

Peirce Mill

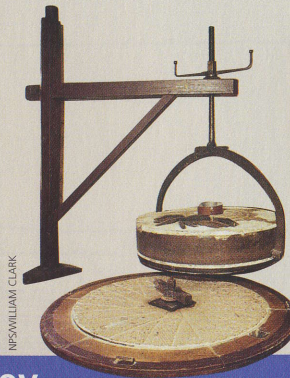
National Park Service
U.S. Department of the Interior



Rock Creek Park
Washington, D.C.



"I was grinding a load of rye for a neighbor when the main shaft of the mill broke," Alcibiades P. White recalled. "I was about half through with the work, and the neighbor had to haul his unground rye away, and I guess he never got it ground. That was the last time the mill operated." That accident in 1897 ended many decades of milling along Rock Creek, for Peirce Mill was the last of eight mills in Rock Creek valley.



NPS/WILLIAM CLARK

Milling became a highly technical operation with the introduction of Oliver Evans's techniques. Millstones (left) represented the age-old methods that remained unchanged. The bolter (right) stood for the latest in mechanical ingenuity.

Milling in the Rock Creek Valley

By 1897, Peirce Mill had outlived its time. Newer, more efficient mills using steam to power the machinery already could produce fine, white flour faster and less expensively. Today Peirce Mill represents the rural society and economy of America in the 1820s when the transition to power-driven machinery replaced centuries-old methods that relied on sheer muscle power.

The Peirce Family The Peirces traced their origins back to Isaac Peirce, who left his Quaker parents in Pennsylvania, probably in the 1780s, to seek his fortune in Maryland. Peirce worked for Abner Cloud as a millwright, building and repairing mill machinery. In time Peirce married Cloud's daughter, Betsy. In 1794 he bought a 150-acre tract of land that included a mill. By 1800 Peirce's holdings stretched from near the National Zoo north to Chevy Chase. Finally in 1820 he and his stonemason son, Abner, rebuilt the mill using blue granite quarried in the nearby Broad Branch area, giving us today's Peirce Mill. When Isaac Peirce died in 1841 he left the property to his son, who managed it until his death 10 years later. The mill then passed to Abner's nephew, Pierce Shoemaker, who owned it until 1891.

Neither the Peirces nor the Shoemakers were millers (those who operate mills). Isaac was a millwright (one who builds mills), Abner a stonemason, and Pierce Shoemaker a jeweler. A succession of experienced millers ran the mill for them. Despite the Peirces' lack of direct involvement in milling, they were nevertheless interested in the technological changes milling was undergoing.

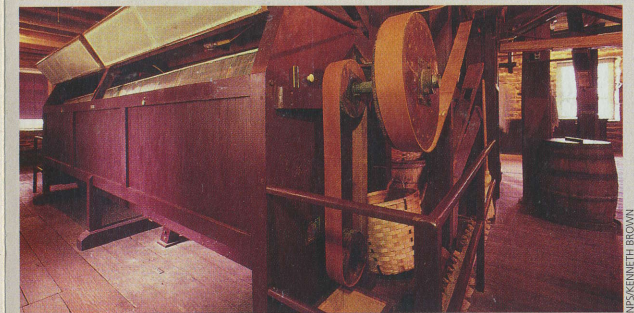
New Technology For centuries mills had relied on the miller's strength and that of his burly helpers. A major change in the industry occurred in 1795 when a young miller from Delaware, Oliver Evans, wrote a book—*The Young Mill-Wright's and Miller's Guide*—that revolutionized milling. This book made a science out of what was traditionally a craft. From the time the grain was poured into the receiving bin until dry, clean flour dropped into the holding bins, machinery did all the work. This was Evans's achievement. In 1820, the Peirces rebuilt their mill using the Evans system.

Business was usually brisk at Peirce Mill, especially during the 1860s. Often as many as 12 wagons a day loaded with wheat arrived for grinding. A miller with a helper or two could grind

more than 70 bushels a day on each set of buhrs, or millstones.

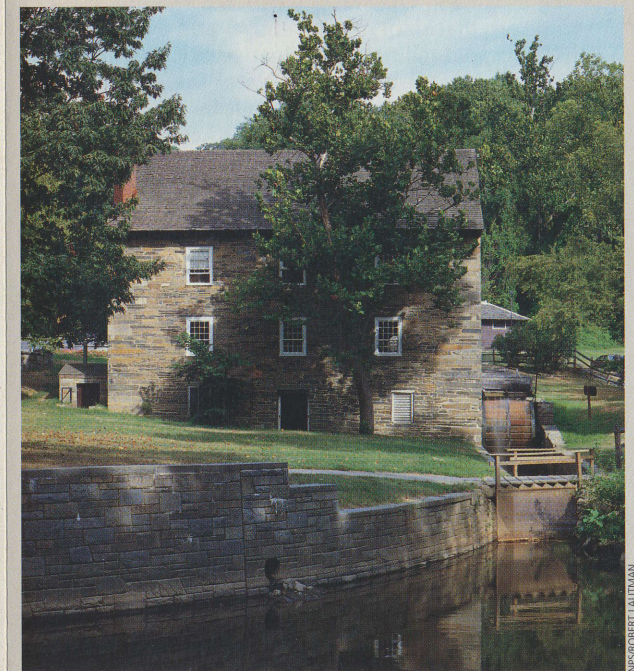
Today there are three pairs of millstones at Peirce Mill. All the millstones here measure about 4½ feet across and weigh about 2,400 pounds. A miller could not properly operate his mill without the help of the stone dresser, who, with his pick-like millbill, chipped away at the runner and bed stones, sharpening the furrows and shaping the raised areas about every three weeks. Finely ground flour was prized for its baking qualities, so a skilled stone dresser was a valued employee.

Adjusting the distance between the stones was the most critical operation the miller performed. The runner stone, balanced on a spindle, revolved at about 125 revolutions per minute a fraction of an inch above the bed stone. An experienced miller could tell by rubbing some flour between his fingers if the stones were properly positioned and thereby producing the highest grade of flour possible. If adjustments were needed, they could be made easily. Together the miller and stone dresser worked to create a product that satisfied their customers.



NPS/KENNETH BROWN

Information



NPS/ROBERT LAUTMAN

Peirce Mill is in Rock Creek Park near the intersection of Beach Drive and Tilden Street. All tours of Peirce Mill begin at Peirce Barn, located across from the mill in the parking lot area on Tilden Street. Peirce Barn has exhibits about mills of the Rock Creek Valley and the Peirce Estate. For visiting times, and for special programs and group reservations, call or visit the park website; see information below.

Peirce Mill and Peirce Barn are located in Rock Creek Park, a unit of the National Park System. Visit www.nps.gov to learn more about national parks and National Park Service programs in America's communities.

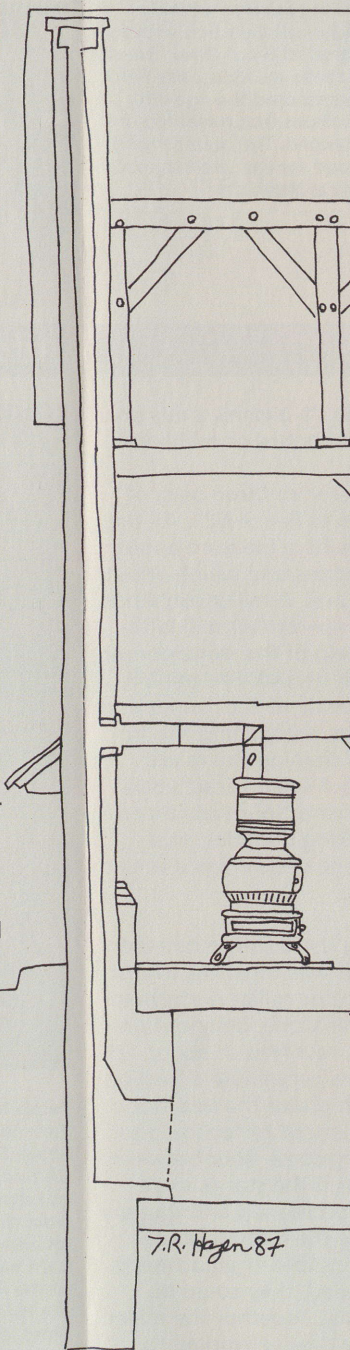
Rock Creek Park
3545 Williamsburg Lane, N.W.
Washington, DC 20008-1207
202-895-6070
www.nps.gov/rocr

☆GPO:2004-304-337/00145 Reprint 2004
Printed on recycled paper

Today at Peirce Mill

In 1890 Congress established Rock Creek Park, and two years later the Federal Government condemned the Peirce Mill property. After the mill ceased functioning in 1897, it served as a public teahouse until the 1930s. In 1934 Secretary of the Interior Harold Ickes suggested that Peirce Mill be restored for visitors as part of a general program of depression-era improvements in Rock Creek Park. The waterwheel and interior machinery were rebuilt, and the old millrace was cleaned out and repaired. Two years later the mill resumed operation, but by 1958 the facility was closed. National Park Service planning for the second restoration began in 1967, and Peirce Mill was opened to the public three years later.

Waterpower Rock Creek once supplied the source of energy that turned the waterwheel. Once rotating, the main shaft turned the wooden gears that provided motion. The result was power that did the grinding, lifting, cleaning, drying, and grading of the grain and its flour. About 60 percent of the power was needed to rotate the mill stones; the rest of the power did all the other work. That nearly all of this machinery is wood suggests the ancient origin of milling techniques. This combination of labor-saving methods introduced by Oliver Evans and the use of wooden machinery marks a transitional stage in the milling industry.



How It Works

The drawing at left shows the internal workings of Peirce Mill. The numbered paragraphs below correspond to the numbers on the drawing. The waterwheel, from which all power for the mill came, is directly below this column of text.



shoe beneath the hopper regulates the flow of grain onto the **bedstone**.

6 This is where the major work takes place. The grain falls onto the **millstones** where it is cut, not ground or crushed, by the rotating stones that move at the rate of 125 revolutions per minute.

7 The grain is now warm and moist flour. It falls through a **chute into the basement** where **elevators** pick it up and carry it up to the attic.

8 The **hopper boy** cools and dries the flour

9 The cooled, dry flour drops into the **auger**, which moves it, while continuing to dry it, to the head of the **bolter**.

10 A revolving motion moves the flour over the **bolter's** screens that vary from fine to medium mesh. Flour falls through the finest mesh. Middlings—bran flakes with some flour particles—pass through the medium screen. And bran, the coarsest, falls out the end.

11 The flour, depending on its fineness, drops into different **holding bins** and afterwards is loaded into barrels. Sacks did not come into common use until about 1900.

1 Grain—wheat or corn—goes into the **receiving hopper** (behind bins, not shown on diagram) and drops down a chute to the elevator in the basement.

2 The elevator dumps the grain into the **rolling screen** where a double-mesh screen filters out dirt and any foreign objects. Different grains go into different chutes.

3 At the end of the chute the grain falls into the **smutter** or **fanning mill**. This action removes any mold that may have grown on the grain.

4 From the fanning mill the grain falls into **storage bins**, directly above the millstones.

5 From the bins the grain falls into the **hopper** that sits directly above a hole in the middle of the **millstones**. The

In this diagram, the blue arrows trace the path of the grain to the millstones. The red arrows follow the newly-ground flour from the stones to the finished product.