

WELCOME TO

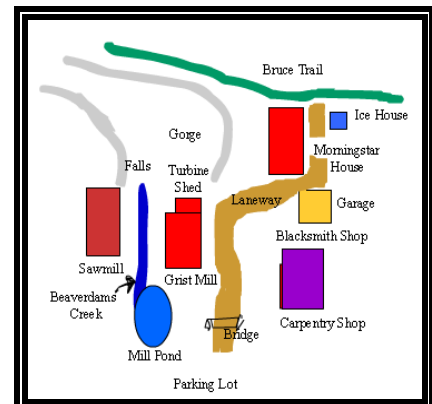


MORNINGSTAR MILL

This property, formerly known as the Mountain Mills Museum, is a living museum. History is interpreted here by the Friends of Morningstar Mill, volunteers who also work on the restoration and maintenance of the site. It is a unique representation of early Ontario milling heritage and in 1997 the City of St. Catharines designated the grist mill and the Miller's House as buildings of historic and architectural value and interest under the Ontario Heritage Act. The buildings on the site include the gristmill (which has been commonly referred to as Morningstar Mill), the turbine shed, the Miller's House, which was the home of the Morningstar family, the icehouse, the sawmill and the barn.

The barn (in purple on the map) is straight across from the entrance to the parking lot. It houses the blacksmith shop and the carpentry/carriage shop. The gristmill is straight ahead when you cross the bridge, with the sawmill to the left on the other side of Beaverdams Creek. The turbine shed is attached to the gristmill.

At the top of the hill is the home of the Morningstars, in which the miller and/or members of his family lived from 1890 to 1993. It has been restored to the 1920s and '30s, the period when Wilson Morningstar's business was at its most prosperous. The gardens around the house are also in the process of being restored to the same time period. More details on the house and gardens is available on their individual pages.



THE GRISTMILL



Built in 1872, this mill ground wheat, oats, barley and rye. Constructed on land owned by Robert Chappel, it was made of native stone quarried from Beaverdams Creek which also resulted in the pond in front of the mill. The mill stones (flinty burr stones) were brought over as ballast on ships from the LaFerte fields of France. In 1875, the City of St Catharines Water Works Commission purchased property at DeCew Falls and constructed dams across Beaverdams Creek. This interfered with the water supply to the mill and as a consequence, in 1878 the City was compelled to purchase the property from Chappel. This was the beginning of a long relationship between the City and the Mill.

The City proceeded to lease the mill to a number of millers. Ellis and Drake ran the mill for a time and their names appear on the original sign under layers of paint. **By the early 1880s** the third Welland Canal had been completed and resulted in an abundance of water to power the mill. The City then sold the property to Wilson Morningstar in 1883, who in turn leased it to Charles Knoll. However, **around 1892** the interior of the Mill was destroyed by fire and Morningstar and his brother Wallace rebuilt it, installing new equipment acquired in Toronto from the Greey Company. At this point, Wilson Morningstar began operating the mill himself. In **1905** he bought an electrical generator from a ship in Port Colborne and installed it on the outside of the mill building. It was later moved to the pit area of the turbine shed.

Shortly after Wilson Morningstar's death in 1933, the water-powered turbine seized and work at the mill was abandoned. In 1941 his widow, Emma, sold the property to Ontario Hydro. Twenty years later, the City of St. Catharines again became involved, leasing the property and opening **Mountain Mills Museum in 1962**. The City purchased the mill site in 1989.

The Friends of Morningstar Mill began the **restoration of the gristmill in 1992** using the original machines and stones. (The exception was the turbine shed, which had collapsed and fallen into the gorge.) They have operated it as a water-powered gristmill since then.

The exterior of the gristmill features a gabled roof with wood shingles. Tie rod ends are visible between the first and upper floor of the one-and-a-half storey building. The windows are double-hung with six panes in each sash with a tooled lugsill supporting each window.

Inside the mill is the original white pine woodwork, floor, support beams and elevator shafts that Wilson Morningstar reconstructed after the fire gutted the interior. Today, the original white pine has aged to a golden brown. The walls of the building were plastered in the customary fashion, but not painted so as not to taint the flour.

The milling process is the same today as it was in **1905**. It would have begun with the weighing of sacks of grain on the scales that are located just inside the entrance. The sacks would have been emptied into a bin at the rear of the ground floor. The grain would then go down a chute to the cleaner, located in the basement, where the dirt and chaff would have been removed. The clean grain would then be moved by elevator to the ground floor and discharged onto the millstone where it was ground to flour. (The millstones weighed approximately 1500 lb. (680 kg.) and rotated at approximately 100 revolutions per minute.) The flour would be returned to the basement where the bolter would sort it into different qualities, such as cake flour, all-purpose flour or bran. Note: On the second floor there are three bolters, all designed by Morningstar, and constructed commercially in Toronto by the Greey Company.

A corn sheller, mounted in the far right corner of the ground floor, was used to strip dried corn cobs for livestock feed. Also located on the ground floor of the mill are roller machines used to press oats (hence the name rolled oats which make oatmeal) as well as other grains. At the time, the product from these machines was used mainly for animal feed.

THE TURBINE SHED



The building to the left of the photo is a rear view of the turbine shed. It is attached to the back of the gristmill and the photo shows its relationship to the mill pond and the falls. In this shed lies the gristmill's horizontal reaction turbine which generates power for the mill. (This is quite different from the vertical water wheel of some mills.) Water to turn the turbine is supplied by an iron pipe that transports the water from the millpond. The turbine generates about 49 horsepower. It is interesting to note that, when Robert Chappel constructed the mill in **1872**, the turbine pit and raceway had to be blasted out of solid rock.

The turbine shed also houses the vertical penstock, a wrought iron cylinder 3 ft. (1 m.) wide. It descends 40 ft. (12 m.) into the turbine pit where it is joined to the 15 in. (38cm.) long horizontal penstock that feeds the water to the turbine. The penstock must be kept full for the turbine to rotate, so as water leaves at the bottom it is replaced with water from the pond. The water that fills this penstock creates the power to turn a reaction turbine which is located at the bottom of the pit. A steel shaft and a right-angle gear transfer the power to the gristmill. After the water passes through the wheel it escapes through a raceway to the creek near the bottom of the falls.

Heavy cast iron gears are attached to the drive shaft that powers the mill. Some of these gears (both here and in the basement of the mill) have hardwood teeth. The reason for that is as follows: These gears would have been made in Pittsburgh, a 6 week-long round trip by horse and buggy from here. If the teeth jammed and any broke it meant 6 weeks of lost production before they could be replaced. However, because the gears were made from hardwood immediate replacements could be made from wood readily obtainable in the surrounding bush.

In **1992** the Friends of Morningstar Mill completely reconstructed the shed and refurbished and restored the penstock, turbine shaft and gears to working order.

THE SAWMILL



The sawmill, which is directly across from the gristmill, was originally a community hall where dances and meetings were held. One night after Wilson Morningstar had purchased the property from the City of St Catharines, there was a serious fight there and Morningstar decided that the community hall must go. He converted it to a sawmill, which he operated for about 45 years. Morningstar's sawmill was powered by its own turbine which was located in the same pit as the turbine that powered the gristmill. The sawmill's turbine was connected to the saw by a steel shaft that crossed the creek on piers.

When Wilson Morningstar died in **1933** the sawmill was abandoned and eventually dismantled. In **2000**, the Friends of Morningstar Mill embarked upon its reconstruction and restoration. Since there was no record of the original mill, other than some photographs, we decided to construct a sawmill of the type used in the **1890s**. The timbers to construct the building came from a barn located at the Lions Club Park in Beamsville.

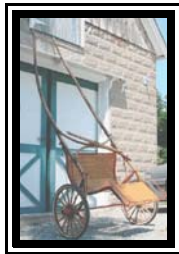
The sawmill incorporates a vertical blade circular saw 50 in. (127 cm.) in diameter. The logs are attached to a carriage that carries the logs to the saw. The sawmill is currently a work in progress. At present we are running the sawmill using tractor power takeoff, but we hope to power it by its own turbine sometime in the future.

THE BARN



This building dates to **1905** and houses the blacksmith shop and the carpentry shop, both of which have been restored to that period. During that time these shops operated in the same general area, although not in this building which was owned by a neighbour. (The original barn that housed horses and other equipment stood where the willow trees are now.) The foundation of the barn is poured concrete with large rocks used as fill. These are held together by concrete and reinforced by twelve-inch wide boards and large clamps. The upper walls are formed by concrete blocks.

THE BLACKSMITH SHOP: The original blacksmith and pattern shop was a large two story cinder block building which can be seen in pictures dated 1905-1910. The foundation of the barn (at the rear) houses the present blacksmith shop. In this building, blacksmiths, who are also Friends of Morningstar Mill, have constructed a replication of a blacksmith shop that would have operated about **1905**. The shop has belt-driven lathes and a belt-driven drill press that have been donated. The equipment has been fitted with electric motors to provide a safer environment for our volunteers and the visiting public.



THE CARPENTRY SHOP: Wilson Morningstar's original shop was a versatile endeavour combining carpentry, carriage and pattern making. In it, he would have made repair parts for the mills, as well as for customers and for use in his own house. The main floor of the barn is our present-day carpentry shop. So far, our equipment consists of a shopsmith, which incorporates a 10" table saw, a bandsaw, a mortising machine and a planer all in one. This machine weights approximately 2000 lbs. Work on this shop is well underway but we have quite a bit more to do yet.

Besides tourists, Morningstar Mill attracts many school tours, particularly Grade Three classes whose curriculum includes pioneer studies. The property at Morningstar Mill is also popular as a destination for all manner of leisure activities. Overseen by the Parks and Recreation Department of the City of St. Catharines, it is adjacent to the Bruce Trail, and is a favourite site for hikers and bikers. It also attracts those who simply enjoy its picturesque location during all seasons of the year.



A demonstration in the blacksmith shop is a popular school tour event



We hope that you enjoy your tour of the Morningstar Mill property and that you will come back again. **ADMISSION IS ALWAYS FREE** thanks to the work done by the Friends Of Morningstar Mill and the generous donations of our visitors. The mill buildings are open to the public during the spring and fall Open House weekends, as well as most Tuesdays, Thursdays and weekends throughout the nice weather. Please also visit us at www.morningstarmill.ca or call 905-688-6050.

This information was produced by the Friends of Morningstar Mill with the support of the City of St. Catharines.