

Folk Log Structures in Pennsylvania

By

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FOLK ARCHITECTURE

The term 'folk architecture' is often used to draw a distinction between popular or landmark architecture and is nearly synonymous with the terms 'vernacular architecture' and 'traditional architecture.' Therefore, folk architecture includes those dwellings, places of worship, barns, and other structures that are designed and built without the assistance of formally schooled and professionally trained architects.

Folk architecture differs from popular architecture in several ways. For example, folk architecture tends to be utilitarian and conservative, reflecting the specific needs, economics, customs, and beliefs of a particular community.

(Source: [Oklahoma History Society's Encyclopedia of Oklahoma History and Culture](http://digital.library.okstate.edu/encyclopedia/entries/F/FO002.html), Website.

<http://digital.library.okstate.edu/encyclopedia/entries/F/FO002.html>, Alyson L. Greiner, February, 17, 2011).

Note. Much of the data and pictures found in this field guide came from a study on log structures in 18 counties of western and central Pennsylvania.

The Historic Value of Folk Log Structures

The study of folk log construction, also known as horizontal log construction, is exciting because, unlike most artifacts from the pioneer era, log structures have not been moved from where the pioneers used them. The log structure remains intact within the landscape the pioneer who built it intended. Besides the structure itself, which provides valuable information about the specific people who occupied it, the surrounding historic landscape tells its own story of how the family lived, from location of water sources and family dump to the layout of fields, location with other houses in the neighborhood and artifacts found in the ground still in context with their original use. Spend a couple of hours walking around a log farmhouse or barn and the original historic landscape begins to emerge. Old stone walls or split rail fences, roads, wood lines and outbuilding foundations may reveal themselves. Look closely at the surface and you can find pieces of ceramic, glass or metal from the earliest occupation of the land. Coupled with the extensive historical record describing the life of the early pioneers, the story of log structures adds depth and context to our overall understanding of the Midland Pioneer Culture.

Most of the log structures found in Pennsylvania reflect the carpentry traditions of the Midland Culture or Pennsylvania Pioneer Culture. The term Midland Culture is used to denote that the culture lies between the New England Culture to the north and the southern culture to the south.

The knowledge of how to build with log construction came from specific mountainous regions of Europe. Specific areas of Europe served as the source areas of Midland Culture log construction. The source includes: northern Europe (Scandinavia) most influential; the Czech-Polish-eastern German

borderland, second most influential; and portions of the Alps-southwestern Germany region least influential. Log structure construction was an essential cultural element of the larger Midland Culture.

Specific Carpentry Features of Midland Culture

The Midland Culture has specific carpentry features that can be identified through field observations and the analysis of pictures that show detailed construction elements. Geographers established a standard taxonomy of terms to describe log construction elements and carpentry features (**Kniffen & Glassie**, p. 52; Erixon, pp. 13-60); these standard terms are used in this study. Listed below are key carpentry features found in the Midland Culture (Jordan, Log, pp. 178-184).

- Use of round and two-sided hewn logs with top and bottom left round. Hewn logs provide greater interior space than round logs;
- Half-round logs;
- Planking of hewn logs ranging from moderate to thin;
- Space between the logs (chink);
- Chink is filled with a variety of materials (called chinking);
- Notch types (how logs are joined together at the corners) include saddle, V, half-dovetail, full-dovetail, square, half-notch, and diamond. Corner-post, although not a notch, is used in the Midland Culture;
- Board covered gable (no logs in the gable);
- Pennsylvania barn (bank barn);
- Log out-buildings, such as spring houses, single-crib barns, and smoke-houses, are common.
- Double-crib barn plan, open-passage.

Log construction provided the pioneers with adaptive advantages including:

- No metal nails needed to secure the logs at the corners;
- The logs provided protection from harsh weather, attack from animals and enemies;
- The logs and chinking provided insulation and fireplaces burning wood provided heat;
- Logs were readily available;
- The weight of the structure was carried by the corners;
- Basic tools carried by all pioneers were used in log construction;
- Amateur carpenters could build log structures;
- Initial structures could be built quickly by a family, clan or neighbors;
- Log construction could be used to meet the pioneer's needs for all manner of structures.

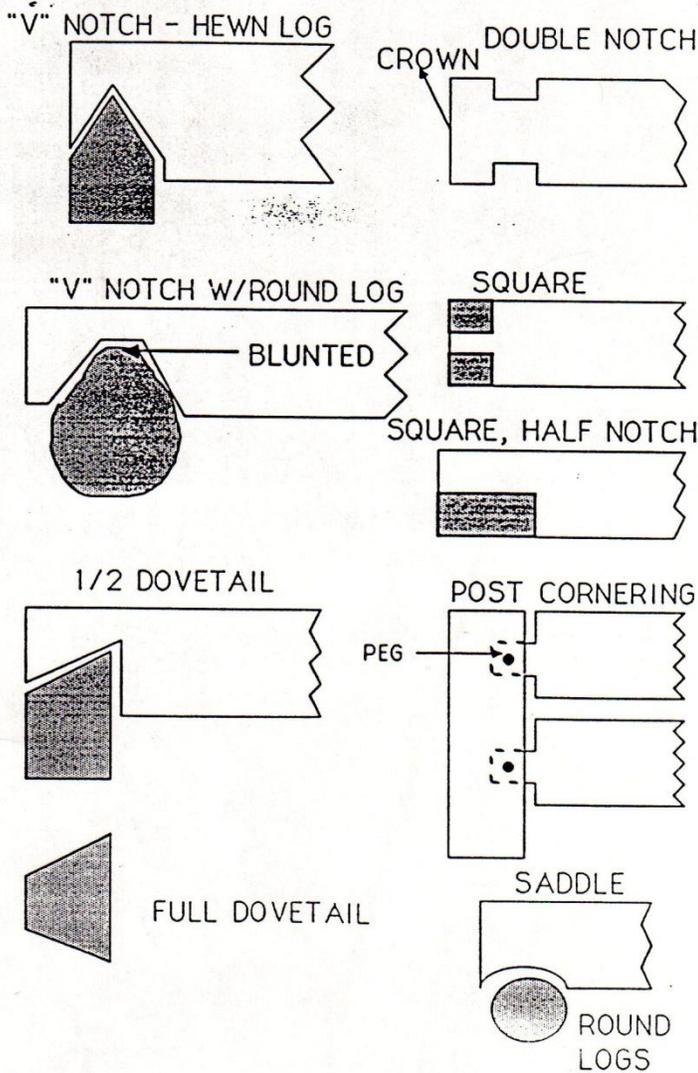
Log structures have finite limits to their size because of the restrictions the logs present. The very weight of the logs present limits as to the height of structures. Obviously, hewn logs are lighter than logs left in the round. The length of logs limits the length of walls; splicing logs together is difficult and likely introduces weakness in the wall unless a medial post is used. Also, logs naturally taper in circumference from one end to the other.

Two Generations of Carpentry

The first generation is seen with the initial, challenging years of the pioneers' first movement into the woodlands. It represents the most primitive stage of carpentry. Contemporary observers use the word "cabin" to describe homes of this stage. "Cabin" was frequently described as a small, windowless house, built of round logs with crude notching, usually the saddle notch. The floor is earthen, and the chimney was made of log or mud and poles. The roof "...covering was clapboard held in place by weight poles" .

The second-generation of log structure succeeded and largely displaced the first within a decade or so after initial settlement. Earlier pioneer structures were relegated to the status of outbuildings or removed. The word house was linked to the second stage, implying a much more refined structure. Logs carefully flattened before placement in the walls, notching done with care and precision, plank floors, and chimneys of mortared stone or brick characterized the second generation of dwelling. The walls were made tight, and the roof singled. In contrast to the structures of the cabin phase, most of which were hastily erected by amateur communal labor, second-generation log buildings were normally the work of semiprofessional, often itinerant carpenters (Jordan, Log, pp. 14-15).

CORNER NOTCHING TYPES



Type of Corners

A corner can have logs that do not project through the corner, called a box or boxed corner. A corner may have logs that project through the corner, called a non-boxed corner. Most log structures in the second generation have boxed corners. Some notch types require that the log project through the

corner, like the double-notch. With the cruder structures built with round logs and use the saddle-notch the logs frequently project through the corner.

Midland Log Carpentry Characteristics - The Shaping of Timbers

How logs are shaped in log structures of the Midland Culture include the following common and uncommon techniques.

Common types: two-sided planking with the top and bottom left round.

Uncommon type: four-sided planking.

(Jordan, Log, pp. 88-90; Backwoods, pp. 136-138)

Chinking

Midland Culture log construction almost universally used “chink” construction; adjacent logs did not touch. Chink construction is a diagnostic carpentry characteristic of the Midland Culture. The chink (space between the logs) could be from one to several inches. Chink construction makes building the structure easier requiring less carpentry skill. The chink was filled with chinking and was made airtight with some sort of daubing like a mixture of mud or clay frequently with some type of binder like straw or animal hair. All manner of readily available materials were used to fill the space between the logs (chink) including horizontal boards, thin slats, wood chunks made during the hewing process, or small stones. Some outbuildings like corn cribs and part of a barn were left open to promote ventilation. About chinkless log structures, Dr. Jordan stated the following. “...the careful shaping of logs to fit them tightly together is the wall is an almost unfailing indicator that the structure does not belong in the Midland tradition.

Log Structure Door (Entrance) Location

The location of the door in Midland log structures has been influenced by the different nationalities of immigrants that made up the Midland Culture. The Finns brought with them a tradition of placing the door in the gable-end of the house or outbuilding. A gable-end entrance provides better protection from snow accumulation and rain runoff than a door placed under the eave-side door. The influence of the Finns impacted the initial cruder log cabin phase of log construction. The secondary log structures, which make up most of the surviving structures, were influenced by the British, Scotch-Irish and Germans who preferred to place the door in the center or off-center in an eave-wall.

No Logs in the gable

The second generation log structures in the Midland Culture rarely have logs in the gable. The gable of the structure is closed in with, typically, vertical boards.

Even and Alternating Log Tiers

All horizontal log structures can be described as having even or alternating tiers of logs. The corner-post construction method usually produces even tiers of logs the entire circumference of the building. Structures using the notches start with a foundation with all logs lying even with each other; then, the next level of logs lie half a thickness above or below the logs in the opposite wall. According to Fred Kniffen and Henry Glassie, the alternating tier of logs is seen in all “true” corner-timbering (Kniffen & Glassie, “Building”, p. 49).



Alternating logs meet at the corner with all notch-types. Pictured above is a box corner of a two story log house with a V notch.



Corner-post house showing even tiers of hewn logs meeting at the corner-post.



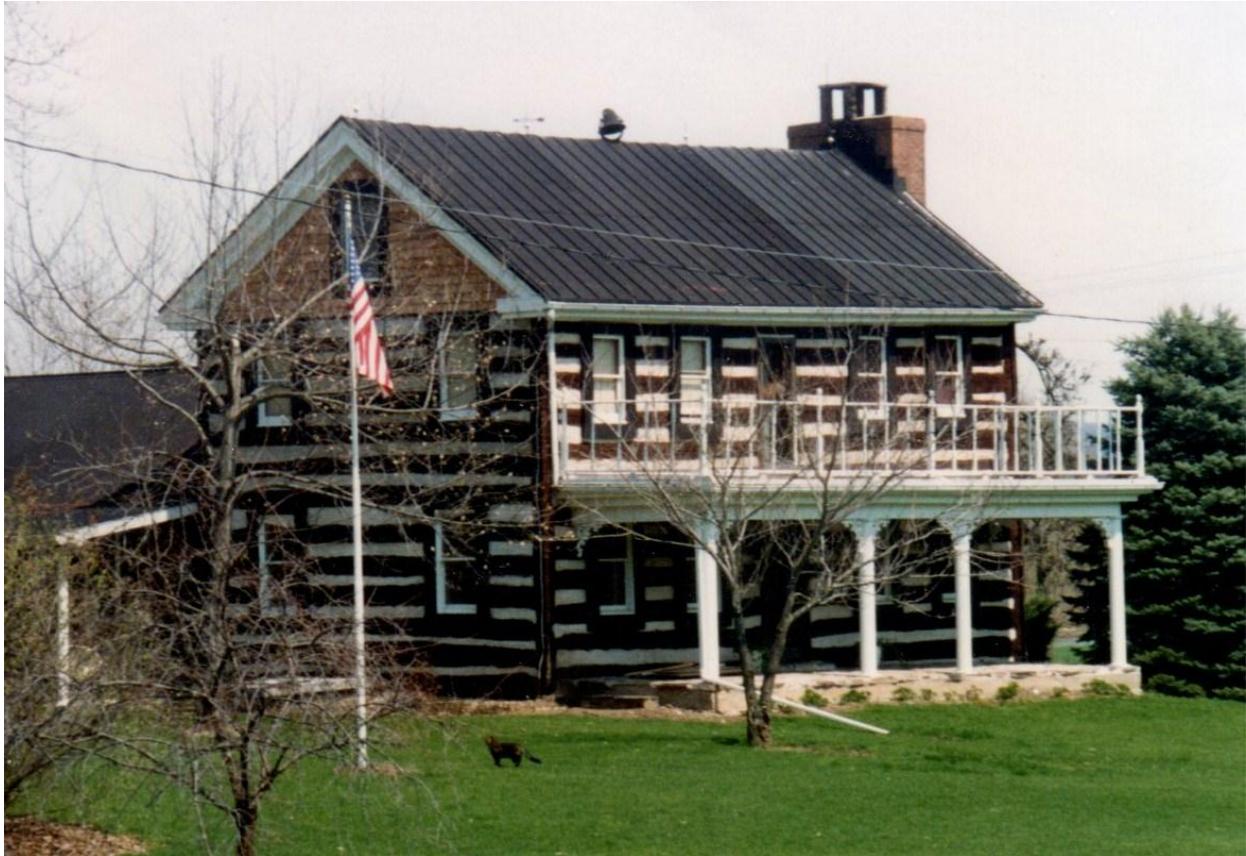
Even tier of logs meeting at a medial post on a corner-post house.



A corner-post house that has even tiers on the first story and alternating tiers on the second story, an uncommon combination.

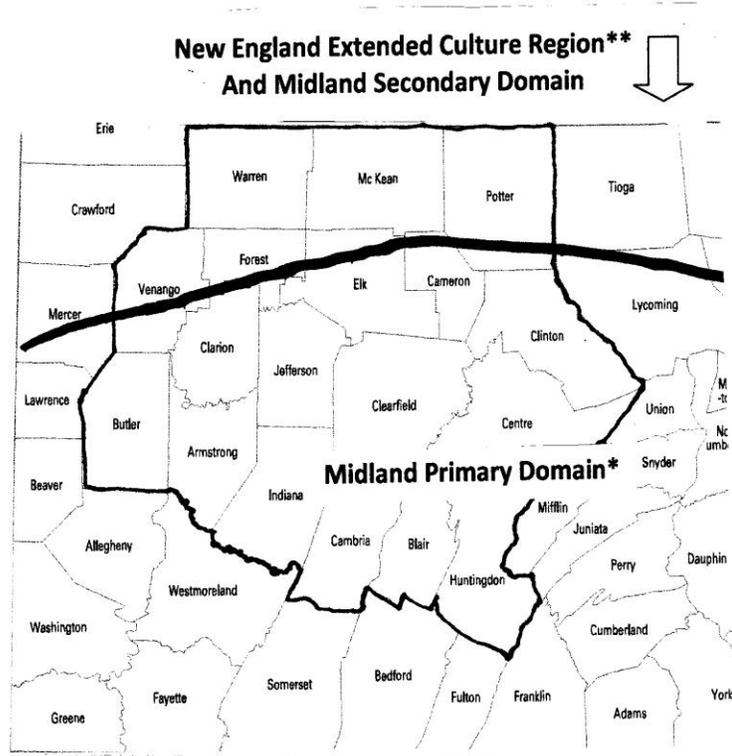


The St. Marys log house, in Elk County, is unique in a number of ways. There is no space between the logs, the entrance is located in the gable end of the house, all four sides of the logs were hewn, and the uncommon full-dovetail notch was used to build the house. What may appear to be logs in the gable are horizontal boards (Photo T. Brandon). Does this log house indicate the New England Culture influence?



Most log houses are rectangular in shape such as this two story log house near Milesburg, Centre County. Two log houses, in the study area, were square in shape.

Map of the Study Area
Showing Primary Domain of the Midland American Backwoods Pioneer Culture
and
The Secondary Domain of the Midland Culture and New England Extended Culture
with
Boundary or Transition Zone between the Two



*Source: Jordan, Backwoods, Fig. 1.3, Pp 8, 9.

** Source: Jordan, Backwoods, fig 1.3, Pp. 8, 9; Miller, p. 135;
 Stevens, pp. 72-73; Pillsbury, pp. 428-446.



The Lower Swedish Cabin, at Drexel Hill, Pa., is believed to have been built between 1638 - 1655 but the exact date is unknown. The logs are round with bark still attached in places, the notch is V, and the fireplace is in the corner. The single-pen room on the right is an addition (The Swedish Cabin.org). The exposed stone in the chinking is uncommon; another example of exposed stone in the chinking is found in the city of York on the Plough Tavern (Photo by T. Brandon, 2010).



V Notch



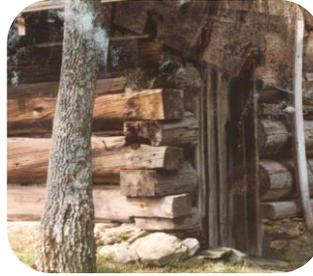
V Notch with Blunted Apex



Half-Dovetail



Double-Notch



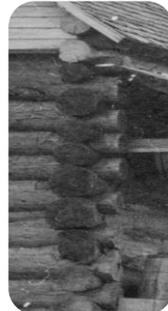
Square-Notch



Half-Notch



Full-Dovetail



Saddle-Notch



Corner-Post with Diagonal



Diamond-Notch , Leesburg,
Virginia.

Photographs of notch types found in Western and Central Pennsylvania; the diamond-notch is not found in Western and Central Pennsylvania but is a notch of the Midland Culture (Photos by T. Brandon).



**Box corner on two story log house with a V notch
(Photo, T. Brandon, 2010).**



Rattlesnake spring house on SR 0504 north of Unionville in Centre County demonstrates a mix of a boxed corner and a corner where the logs project through the corner. It is likely the logs on the right corner once projected through the corner but were sawed off at some time in the past. (Photo, J. Brandon, 1993)



Detailed picture of the chink and chinking on the St. Severins Church (over 150 years old) showing the top and bottom of the logs left round. Also, note the original bark left on the log and the use of horizontal pieces of wood used to fill the chink. The sealant is a modern material used to replace the original “daubing” that was most likely a mix of mud (clay) and a binder like animal hair.



A log house built with a half-dovetail notch with diagonal pieces of wood used as chinking to fill the chink, a common method to fill the space between the logs. The log house, located near Ohi, Jefferson County, is unusual because some of the logs do not have a chink. Having space between the logs is a characteristic of the Midland Pioneer Culture.



Example of the half-notch used to build a small log house, note the lack of chinking and the size of the logs hewn on all four sides. The structure is located in Cross Fork Township, Potter County.



Pictured are saddle notches with the notch on the upper and lower sides of a round logs. These logs are from a CCC era structure at a state park.



Log bank barn in Jefferson County built with round logs and saddle-notch. The barn no longer exists.



A log house built with the V notch in Millheim, Centre County on route 45. The log house also has boxed corners with chinking. It was a structure built to be part of a small village.



Corner-post log house with diagonals and medial post located in Farmers Mills, Gregg Township, Centre County. Corner-post construction is, essentially, a form of frame construction with the wall space filled in with logs rather than boards. The use of medial posts allows the builder to increase the length of the structure and the corner-post allow for the insertion of a porch as seen above on the first and second story.



A small single crib log barn built with a full dovetail-notch; note that there is no space between the logs. The writer's research in western and central Pennsylvania found a significant number of outbuildings did not have space between the logs. The structure is located near Ginter, Clearfield County.



A stable or small barn built with a double-notch once located near Ginter, Clearfield County. The structure is now extinct. It was the only example of the double-notch found in western and central Pennsylvania (Photo J. Brandon, 1993).

Figure 1. Pictures below are examples of chinking.

Building a log structure with space between the logs (chink) is easier than no space between the logs. The top and bottom of the logs may be left round and the notches do not have to as precise, requiring greater carpentry skill and time, as chinkless log structures.



Chinking made up of diagonal boards and varying size chink between hewn logs. Note the massive internal chimney in this two story log house with a V notch. This house clearly shown how there are no logs in the gable of second generation Midland Culture log structures(T. Brandon, 1973).



Large horizontal boards used to fill the chink of this barn in Clarion County (T. Brandon).



Many log barns have chinks left open likely ment to promote ventilation on the second level while the bottom level has chinking to shelter animals (T. Brandon).



Chinking made of boards or wood chips with some of the original daubing still attached which sealed the chink (T. Brandon).

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A single crib barn that used horizontal planks to fill the chink; it is built with a V notch and has boxed corners.



This log barn has space between the logs that are left open with no chinking; some believe that leaving the space between the logs aids in ventilation. On many log barns the ground level, sheltering animals, the chink is filled with chinking and the second story logs are left open. The log barn is in the vicinity of Woodland, Clearfield County and is built with a half-dovetail notch.



Pictured above is a Pennsylvania bank barn showing the typical barn layout with two rectangle cribs and a central passageway. Most barns, in the study area, were bank barns but there were two log barns built on flat ground (Photo T. Brandon, 1973).



A relocated corner-post spring house in Huntingdon County; originally located where Raystown Lake is located today, it was moved to a safe location. Note the door location in the gable end of the structure. Many outbuildings have its door in a gable end as opposed to log houses that usually have its door on the eave-wall (Photo T. Brandon, 2010).



A smoke house, measuring 10' by 10' with a V notch with the door in the gable, is located in Blair County (Photo T. Brandon 2010).



A small granary or chicken coop, according to the owner, with half-dovetail, no chinking, and gable entrance, in Hawk Run, Clearfield County (Photo J. Brandon, 1993).



A log house in Aaronsburg, Centre County, shows the typical location of the door in the eave-wall. The door may be located off centered, as with this house, or in the center of the wall (Photo T, Brandon, 2010).



St. Patrick's Church built in 1806, in Sugar Creek Township of Armstrong County, shows the door located in the gable wall; all three churches in the study area had gable entrances (Photo J. Brandon).



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Even tier of logs meeting at a medial post on a corner-post house.



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Figure 2. Photographs of log structures shows alternating, even, and a mix of log tiers (Photos T. Brandon, 2010)



The Knoxville log barn, in Jefferson County, formed the core of a larger barn built later. The log barn is built with a forebay or is cantilevered, (project outward with an unsupported end). Barns with forebays become more frequent traveling toward south eastern Pennsylvania (Photo T. Brandon, 1973).

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