

Sutter's Mill, Some History

When James Marshall, a carpenter from Lambertville, New Jersey, discovered gold in the tailrace of the sawmill he was building in northern California in 1848, the repercussions shook the world. This roughly built timber-framed mill may have received more attention than any other structure in the state. Historians, in their pursuit of the exact day and time of the discovery of gold, have studied volumes of diaries, and archaeologists have unearthed timbers and flooring of the lower frame to inscribe into California history the exact location of the sawmill in what is now the town of Coloma. A replica of the sawmill, constructed in the sixties to last a hundred years, is falling apart thirty-odd years later.

The story begins with Swiss immigrant John Sutter, whose empire was expanding and who needed plenty of lumber. He had a whipsaw supply from land he acquired on the Russian coast, but it was costly to ship the lumber to Yerba Buena, now known as San Francisco, and then up the Sacramento River to New Helvetia, now Sacramento. He also had some sawpits about 40 miles from Sutter's Fort in the Sierra foothills near what is today the town of Sutter Creek. He had a lot of handwork to do and not enough hands to meet his needs; waterpower became his focus. To this end he sent out exploratory parties, and made a final decision in the selection of the site, and a partner, on August 27, 1847. In his New Helvetia Diary, he wrote, "Made a contract and entered into partnership with Marshall for a sawmill to be built on the Amer: fork."¹ Sutter would supply labor, equipment, supplies and cash. Marshall would build the mill and run it, and they would split the profits.

Marshall soon left for the mill site, followed by wagonloads of provisions, ten laborers (five of them Indians, five Mormons) and 20 sheep to provide the crew with fresh meat.² After a number of trips to Sutter's Fort for supplies, Marshall also was able to round out his workforce, in the persons of more Mormons. Two of them, Henry William Bigler and Azariah Smith, kept diaries. The following entry is from Bigler's diary.

Monday the twenty-seventh of September. . . a man dressed in buckskin came to our quarters while we were at dinner, informing us that Captain Sutter wanted four men from our crowd to go . . . up the American fork into the mountains about 30 miles, to work and help build a sawmill. This man, whom we were to accompany, was James W. Marshall, an entire stranger to us, but proved to be a gentleman nevertheless. He told us he had been up in the mountains with a few hands only a short time; but as some of them were going to leave soon he wished to get a few more. We learned that he and Sutter were in co-partnership in building the sawmill. So late that afternoon myself and three others set out with Mr. Marshall, accompanied by a Charles Bennett late from Oregon.

We arrived on the twenty-ninth. . . The country around the mill site looked wild and lonesome. Surrounded by high mountains on the south side of the river, the mountains were densely covered with pine, balsam, pinion pine, redwood [probably cedar], white oak, and low down the live oak, while on the north side there was not much timber; the mountains were more abrupt and rocky, covered in places with patches of chamisal and greasewood. . . The work now to be done was to get out the mill timbers, dig out a mill site, put in a dam, and cut a tail race 40 or 50 rods long. . .

Everything was now going on nicely, Bennett and Scott working on the bench, Stevens hewing timbers, Brown and



Photos Paul Oatman

Photograph of copy of 1853 daguerreotype hanging at the California State Library at Sacramento, showing Sutter's Mill in a state of dilapidation. Boarding and cloth hanging in farther bay suggest its use as a rough habitation. The man standing in the tailrace, now deeply silted up, has been uncertainly identified as James Marshall.

Barger either chopping, scoring, or chopping down timber. Sometimes the two latter whipsawed, and sometimes it was Brown and an Indian that sawed together. . . [The latter] seemed to be very fond and anxious to learn, and when we told him we were making a mill that would saw by itself, he did not believe it. Said it was a damned lie, such a thing in his estimation could not be done. Wimmer had charge of some Indians cutting the race a little deeper. I was drilling into some boulders near where the water wheel was to be, while Marshall superintended the whole affair.³

Azariah Smith's diary gives further particulars:

Sunday Nov the 14th — The past week I made pins for the mill.

Sunday Nov the 21st — The week past I have been to work by the day boring, and martacing timber.

Sunday Nov the 28th — The week has passed off pretty busy, and the mill goes ahead a good job; we have part of the dam in, and the bents, and plates of the lower story raised.

Sunday Dec the 19th — The week past I with two others pin[n]ed the pla[nks] on the forebay.⁴

Scholars have fixed January 24, 1848, as the fateful day of the discovery of gold. Bigler's entry that day reads, "This day some kind of mettle was found in the tail race that . . . looks like gold." The next morning after breakfast, Bigler reports,

Brown to his sawing, Stevens to hewing, I to my drilling, every man at his own job. Marshall came up carrying his old white hat in his arm looking wonderfully pleased and good natured. . . As he came up he said, "Boys, by G-d. I believe I have found a gold mine."⁵

But the work on the mill resumed. On Sundays the men would pick for gold with their pocket knives. Bigler's entry for February 22 reads,

When we arose that morning we found the ground white with snow that fell during the night. The upper frame of the sawmill, or top story if you please, was to have been raised that day. Marshall came in about the time we were at breakfast and said, "Boys it is going to be pretty slippery today and rather bad about putting up the frame."

It seems everyone agreed and then ran off for a day (or more) of gold hunting. Neither Smith nor Bigler gives the day of the raising, and they differ by one day on the actual inauguration of the sawmill. Bigler's account mentions the skeptical Indian It's-A-Damned Lie:

On Saturday the 11th of March, Mr. Marshall started the sawmill. It was a curiosity to the Indians, and the very Indian who said it was a lie, that no such outfit could be made, was completely beat. He lay on his belly where he could have a fair view from the bank, but near the saw, and lay there for two hours watching it. He was taken with it and said it was "wano" [bueno] and wanted to be a sawyer right off. . . . The next day was Sunday. The saw ran all day and cut very well, and for aught I know, it was the first sawmill built in California. There was not quite fall enough yet in the tailrace, and the week was mostly spent in completing the race.⁶

Smith's account puts the inauguration of the mill on the next day:

Sunday March the 12th — The past two weeks as usual, I have been to work on the mill; and last Sunday I picked up two dollars and a half, below this place about two miles. Today we started the mill, and sawed up one log and are pinning it to the forebay. The mill runs very well, but the back water hinders some, and the tailrace will have to be dug deeper.

Sunday March the 19th — Last week we ran the mill some and it cuts well, making beautiful plank.⁷

The mill had a very short life. It operated only a couple of weeks, during spring high waters in 1848, and then lack of laborers forced it to close until March of 1849. Spring rains closed it again until June. By this time Sutter had sold his interest, and Marshall had some new partners, Alden Bayley and John Winters. The mill did a good business from 1849 to 1850. But other mills started operating in the area, and mismanagement drove the mill into the ground. By 1853 the millrace was buried in the river bed and Marshall was in debt. A daguerreotype made that year shows Marshall standing in the tailrace.⁸ This one picture, along with Marshall's drawings of the building, are the only original sources we have for the size and framing of the sawmill, which was stripped of its wood for other uses. The most interesting use was by a Coloma carpenter, John McGonnigal, who gained possession of the oak headblocks and turned them into canes for souvenirs.

An early call for preservation was made by the editor of the Coloma *Empire County Argus* on May 13, 1854:

It would be well to preserve some vestige of the past—a relic to open the pages of our early history: and what more fitting emblem could be preserved than Sutter's Mill. It is, at the present time an object of curiosity and will become more so. Frequent pilgrimages are made to the place on purpose to visit the old Mill. . . . As time progresses, this spot will become more attractive and consequently numerous visitors will congregate here, to examine the place where gold was first discovered and take a look at the old Mill. Who would dispute its claim to being classic ground?⁹

Though unheeded, the editor's prophecy became truth.



In 1965, a replica of Sutter's Mill was begun in Coloma for the State of California as part of the James Marshall Gold Discovery Park.

INTEREST in Sutter's Mill revived about 1920. The State of California sought to mark the exact location of the historic mill. During the particularly dry year of 1924, a Coloma resident had noticed the foundation of the old mill sticking just above the water. Satisfied after investigating that this was the foundation of Sutter's Mill, San Francisco's Society of California Pioneers that year directed a marker of river rocks to be set in concrete at the mill site. While excavating for the marker, workmen found a hewn 10x10 about 12 ft. long, thought to be from the lower frame, and a 5-in. whipsaw about 6 ft. long.¹⁰ With the approach of California's Gold Centennial in 1948, interest in the mill awakened again. The state acquired the site with nine acres in 1942.

In a 1947 publication of the California Historical Society to mark the centennial of the gold discovery, Dr. R. F. Heizer, then assistant professor of Anthropology at the University of California, shed an astronomical amount of light on the exact size and construction of Sutter's Mill.¹¹ Through careful excavation, Dr. Heizer was able to document the timbers, the flooring and other artifacts. His permanent records comprise two journals, a set of field notes, a large number of photographs and 300 ft. of 16mm movie film. Heizer wrote a large interpretive section, but it's difficult to comprehend because of his confusion of builder's terms. For example, a post may be called an upright, but not an upright joist. Heizer also confuses sleepers with stringers and girders with plates, and at times gives the same timbers different names. Nonetheless, his drawings and measurements are persuasive.

Drawings of early sawmills confirm that John Marshall was familiar with mill construction (for example, sleepers seem to be the normal base). Marshall built separate upper and lower wood frames for his two-story structure, though some mills of the period had a stone or brick first story, or continuous posts to the top plate. Marshall's design may have arisen from a lack of sufficient manpower to handle a 30-ft.-high wall, and, in any case, the building was intended for a cut-and-run operation, rather than to last indefinitely. However, the structural logic is evident, with the lower story particularly well braced in the direction of timber movement through the mill, and the upper story, merely a roof over the operation, lightly braced.

The drawing by Adan E. Treganza, included in Heizer's report, illustrates the mill frame. Marshall specified a plan 60 ft. long by 20 ft. wide, and Heizer confirmed these measurements from a number of sleepers excavated along with a ground sill. The base of the mill comprised five sleepers roughly 30 ft. long set on 15-ft. centers. Variable notches about 5 in. deep and 20 ft. apart received the 60-ft. ground sills. The notches varied probably to achieve level, and one had a shim in it. (Was it Bigler, Smith or someone else who miscut?) The 11x12 ground sills had 2½ by 6-in. mortises for the posts, set in from the ends to provide relish.

In the lower fame, 18-ft. 12x12 posts carried dropped 12x12 tie beams with central through-tenons, double pinned. Buttresses ran from near the ends of the sleepers to about 8 ft. high on the outsides of the posts; 2-in. pins alone fixed the butt joints at each end. The 4x6 head braces from the posts to the dropped tie beams were fixed with single pins across standard housed mortise and tenon brace joints. Full-length X-bracing (lapped at the crossings and apparently mortised in) provided extra stiffness to the working bays. Floor joists for the upper level appear to have been 8x8s somewhere around 2 to 3 ft. on center.

Whether the streak sills (the long timbers intermediate between groundsills and top plates) and top plates were full length is unknown, as the majority of timbers recovered are from the lower frame. Head braces in the upper level appear to have been on an unusual 30-degree angle, again with standard mortise and tenon brace joints. The roof frame comprised a common rafter system of 4x4s about 4 ft. on center, with nailers spaced about 3 ft. apart and roof boards running from plate to peak nailed to the purlins. The main frame was virgin sugar pine. The flooring was 1-in. sugar pine 14 in. wide and pinned down by our boy Azariah Smith.

These flooring pins were fox-wedged in the sleepers. The end of a pin was cut off square, then kerfed and the thin end of a wedge inserted. When the pin was driven, the wedge, arriving at the bottom of the hole, would be forced deep into the kerf and thus spread the side-grain of the pin tightly against the bore. Dr. Heizer supposed from this evidence that all the pins in the frame must have been square ended, but, chances are, they were pointed for a draw-bore. Many of the beams he found are now enclosed in a climate-controlled, glass-walled building at Marshall Gold Discovery Park in Coloma.

In 1965 a replica of the mill was built. I understand that this was during the Dark Ages of timber framing, but the crew who constructed this frame went beyond the pale. With all the experts watching, they ignored the daguerreotype as a primary source of information as well as Adan Treganza's excellent drawing representing Dr. Heizer's findings. The builders left no relish at the ends of the plates, resulting in open mortises that left the posts to twist as they pleased. They single-pinned the dropped tie beam tenons, significantly weakening the connection. They face-pinned the braces (housed but not mortised) and cut unique and alarming scarf joints in the girts and plates.

Glen Shepherd, one of the carpenters, described how the braces were installed: "The knee braces were put in place by using a 5-ton

hydraulic jack. We placed it in the center of the cross-members using a 4x4 from the ground level up to the cross-member. We then jacked up the cross-member into a 3-in. crown. While the timber was in this position we slipped in the new braces."¹² The State of California has plans to try again, sometime in the next three to ten years. This time, up-to-date skills could be employed, perhaps under the wise aegis of the Guild, to replicate the valuable timbers—the gold—that Dr. Heizer discovered. —PAUL OATMAN
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Notes

¹ Cited in Theresa Gay, *James W. Marshall, The Discoverer of California Gold* (Georgetown, California: The Talisman Press, 1967), 132.

² *Ibid*, 133-134.

³ Cited in Erwin G. Gudde, *Bigler's Chronicle of the West* (Berkeley: University of California Press, 1962). Several versions exist of *Diary of a Mormon*, of which Gudde believed that the MS at the Bancroft Library (Berkeley) was the most nearly complete.

⁴ Cited in David L. Bigler, *The Gold Discovery Journal of Azariah Smith* (Logan: Utah State University Press, 1996), 106-107. Most early works on timber framing refer to timber fastenings as pins. The term "peg" is reserved for furniture. The expression "pin it down" might have its origin in the pinning of planking to framing.

⁵ Gudde, 87-89.

⁶ *Ibid*, 104.

⁷ David L. Bigler, 111.

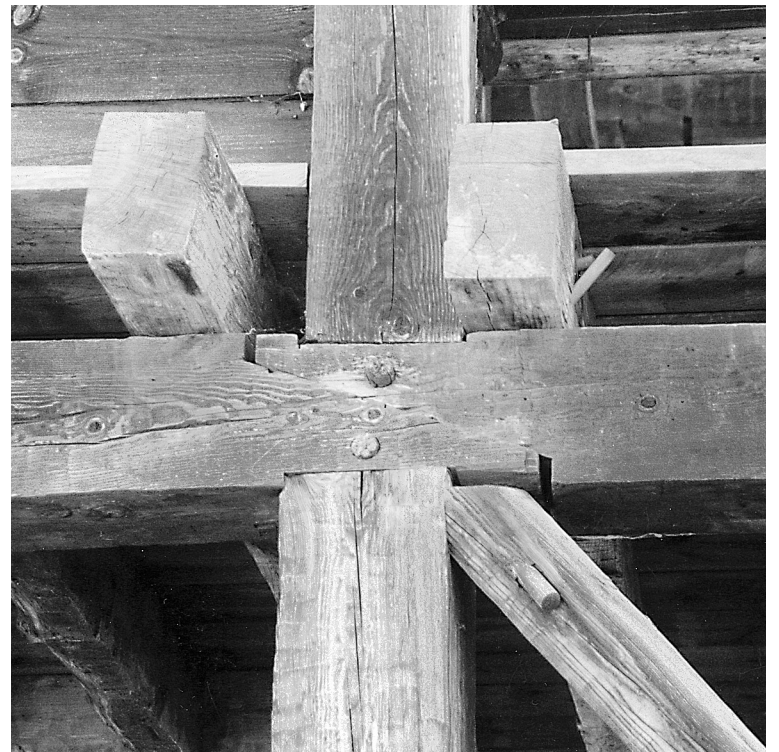
⁸ The picture hangs in the California State Library, Sacramento.

⁹ Cited in Gay, 293.

¹⁰ Philip Baldwin Bekeart, "Location and Site of Sutter's Sawmill," *Society Of California Pioneers Quarterly* I, No. 3 (September 1924), 17-30. The timbers are on display at the Marshall Gold Discovery Park in Coloma.

¹¹ "California Gold Discovery Centennial Papers," *California Historical Quarterly*, Vol. XXVI, No. 2, 1947.

¹² Collection of original notes and photographs on the Sutter's Mill reconstruction, kept in the Marshall Gold Discovery Park Library.



Scarf joint at the midpoint of the streak sill on the 1965 replica.