Taking a Look at Pine Creek Grist Mill

By Ken Hyman

The **Pine Creek Grist Mill** (IA-070-001) is located in Wildcat Den State Park near Muscatine, Iowa. The mill sets on Pine Creek, a small tributary of the Mississippi

Pine Creek Grist Mill takes on new life. Photos by Ken Hyman.

River, and is about one mile from the Mississippi. The mill and an old iron truss bridge that crosses the creek within 100 feet of the mill appear on the National Register of Historic Places.

History of the Mill

The history of the mill goes back to the settlement of Iowa. On September 21, 1832, Chief Blackhawk had been defeated and the Sauk and Fox Indians signed a treaty relinquishing part of eastern Iowa. The government opened the area next to the Mississippi River for settlement and called it the Iowa District of Wisconsin Territory. In the spring of 1834, the first permanent white settler, Benjamin Nye, came to Muscatine County.

That first year Ben Nye made a living by trading with the Indians, but the area rapidly filled with white settlers and the Native Americans moved out. As the settlers flooded into the area they needed lumber and, in 1835, Nye built a sawmill. The settlers began to grow crops and they needed a grist mill, so Nye added a small grist mill to his operation. In 1839 the Territorial Legislature of Iowa gave belated approval to Nye for his mills by authorizing him "to construct a mill-dam across Pine Creek…and to erect mills and other machinery, etc." This was the first law to

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approve a dam and mill site in Iowa. That early grist mill was quickly outgrown and, in 1848, Nye built his third mill--what we know today as the Pine Creek Grist Mill. There is no trace today of the earlier mills and their exact locations are unknown.

The Pine Creek Grist Mill originally operated with three run of mill stones, but through the years the mill was extensively modified with updated milling machinery. A steam engine was added, then an addition was constructed to the mill to house equipment and provide more storage space. The mill went through many owners and operated until 1927, when the mill and adjacent property were incorporated into Wildcat Den State Park.

Machinery and Power

Today the Pine Creek Mill is a collection of machinery spanning the era of stone grinding to the "modern" steel roller mills, midlings purifier, and gradual reduction process. One set of mill stones from the original configuration of the mill is still present, but most of the mill is given over to steel roller mills and their attached processing equipment.

The mill has a Ridgeway and Sons Scroll Turbine

When the mill was built in 1848, power came by way of an overshot waterwheel located in the basement of the mill. In Iowa's climate and given the location of the mill directly on the creek, the waterwheel could not be located outside because ice and floods would quickly carry away an outside waterwheel. However, there is little evidence of the water wheel left in the mill. Sometime around the Civil War, the waterwheel was replaced with a water turbine, and a turbine is what powers the mill today.

The mill's turbine is a "Perfection Water Wheel" made by Craig Ridgeway & Son, Coatsville, PA. The runner of the turbine is 24 inches in diameter with a height of 15 inches. The Chester County Historical Society in West Chester, PA, has preserved much of the original literature from the Craig Ridgeway & Son Company. That literature states that the turbine would give 19.23 horsepower and turn at 200 rpm with a head of 15 feet; or give 10.57 horsepower and turn at 164 rpm with a head of 10 feet.

Old photos of the mill show a variety of dams, indicating that the dam was often washed out. Judging from the old photos, the height of the dam when the mill was operating was approximately 15 feet. The present dam is a combination of the old dam consisting of stone and mortar construction and the new dam built of concrete. The present dam, however, only gives a head of 10 feet, so the turbine cannot reach its previous level of power. In addition, because the present dam is lower, the water intake into the penstock is very near the surface resulting in air getting into the penstock and robbing the turbine of power.

The other source of power for the mill is a steam engine in the basement of the mill. Pine Creek is a small creek and sometime in the past during a drought the mill ran out of water. At that time a steam boiler and engine were installed as an auxiliary power unit. The miller did not buy a new steam engine but secured a used engine from a sawmill in Muscatine. In the 1800's large log rafts were floated down the Mississippi River from the pine forest in Minnesota and Wisconsin. At that time Muscatine, which is located on the big river, had several large sawmills processing the log rafts into finished lumber. However, the steam engine was not even new when the sawmill obtained it. The steam engine was originally the power plant on a Mississippi River paddleboat.

Evans Steamboat Company of San Francisco, California, built the steam engine. It has a 10-inch bore and a 22-inch stroke driving a flywheel 7'3" in diameter. It has conventional slide valveing and no reversing gear. The steam boiler is in very bad shape since it has been immersed by several floods and has suffered the ravages of time. The steam engine is in surprisingly good condition for being submersed by floods over the years.

The Milling Process

The French mill stones measure 36 inches.

Pine Creek Grist Mill contains a set of French grindstones that measure 36 inches in diameter and are dressed in the "quarter" dress pattern. After the renovation of the mill to install the roller mills, the one run of mill stones left was used primarily to grind buckwheat and rye.

Bolter for the flour coming out of the stones.

The mill stone "system" is one of three grinding systems in the Pine Creek Mill; each system is independent of the others and used for grinding different grains. The three systems are independent, but the elevators, chutes, bins, and machinery are all intertwined in a complex mix. The grain that passes through the stones is first run through a separator, grain cleaner, smutter and then through the stones. After being ground in the stones, the flour is run through a bolter and then sacked. The system is partially restored with the stones, some elevators, and the bolter working.

Bernard and Leas double roller mills once operated at Pine Creek.

The second "system" is the corn milling system. This set of machinery was used to grind corn into feed utilizing a three-roller mill manufactured by Willford and Northway, Minneapolis. Besides the three-roller mill, the "corn system" has a corn sheller/cleaner, bolter, and attendant elevators, chutes and storage bins. The three-roller mill has been operating and hopefully during the next year the corn sheller/cleaner, bolter and elevators will be restored and the whole system can operate next year.

A three-roller mill was used for corn feed.

The third and final "system" is the heart of the mill containing three double-roller mills used to grind wheat into flour. The double-roller mills were manufactured by Bernard and Leas, Moline, IL, as well as the bolters, flour dressers, etc. that make up this system. It is a complicated system with grain cleaners, smutters, bolters, flour dressers, and many elevators, chutes and storage bins. This whole system is deteriorated and needs restoration, but hopefully parts of the system can be restored within the next few years. This system was probably purchased as a set in the late 1800's. The patent dates on the machines range only over the years 1887 – 1888.

Restoration

The Pine Creek Grist Mill operated until 1927, but operations had been curtailed in the early 1920's. Since that time the mill has slowly deteriorated with some intermittent repair to keep the mill from falling down. The mill is on the National Register of Historic Places and it is important in both local and regional history. In the fall of 1996, the Friends of Pine Creek Grist Mill were organized with the mission of restoring and preserving the history of the mill. The Friends group energized many people and organizations to work on the project. In cooperation with the Iowa Department of Natural Resources which owns the mill, the Friends have secured over half a million dollars for restoration. The Friends have also volunteered many thousands of hours repairing machinery, staffing the mill, writing grant requests, raising money, and doing the myriad of other tasks required to restore the mill.

As work progressed on the mill the Friends discovered that the mill structure and foundation were in very bad shape. Part of the foundation on the creek side of the mill was missing and part of the rest of the foundation was crumbling. Structural beams, some as large as 14 x 14 inches and 37 feet long, were rotten. Some minor repair work was being done on the dam when it was found that a six-foot rod could be stuck under the dam and not hit anything–obviously a problem with the dam's stability. Over several years the repair work was done and now the mill has a good foundation and is structurally sound. The dam still needs some work, but is in much better shape than a few years ago. This last year a fire suppression system was installed in the mill.

As anyone who has restored a mill knows, this has been very labor intensive, but a labor of love with much still to accomplish.

Interpretation

One of the goals of the Friends of Pine Creek Grist Mill has been to actively interpret the mill and the history of milling. Restoration is an on-going project and the Friends have kept the mill open during this work. The Friends staff the mill on Sunday afternoons during the

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The International Millstone Conference

By Charles D. Hockensmith,
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During May 17-19, 2002, the City of La Ferté-sous-Jouarre, France, hosted an international conference or "Colloque International" on millstones. The conference was entitled "Extraction, Faconnage, Commerce et Utilisation des Meules de Moulin--Une Industrie dans la Longue Durée". The English translation is "Quarrying, Stone-Working, Trade and Use of Millstones, Long-Term History". Ethnologist Mouette Barboff and historian Fransçois Siguat did a wonderful job in organizing the conference. This was a very appropriate location for a millstone conference since La Ferté-sous-Jouarre was once the millstone capital of the world and millstones from these quarries are still considered to be the best. I had the privilege to attend the conference and present a paper. My paper was entitled "The Conglomerate Millstone Industry in the Eastern United States." Because this was the first such conference ever held on millstones, I thought that fellow readers of *Old Mill News* would be interested in a summary.

First, a few words about La Ferté-sous-Jouarre. As those of you that have studied millstones know, the famous French burr millstones were quarried and manufactured at La Ferté-sous-Jouarre. Situated in northern France, the city is about 65 kilometers east of Paris. La Ferté is in a valley with the beautiful La Marne River flowing through it. For many years, I have been curious about the long hyphenated name La Ferté-sous-Jouarre. My answer came from an Englishman residing in the city who was riding with us on a bus tour as our interpreter. I asked him where we were on the trip and he said Jouarre. He then went on to explain that there are many La Fertés in France. To distinguish this city from other cities with the same name, the sous-Jouarre was added. Jouarre is situated on a hill top over looking La Ferté-sous-Jouarre which is in the valley below. The Englishman stated that the name literally meant La Ferté under Jouarre.

For those wishing to know more about the millstone industry at La Ferté-sous-Jouarre, I highly recommend an excellent book by Owen Ward entitled French Millstones: Notes on the Millstone Industry at La Ferté-sous-Jouarre. This book was published by The International Molinological Society in 1993. This is a very scholarly work which contains many excellent photographs and maps. Anyone interested in the study of millstones should have a copy of this book in their personal library.

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summer so the public can tour the mill. Thousands of school children have toured the mill along with family groups, bus tours, community groups, etc.

The Friends also organize and host a festival called Heritage Day every fall. This event highlights the area's pioneer heritage and focuses attention on the mill. Dozens of pioneer skills have been demonstrated over the last several years along with antique farm machinery. Heritage Day has developed into an event anticipated by the community each year and attended by several thousand people. It is scheduled for the first or second Saturday after Labor Day every year.

If you are interested in the mill visit: www.pinecreekgristmill.com or contact: Wildcat Den State Park, 1884 Wildcat Den Road, Muscatine, Iowa 52761,563/263-4337. You can also contact Tom Hanifan, 1226 Vista Court, Muscatine, Iowa 52761, phone (563)263-4818 or e-mail Thanifan@machlink.com. Mr. Hanifan is president of the Friends of Pine Creek Grist Mill.