Tracing: Gabriel Log Barn As A Reflection Of Speculation, Growth, And A Developing Sense Of Permanence In The Northern Rockies

Maire O’Neill Conrad
Professor, Montana State University, Bozeman

For many of the early agricultural settlers of the Northern Rockies, the northern latitude combined with the high elevation presented conditions for raising crops and livestock that were entirely new to them. The climatic and geographic setting also imposed numerous unfamiliar demands and constraints on the buildings growers used to house and shelter their harvests and livestock. In terms of economic development, the region remained effectively a remote frontier until 1883, when the Northern Pacific Transcontinental Railroad reached the high mountain valleys of the Montana Territory. The tools and resources available for construction in the region were therefore limited well into the 1890s, when the establishment of industrial and commercial enterprises that supported construction, such as large scale lumber milling operations and the importation of hardware, materials, and machinery began to widely influence building practices.

This essay examines a two story log barn on the Damon Gabriel Homestead in the Gallatin Valley, Montana, and the ways in which it reflects shifting attitudes toward permanence and the evolution of construction capabilities during an era of dramatic change nearing the turn of the century. A homestead is by definition agricultural, hence the changes in building practices are explored in parallel with the development of agriculture in the region. Detailed documentation of the Gabriel homestead site is available thanks to the efforts of a group of graduate students at Montana State University, School of Architecture. The record drawings and historical report they produced make possible an in-depth analysis of circumstances, materials, construction technology, and building design.

According to Stroebe, et. al., Damon Gabriel was Canadian of French descent, entering the United States as a mercenary in U.S. military. He fought in the Great Sioux War of 1876, The Battle of Powder River and the Battle of the Rosebud, and shortly afterward he narrowly escaped death at the Battle of the Little Bighorn because his exhausted regiment was assigned instead to a resupplying expedition. His decision to join the U.S. military may have been motivated not only by wages, but by the opportunity for citizenship and the right to homestead, a process which was less restrictive in the U.S. than in Canada at the time. After his military discharge he settled in the Gallatin Valley, Montana Territory, and worked as a farm hand for Frank Savar. By 1880 he bought Savar’s homestead, 160 acres of fertile bottomland on the Gallatin River at about 5,000 feet elevation, and filed his own homestead claim on the adjacent 160 acres to the west. The construction sequence of the 3-bay log barn on his homestead suggests a chronology that reflects evolving attitudes toward tenure and permanence in the region during an era of dramatic change nearing the turn of the century. A homestead is by definition agricultural, hence the changes in building practices are explored in parallel with the development of agriculture in the region. Detailed documentation of the Gabriel homestead site is available thanks to the efforts of a group of graduate students at Montana State University, School of Architecture. The record drawings and historical report they produced make possible an in-depth analysis of circumstances, materials, construction technology, and building design.

The irregularity in the ground floor plan reveals the hand-built quality of the building. There were no machined materials in the original construction, so squareness was not a primary concern. It was built with a few simple tools that could be carried overland in a wagon, and probably few measuring tools. Drawing from Stroebe, et al, sheet 6.
A second phase of construction is represented in a photograph farming the land. Re-locating Savar's buildings to his own corral fences and agricultural outbuildings, in addition to specific improvements such as the construction of a dwelling, claim on the land, before they had to prove-up by completing Savar's outbuildings to establish evidence of settlement that Savar's homestead, it is entirely possible that he moved a few hundred feet to the east. Since Gabriel had bought et al hypothesize that the two cribs may have been originally and a knowledge of solid joinery. A theme of speculation and growth is reflected in its gradual evolution. Analysis of the line drawings suggests (figure 1). A family. A business decision to invest more heavily and to persevere even in the face of major setbacks and newly understood limitations. It suggests an optimistic attitude toward the promise of the future, overt expressions of permanence in the homestead site by 1903 reinforce this view, such as the completion of the two-story stone masonry house, stone root cellar, and other outbuildings. These improvements are evidence of a family that no longer thought of themselves as pioneers on a remote frontier, but as progressive entrepreneurs, taking calculated risks, growing their business, and participating with confidence in a national market for beef and grain. Another change was made to the building around the turn of the century. The center bay of the barn was enclosed completely on the west, and its loft was enclosed on the east (figure 7). This log infill was done without the benefit of notching into the existing cribs, instead the entire wall was splinted to the purlins at the eave. The lower story of the west wall was built with the same large diameter cottonwood logs, and similarly hewn as the 1870s crib construction – the tool marks in the surfaces of the logs are identical. This indicates yet another resource-efficient strategy which involved the reuse of construction m¬aterials from disused buildings. In this case the logs appear to be from another building of Frank Savar’s tenure. An aerial photograph from 1964 (figure 8) reveals that a possible source for these materials is the twin barn to the south, which was partially dismantled when the photograph was taken. The enclosure provides greater security and shelter for the center bay, an alteration perhaps motivated by the need to house new farming machinery. There were rapid advances in time-saving farm implements which were mass- Figure 3 Typical detail of notching in the cottonwood logs. The first story uses full dovetail notching, while the second story is crowned square notching – the difference in character is indicative of two different builders. The change occurs at approximately 8'-6" from the ground in both cribs. Drawing from Stroebe, et al, sheet 8. Figure 4 Earliest known photograph of the Gabriel Homestead site, taken from the adjacent buffalo jump. The location had been well-known to local Native Americans probably for many generations, due to the topographic feature of the cliff combined with the nearby spring, making it ideal for harvesting and processing buffalo. The photograph was probably taken in the 1880s, when the Gabriel family lived in the small log dwelling, lower left; and the low profile dog-trap log barns were roofed with sod. Note that an irrigation ditch was already developed around the eastern perimeter (to left of fence). Photo: Dr. Francis and Delores Kelly family archives. provide adequate space for some high quality hay and possibly grain needed to feed a pair of working draft horses during a long winter. Hence the addition of the hayloft represents a business decision to invest more heavily and to persevere even in the face of major setbacks and newly understood limitations. It suggests an optimistic attitude toward the promise of the future, overt expressions of permanence in the homestead site by 1903 reinforce this view, such as the completion of the two-story stone masonry house, stone root cellar, and other outbuildings. These improvements are evidence of a family that no longer thought of themselves as pioneers on a remote frontier, but as progressive entrepreneurs, taking calculated risks, growing their business, and participating with confidence in a national market for beef and grain. Another change was made to the building around the turn of the century. The center bay of the barn was enclosed completely on the west, and its loft was enclosed on the east (figure 7). This log infill was done without the benefit of notching into the existing cribs, instead the entire wall was splinted to the purlins at the eave. The lower story of the west wall was built with the same large diameter cottonwood logs, and similarly hewn as the 1870s crib construction – the tool marks in the surfaces of the logs are identical. This indicates yet another resource-efficient strategy which involved the reuse of construction m¬aterials from disused buildings. In this case the logs appear to be from another building of Frank Savar’s tenure. An aerial photograph from 1964 (figure 8) reveals that a possible source for these materials is the twin barn to the south, which was partially dismantled when the photograph was taken. The enclosure provides greater security and shelter for the center bay, an alteration perhaps motivated by the need to house new farming machinery. There were rapid advances in time-saving farm implements which were mass- Figure 3 Typical detail of notching in the cottonwood logs. The first story uses full dovetail notching, while the second story is crowned square notching – the difference in character is indicative of two different builders. The change occurs at approximately 8'-6" from the ground in both cribs. Drawing from Stroebe, et al, sheet 8. Figure 4 Earliest known photograph of the Gabriel Homestead site, taken from the adjacent buffalo jump. The location had been well-known to local Native Americans probably for many generations, due to the topographic feature of the cliff combined with the nearby spring, making it ideal for harvesting and processing buffalo. The photograph was probably taken in the 1880s, when the Gabriel family lived in the small log dwelling, lower left; and the low profile dog-trap log barns were roofed with sod. Note that an irrigation ditch was already developed around the eastern perimeter (to left of fence). Photo: Dr. Francis and Delores Kelly family archives. provide adequate space for some high quality hay and possibly grain needed to feed a pair of working draft horses during a long winter. Hence the addition of the hayloft represents a business decision to invest more heavily and to persevere even in the face of major setbacks and newly understood limitations. It suggests an optimistic attitude toward the promise of the future, overt expressions of permanence in the homestead site by 1903 reinforce this view, such as the completion of the two-story stone masonry house, stone root cellar, and other outbuildings. These improvements are evidence of a family that no longer thought of themselves as pioneers on a remote frontier, but as progressive entrepreneurs, taking calculated risks, growing their business, and participating with confidence in a national market for beef and grain. Another change was made to the building around the turn of the century. The center bay of the barn was enclosed completely on the west, and its loft was enclosed on the east (figure 7). This log infill was done without the benefit of notching into the existing cribs, instead the entire wall was splinted to the purlins at the eave. The lower story of the west wall was built with the same large diameter cottonwood logs, and similarly hewn as the 1870s crib construction – the tool marks in the surfaces of the logs are identical. This indicates yet another resource-efficient strategy which involved the reuse of construction m¬aterials from disused buildings. In this case the logs appear to be from another building of Frank Savar’s tenure. An aerial photograph from 1964 (figure 8) reveals that a possible source for these materials is the twin barn to the south, which was partially dismantled when the photograph was taken. The enclosure provides greater security and shelter for the center bay, an alteration perhaps motivated by the need to house new farming machinery. There were rapid advances in time-saving farm implements which were mass- Figure 3 Typical detail of notching in the cottonwood logs. The first story uses full dovetail notching, while the second story is crowned square notching – the difference in character is indicative of two different builders. The change occurs at approximately 8'-6" from the ground in both cribs. Drawing from Stroebe, et al, sheet 8. Figure 4 Earliest known photograph of the Gabriel Homestead site, taken from the adjacent buffalo jump. The location had been well-known to local Native Americans probably for many generations, due to the topographic feature of the cliff combined with the nearby spring, making it ideal for harvesting and processing buffalo. The photograph was probably taken in the 1880s, when the Gabriel family lived in the small log dwelling, lower left; and the low profile dog-trap log barns were roofed with sod. Note that an irrigation ditch was already developed around the eastern perimeter (to left of fence). Photo: Dr. Francis and Delores Kelly family archives.
produced, affordable, and widely available by mail order after 1900. Implements like the disk plow, seeder, sickle bar, binder, and thresher enabled a tremendous increase in productivity for hay and grain producers, and Gabriel's log barn may have been adapted to protect these investments.

A final improvement and gesture of permanence was undertaken approximately 130 years after the initial single-crib construction. The Kelly family, owners of the homestead since 1968, saved the log barn from imminent collapse due to subsidence which was rotting the base logs. They dismantled it piece-by-piece and replaced the granite blocks on which it had stood with a contemporary foundation. The building was completely restored (completed 2008), with the intention that it stand for many decades to continue to tell the story of early agricultural settlement in the Gallatin Valley. With this intent, one of the most effective decisions the family made was to protect the landscape surrounding the building site from development which threatens rural lands in the region. They placed the acreage that was once held by Damon Gabriel into a conservation easement to preserve the open space, agricultural uses, natural habitation, the creek and the bank of the Gallatin River on the east of the property.

Figure 6
Photograph from 1903. A significant burst of construction, growth, and an expression of permanence is evident in the entire homestead site within a period of 20 years (compare to figure 4, from 1880). Both of the log barns have a second story addition with steep gable roof, dramatically increasing the capacity for storage of hay, and clearing the ground floor for draft animals.

Stroebe, et al report that Gabriel modeled the stone house after a military fort building he had known in Montreal. It served as a projection of successfulness, protection, and permanence. Photo: Dr. Francis and Deloris Kelly family archives.

Figure 7
The west elevation reveals the character of the infill at the center bay. None of the added cottonwood logs, either at the ground floor or the second floor are notched into the north or south crib — evidence that the infill was done after the second story was completed. Since local storm weather tends to blow from the southwest, this enclosure creates great protection from moisture at the center bay, giving it new utility. Drawing from Stroebe, et al, sheet 7.

Notes:
1- The documentation was completed in 2014 as part of a graduate course taught by the author, and was submitted to the Historic American Buildings Survey, and is now housed in the National Archives. Hannah Stroebe, Kate Tilleman, Chelsea Holling, Jessica Proctor, Theresa Lindenau, Urvi Shah, and Andi Duroux, “Gabriel Homestead” Historic American Buildings Survey, National Archives, Washington, D.C., (June 2015), document MT-174.
3- It is important to note that the granite foundation wall shown in the drawings was introduced during a 2008 restoration. The building originally rested on corner stones of granite, and had dramatically subsided, rotting the base logs. Hannah Stroebe, et al, Historical Report, 5.
5- Stroebe, et al, 3.
6- The ridgepole and purlin roof is defined by Terry Jordan, Jon Kilpinen & Charles Gritzner, The Mountain West: Interpreting the Folk Landscape, (Baltimore: Johns Hopkins University Press, 1997), 80-81.
7- A photograph of the Gabriel children from 1910 provides a close-up view of the corner notching of the early log dwelling on the homestead. It is a combination of lapped and crowned square notching, and its construction is attributed to Damon Gabriel. Stroebe, et al, 17.
8- Montana Land Reliance holds this easement in perpetuity.