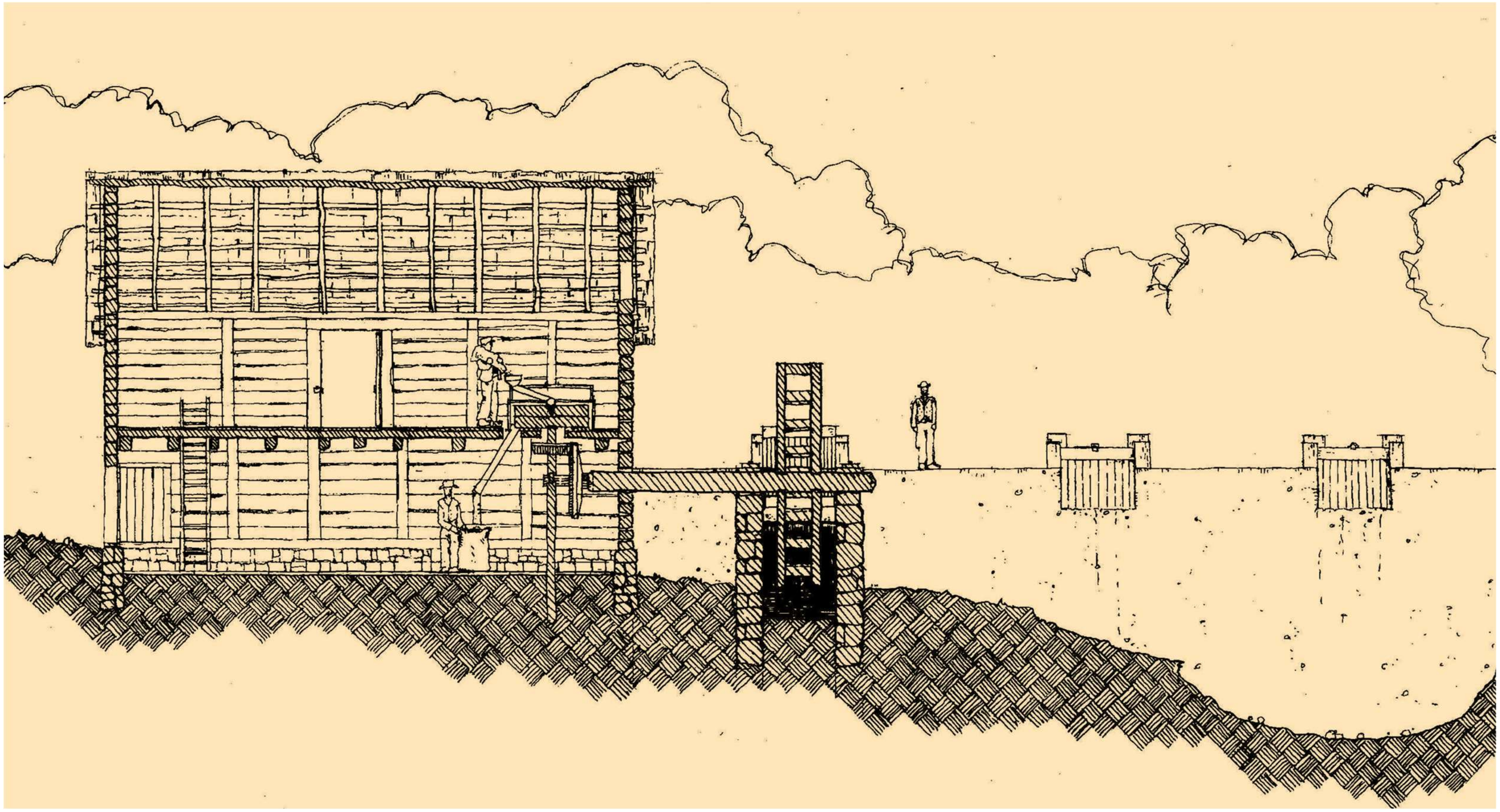
Gunn's Mill Longitudinal Sectional Drawing

The technical drawing opposite shows the mill building, dam and land as if all were sliced vertically north to south to reveal their internal workings or construction. This kind of drawing is especially useful for showing how buildings are put together. In this instance the drawing also shows how the wheel pit was configured, how the axle attached to the wheel entered the building, and also how various other internal functions were organized and developed in the mill building.

The dark hatching at the bottom of the drawing shows the slope of the land, including the dry creek bed of Gunn's Creek at the lower right. The dam is shown stretching from left to right, with sluice gates and spillways as per George Henry Gunn's account. Figures are used to give a sense of scale, and also within the building to suggest milling activities – on the upper level pouring a bag of grain into the grinding-stone hopper and in the lower level collecting in a bag the resulting ground flour distributed from the hopper by a chute.

A key feature of the drawing is the wheel, wheel pit and sluice gate. The drawing shows how water from the main sluice gate would flow down into the wheel pit and through its force turn the wheel, which then would turn the large axle connected to the wheel and thence engage the wheels and gears within the mill building.

The drawing also shows the main entrance into the second floor, the postern door on the north side used to access the ground floor, as well as a ladder that must have been used to move between ground and second floors – presumably through an opening in the floor of the second storey.

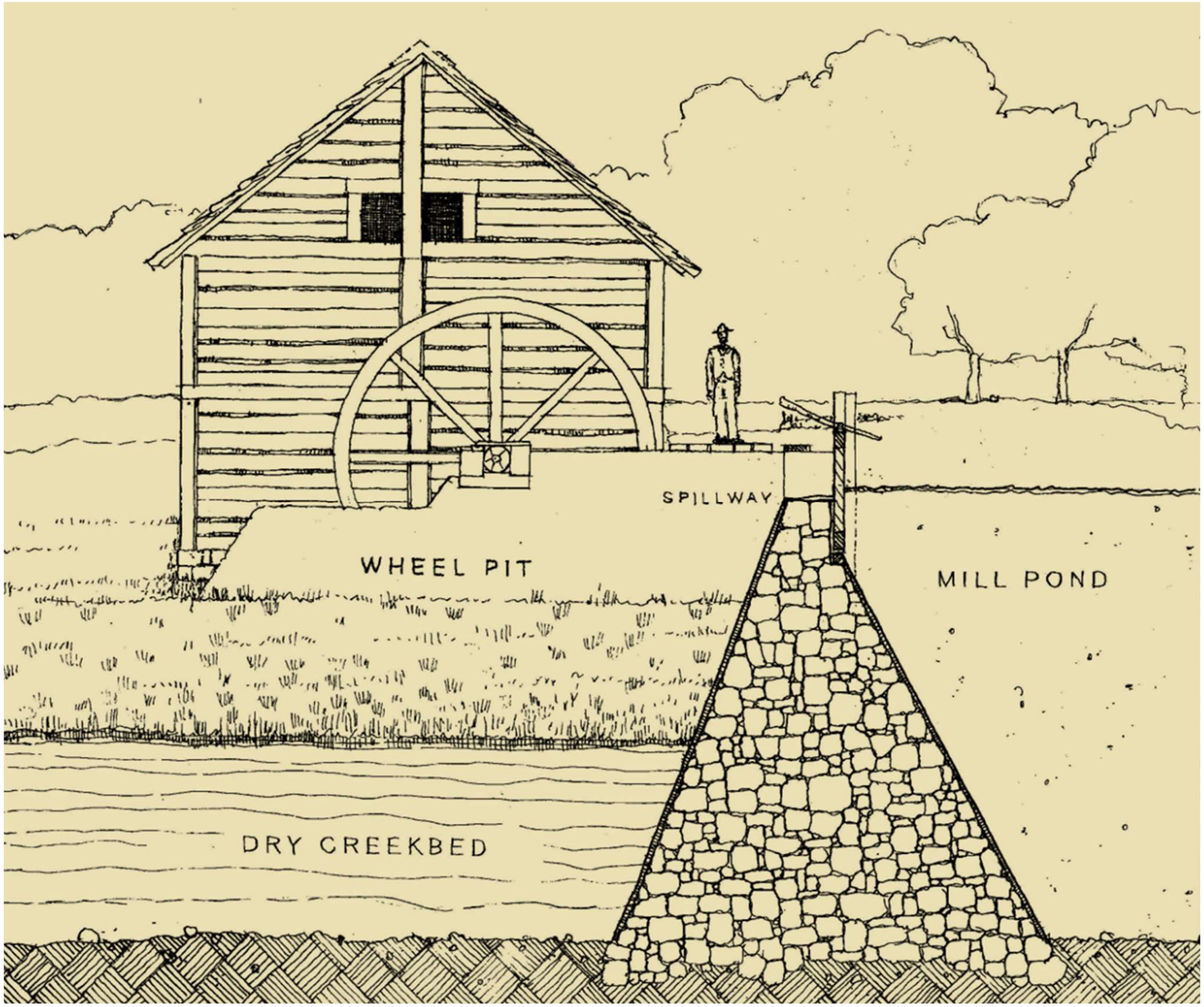


Gunn’s Mill Transverse Sectional / Elevational Drawing

The focus of the technical drawing opposite is on the dam, sluice gate, creek bed and mill pond, which are shown via a section drawn from west to east. The ground beneath the creek bed and mill pond is suggested by dark hatching at the bottom edge of the image.

This drawing is especially useful to gain a sense of the dam construction. George Henry Gunn’s account does not include a height, so it has been necessary to examine the actual presumed mill site in order to speculate on this detail; it is thought that the dam must have been at least 12 feet high—from the lowest level of the creek bed—in order to develop a sufficiently large mill pond. George Henry Gunn does note a large dam, coated on both sides with heavy clay, presumably to control water leaks. In this drawing the mill pond height is slightly above the spillway height, suggesting how the pond was actually used – that is, that it was of a high enough level to pour through the main spillway in the dam when required to operate the water wheel. This section drawing is through the middle spillway and sluice gate, in the closed position, with the control levers (of stout oak saplings) shown in a relaxed position.

In the background are seen the mill building and the great water wheel in its wheel pit. The figure placed at the southern edge of the plank bridge provides a sense of scale.

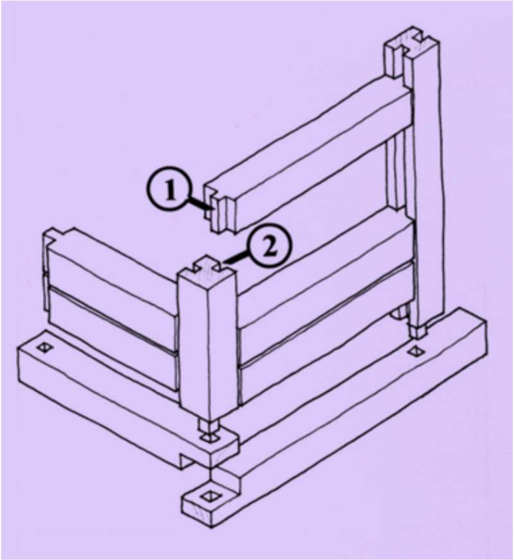

SPILLWAY
WHEEL PIT
MILL POND
DRY CREEKBED

Gunn's Mill Transverse Sectional / Elevational Drawing

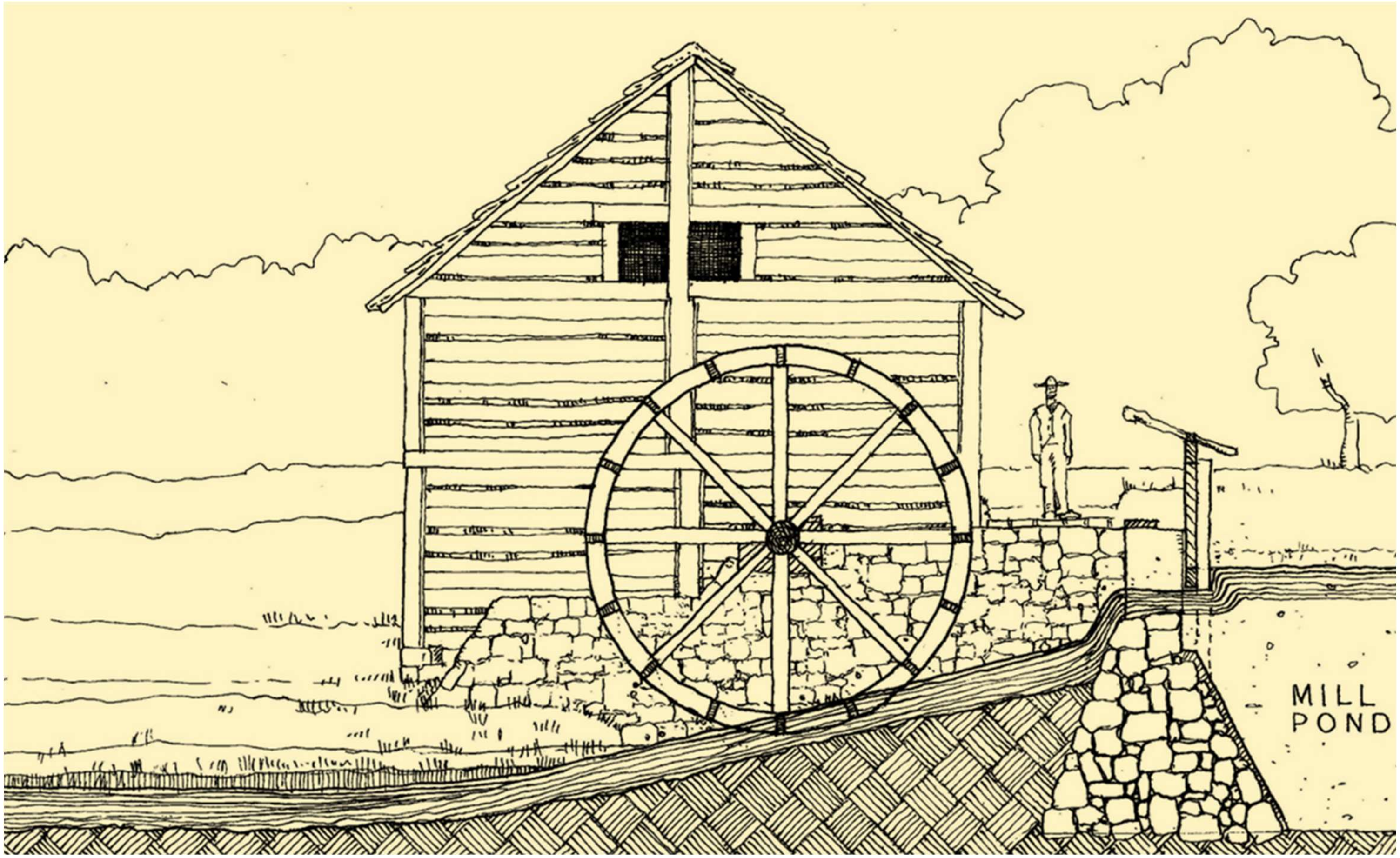
This second section drawing takes a vertical cut from west to east along a line passing through the wheel pit, wheel, dam at its northern edge and the main sluice gate. In the drawing the sluice gate is slightly opened to allow a flow of water from the mill pond to enter the wheel pit and turn the wheel. When the mill was not in operation the gate would be in a closed position.

It is worth comparing this section drawing to the previous one to get a sense of the dam's actual formation – given the slope of the land away from the creek the dam would have been higher at the middle and much lower at its northern edge – as shown here only about five feet high.

It is worth noting here the distinct log construction techniques likely used for the mill building, and shown in this drawing. Before1870, Red River frame was the building construction method used by most inhabitants of the Red River Settlement. The procedure was used primarily for houses, but also found favour for public, commercial and religious structures. The technology was introduced to the Canadian West by Hudson's Bay Company employees from Quebec, where a similar technology was popular. The Quebec buildings were derived from French structures of the seventeenth century. In Manitoba, few Red River frame buildings remain. The most distinctive feature of Red River frame structures is the log construction procedure, in which short logs were squared and set between upright squared logs. A detail of this procedure is featured opposite.



The distinctive quality of Red River frame is presented in this detailed cutaway view of a typical corner connection. The tongue (1) on the horizontal log is slipped into the groove (2) chiselled into the vertical log.


MILL
POND

Gunn's Mill Isomeric Drawing

This final drawing is the ultimate purpose of this project, showing John Gunn's water mill from a bird's-eye view looking from the southwest to the northeast. All the features, elements and details identified in the documentary materials collected for the project are featured here in this graphic representation – the mill building with its thatched roof and rough log walls, the sturdy dam built up of limestone blocks and sheathed with a thick layer of river clay, the great water wheel, and the actual topography of the immediate vicinity.

The drawing has been rendered to suggest the mill's operation in the late 1850s, and in late June or early July, when it would have been most active – and most successful.

To further imaginatively animate the image, it helps to recall one of George Henry Gunn's recollections: "They came in squeaking Red River carts, in skiffs in dugouts and York boats, from all over the Settlement. They were there from the hand-to-mouth yokel of the neighborhood with a single bag on his back, to the York boat brigades of the Hudson Bay Company with hundreds of bushels."

John Gunn's water mail, along with the other seven Red River Settlement-area water mills (and the 18 or so windmills) were major grain-grinding operations that ultimately ensured the success of the settlement. They were also important examples of Victorian-era industrial inventiveness. It is of course unfortunate that they are all long gone. But it is hoped that this project, and the drawings developed here, give a clear and persuasive sense of one pioneer Manitoba water mill operation. It is also hoped that the project illuminates the remarkable characters who created these significant and fascinating early Manitoba industries.