

Finding the Haun's Mill Face Wheel

Newell R. Kitchen and John L. Fowles

On 12 April 1986, a group of about fifty students of the Columbia, Missouri LDS Institute of Religion of The Church of Jesus Christ of Latter-day Saints toured several significant early-Mormon historical sites in western Missouri. One of the first stops was in the town of Breckenridge, approximately six miles north of the Haun's Mill massacre site. Located within the town park is one of the Haun's Mill millstones, set in concrete as a memorial to the tragedy that took place on 30 October 1838. While there, we approached an old local gentleman working in the park and inquired if he knew anything about the millstone. He introduced himself as "Cowboy" Bill Howell; and among other things, he told us that he had a piece from the Haun's Mill waterwheel at his house. He said that in July 1981, he and a friend had been fishing at the massacre site on Shoal Creek when they came across a piece of cast iron protruding out of the stream bank. They backed their truck between the trees and down near the bank and pulled the piece out with a chain. He thought the artifact was the metal frame for half of the waterwheel from the old mill and hoped that some day he might run upon the matching other half so he could reconstruct the wheel. As the group

NEWELL R. KITCHEN received a BS from Brigham Young University, an MS from University of Missouri—Columbia, and a PhD from Colorado State University in Soil and Crop Sciences. He was a research assistant professor at the University of Missouri from 1990–96. Since 1996, he has been a soil scientist with the USDA—Agriculture Research Service in Columbia, Missouri.

JOHN L. FOWLES received his BS and MA degrees from Brigham Young University and a PhD from the University of Missouri—Columbia in Education, with an emphasis in Religious Studies. He has taught in the LDS Church Educational System for twenty-seven years and is currently an instructor at the Logan LDS Institute of Religion.



Left to right, Newell R. Kitchen, John L. Fowles, and "Cowboy" Bill Howell at the Haun's Mill site, July 1986. Photograph by Newell R. Kitchen.



"Cowboy" Bill Howell standing with the Haun's Mill face wheel at the location where he found it in 1981 while fishing with a friend in Shoal Creek, July 1986. Photograph by Newell R. Kitchen.

readied to leave the park, Newell slipped back and asked Bill if he was interested in selling the "wheel." He replied that he was getting old and that he had lost interest in it; he then volunteered to sell it for \$25.

During the next couple of months, we and another associate, Terry Harris, spent considerable time at the Missouri Historical Society Library on the campus of the University of Missouri. No information could be found in journal accounts or other documentaries to describe specific details or mill components about the Haun's Mill gristmill. However, we were able to find several books containing pictures and blueprints of restored mills that helped us to identify the item that had been located. Much of the information we looked at indicated that the water

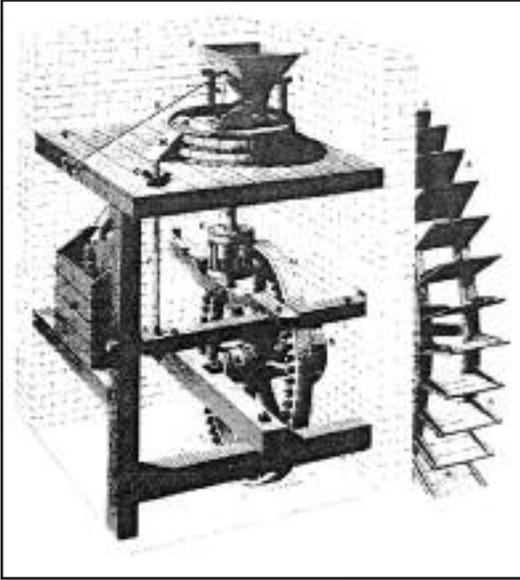
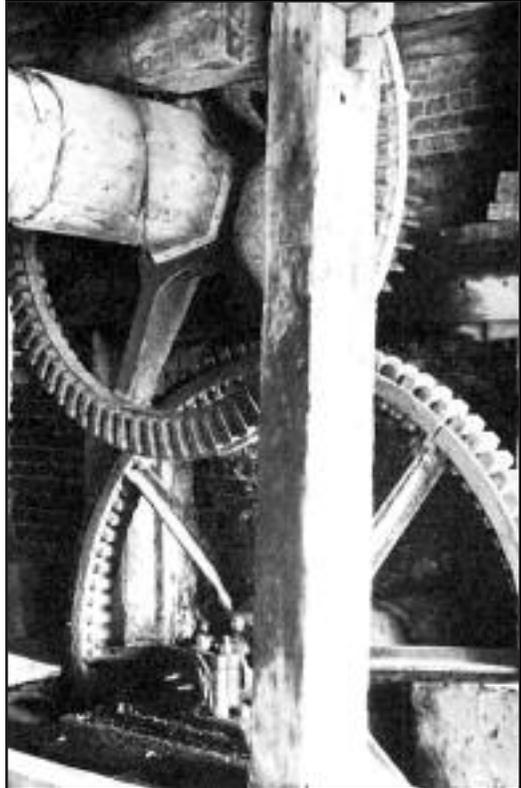


Figure of an early gristmill showing the face-wheel gear just inside the inner wall of the mill. Published in Martha and Murray Zimiles, Early American Mills (New York: Clark N. Potter, 1973), 14.

Photograph of a restored gristmill. The gear wheels in this photograph are similar in size and shape to the Haun's Mill face wheel. Notice the wooden gear teeth connected to the cast-iron spokes of the wheel. Published in John Reynolds, Windmills and Watermills (New York: Praeger Publishers, 1970), 26.



wheels for the mills for that era were made almost entirely out of wood and that any significant metal pieces were a part of the machinery inside the mill. In those days, it was not uncommon to have flash floods damage or destroy the outside millwheel. However, because the wheel was made of wood, it could be replaced easily. Therefore, we concluded that the item was not part of a mill water wheel, as Bill Howell had speculated. The wheel-shaped item in our possession matched in size and shape what was called a mill “face wheel,” a gear wheel common in gristmills of the time period. The following is a description of the function of the face wheel in gristmills of the 1800s:

The average waterwheel revolved slowly, usually about fifteen times a minute. Most millstones of forty-eight-inch diameter needed speeds of about 125 rpm. This was accomplished by gearing. Gears at first were constructed of hardwood, most often oak. The individual wooden teeth were replaceable. When one wore out, all that was necessary was to carve a new one and wedge it in. Later, in the first quarter of the nineteenth century, wooden gears were replaced by cast-iron ones.

In the typical early gristmill using any one of the vertical wheels, the water wheel was paralleled by another large wheel attached to the same shaft. This wheel was called a face wheel. It meshed with a much smaller gear called the lantern gear or wallower, which turned a vertical shaft. The meshing of these two gears translated the vertical power of the waterwheel into the horizontal action needed for the stones. In more primitive mills, the vertical shaft turned by the wallower went directly to the stones to turn the runner. This simple gearing is rarely found in America. More commonly the upper end of the vertical shaft turned a large horizontal wheel called the spur. It meshed with one or more lantern gears, which turned the spindles of one or more stones.¹

In mid-July 1986, we returned to Breckenridge to obtain details on where Bill Howell had actually unearthed the wheel. We drove him to the Haun’s Mill site with the wheel in our possession. Between our visit to the site in April of that year and this trip in July, a new redwood sign had been erected by the Reorganized Church of Jesus Christ of Latter Day Saints (now the Community of Christ), which owns the property. When we first parked and got out, the sign was not even within sight. We asked Bill to take us to where he had found the wheel. After walking parallel to the stream for awhile, Bill pointed and said that he had found it “over beyond that sign over there.” Until that moment, none of us had noticed the new sign; and from where we were, we could not even read what was written on it. Bill was elderly and a little lame in his walk, but his mind was sharp and he was quite familiar with the area from years of hunting and fishing. Without hesitation, he took us beyond the sign over next to the stream bank. After a few minutes of examining the bank and the large trees, he indicated that he was standing within feet of where he had found the wheel. Returning to the site



John L. Fowles standing at the spot where Bill Howell indicated he uncovered the face wheel in 1981 on the north side of Shoal Creek, July 1986. Photograph by Newell R. Kitchen.

where the face wheel was originally discovered by Bill Howell is significant because the site provides a legitimate clue as to where the mill was situated on the banks of Shoal Creek in the 1830s.²

The face wheel is slightly less than forty-seven inches in diameter. It is made of dense, hardened cast iron; and while it is pitted from rusting, the wheel is structurally sound. Its density is much greater than rock material. We speculate that had it been exposed to the currents of spring flood waters, the face wheel would not have moved; therefore, this site is possibly very close to the original mill site.

In August, we delivered the face wheel to the LDS Museum of Church History and Art in Salt Lake City, Utah. An arrangement was made over the next couple of months by the curators of the museum to display the wheel as a joint donation between the Reorganized Church of Jesus Christ of Latter Day Saints and the Columbia Institute of Religion of The Church of Jesus Christ of Latter-day Saints.

Significantly, an additional discovery possibly connected to the face wheel recently occurred. On 21 September 2003, during an archaeological dig conducted by Paul DeBarthe at Haun's Mill, a twelve-centimeter-long, small metal object was recovered, but what it was could not be determined. Three weeks later, on 12 October, Newell visited the mill site with the



Haun's Mill face wheel on display at the LDS Museum of Church History and Art, Salt Lake City, Utah, 23 March 2001. Photograph by Alexander L. Baugh.

intention of relocating the place where the mill face wheel was first found as pointed out by Bill Howell in 1986. During this visit, Paul DeBarthe showed him the unidentified object to get his assessment. Newell was very interested in the artifact and wondered if it might have fit into the mill face wheel. Because he was planning a trip to Salt Lake in November, Paul loaned him the piece so he could test the theory. Newell noted that it

appeared to be about the same size as a grooved slot on the inside of the face wheel hub. Also, the composition of the artifact seemed to be similar to that of the face wheel. With the item on loan from the Community of Christ, by prior arrangement, on 14 November 2003, we met at the Museum of Church History and Art in Salt Lake City. We were joined by Alexander L. Baugh, a professor of Church history and doctrine at BYU who has been researching the Missouri period of LDS history for many years. Museum officials allowed us to compare the artifact with the face wheel groove. The artifact fit nearly exactly in width and depth to the groove on the hub but was slightly shorter than the groove length. The examination concluded that this artifact could have been a “locking pin” or “wedge pin” for the face wheel to help secure the axle in place.

The discovery of the face wheel in 1986 and the more recent discoveries by Paul DeBarthe and his archaeological teams give additional knowledge to our understanding of the life and culture of the Latter-day Saints living in northern Missouri in the 1830s.



Haun's Mill face wheel locking or wedge pin, 14 November 2003. The artifact was discovered at the Haun's Mill site on 21 September 2003 by an archaeological team headed up by Paul DeBarthe. Photograph by Alexander L. Baugh.



Haun's Mill face wheel shown with the locking or wedge pin in the inside groove, LDS Museum of Church History and Art, Salt Lake City, Utah, 14 November 2003. Photograph by Alexander L. Baugh.

Notes

1. Martha and Murray Zimiles, *Early American Mills* (New York: Clark N. Potter, 1973), 36.

2. For an additional description of the discovery of the face wheel, see "Institute Class Discovers Artifact from Haun's Mill," *Church News* 57, no. 30 (25 July 1987): 10.

