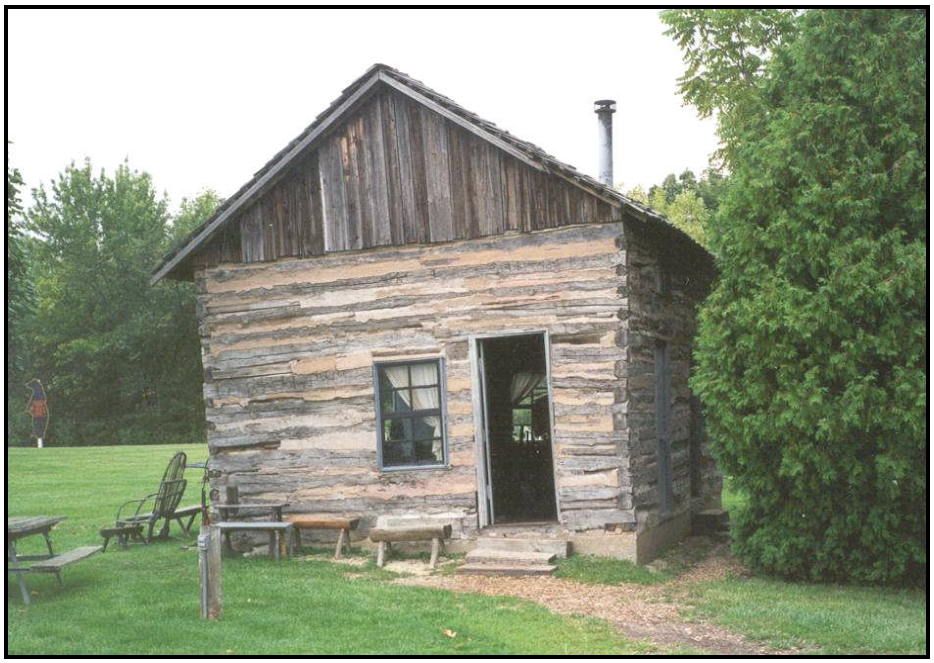
A HISTORIC STRUCTURE ASSESSMENT OF THE ZEINE CABIN, WILDLIFE PRAIRIE STATE PARK, PEORIA COUNTY, ILLINOIS



by
Christopher Stratton

Floyd Mansberger
Principal Investigator

Fever River Research
Springfield, Illinois

prepared for
Basalay, Cary, and Alstadt
and
Illinois Department of Natural Resources

December 2001

INTRODUCTION

This report summarizes the results of a historic structure assessment of the Zeine Cabin, a nineteenth-century log dwelling located at Wildlife Prairie State Park, in rural Peoria County. Fever River Research conducted this investigation at the request of Basalay, Cary, and Alstadt, as part of the comprehensive building management plan the latter firm is preparing on Wlidlife Prairie State Park for the Illinois Department of Natural Resources (IDNR). The Zeine Cabin was relocated to park in 1980 and now serves as the centerpiece for the facility's pioneer farmstead. The historic structure assessment of the cabin primarily was aimed at addressing the deterioration of the dwelling's exterior log walls.

RESULTS OF INVESTIGATION

History

The Zeine Cabin reportedly was constructed circa 1870 and originally was located near Metamora, in Woodford County, approximately fifteen miles east of Wildlife Prairie State Park. The cabin's name derives from Velda Waughop Zeine, who was born in the dwelling in 1900. In 1974 the cabin was donated to the Peoria Historical Society by Caterpillar, Inc., which had purchased the land on which the dwelling originally stood. That same year volunteers from the historical society and the U. S. Marine Corps Reserve dismantled the cabin (*Peoria Journal Star* 25 August 1980:B-8). One or more frame additions had been made to the cabin since its construction, and these later add-ons had to be demolished before the log structure could be taken apart (see Figure 1). The wall logs were numbered with the expectation of the cabin eventually being reassembled at another location. The cabin was reassembled at Wildlife Prairie Park in August 1980 (see Figure 2). Counted among those who assisted in the reconstruction were the descendents of Velda Waughop Zeine (*Peoria Journal Star* 25 August 1980:B-8). The cabin presently is interpreted as an early-nineteenth-century, pioneer homestead and has a barn, livestock paddock, windmill, and garden located adjacent to it.

Physical Description

The Zeine Cabin is a 1-1/2-story, single-pen log dwelling that measures 24'-0" (north/south) by 16'-2" (east/west) on its exterior. The walls of the dwelling are constructed with hewn hardwood (oak or hickory) logs that generally measure 6" in thickness and are joined at the corners with V-notching (see Figure 4). The logs are relatively small in diameter – something that is indicative of the cabin's later date of construction.[1] As originally constructed, the cabin had only one room on its first floor and an open, possibly unfinished loft on the upper

[1] The earlier generation of log houses in a given area generally have large-diameter wall logs, due to the fact their builders had ample mature-growth timber at their disposal. Larger logs also reduced the total number of logs that needed to be hewn and notched. By the time that the Zeine Cabin was constructed, however, he timber resources in Woodford County had been subject to forty years of exploitation and mature-growth hardwoods presumably would have been less prevalent.

half story. There also was a cellar room that was accessible through an exterior brick bulkhead positioned along the north gable-end of the dwelling (see Figures 1 and 6). The exterior of the cabin was covered with horizontal weatherboard siding. Rather than being attached directly to the hewn logs, the siding was nailed to vertical furring strips to create an even surface. On the cabin's interior, the walls and ceiling were covered with sawn lath and plaster.

At later date one, if not two, frame additions were made to the Zeine Cabin. One of these additions was built along west side of the cabin and was demolished when the original log dwelling was disassembled in 1974. A second frame wing may have been located on the opposite elevation. The possibility of an east frame wing being present is suggested by two things: 1) the presence of two of door openings in the east elevation (which seems excessive if both doors simply opened to the outdoors); and 2) the pile of debris that is visible on this side of the house in one of the photographs that was taken during the cabin's disassembly in 1974 (reference Figure 1).

When the cabin was reassembled in the 1980, it was not rebuilt to the exact condition in which it had been found. Neither the frame addition(s) nor the cellar was reconstructed, and the house was placed on poured-concrete foundations rather than brick. The central brick chimney that was present at the original site also was eliminated, in favor of a stove pipe extending through the roof. The most obvious change, however, was that the log walls were left exposed on the interior and exterior of the house.

Structural Assessment

Overall, the wall logs of the Zeine Cabin generally are in good condition, in spite of the fact that they have been exposed to the elements for over twenty years. However, a number of logs have started to rot away. This deterioration is most pronounced on the lower logs, which are comparatively more exposed to moisture (rain and snow) and tend to be the last to dry out. The west elevation and northwest corner, in particular, have suffered from weathering, and the replacement lumber has had to be scabbed in at a number places where the logs have rotted out (see Figure 7 and 8). The continued deterioration of the lower logs will inevitably lead to a general structural failure of the cabin, since the wall logs are largely held in place by their own weight. The fact that the logs are relatively thin (6") and small in diameter gives the cabin's walls more flexibility than might otherwise be the case with a dwelling having larger logs. As it is, the east and west walls, which are the long walls of the cabin, have a pronounced bow or deflection to them (see Figure 8).

The chinking on the cabin also is in poor condition. When the building was reconstructed, the interstices between the logs were filled with sawn lumber and Portland-cement-based mortar. The lumber was used backing, while the mortar served as the facing material. Over the years, the mortar has cracked and, in some places, completely fallen away; this is not surprising, considering that the logs naturally expand and contract, whereas the harder mortar will not (Indeed, even historic chinking and daubing required constant attention and maintenance when it was unprotected by siding). Where the chinking has fallen away, the logs are even more susceptible to water damage, since water has the opportunity to collect in recesses where it cannot easily drain away, thus accelerating the rate the logs' deterioration.

RECOMMENDATIONS

The fact that the Zeine Cabin has been relocated, and thus lacks integrity of location and setting, largely precludes the dwelling from being considered eligible to the National Register of Historic Places. The cabin also has a number of historic features removed, which has further comprised its integrity in respect to design, workmanship, and materials. As a result, the cabin is unlikely to be subjected to the same high standards of preservation, restoration, or rehabilitation that National-Register-eligible properties such as the Howarth House and Barn should be. Nevertheless, the Zeine Cabin is a historic structure and presently serves as a valuable interpretive tool for illustrating the character of rural life in Illinois during the nineteenth century. As such, it is recommended that the stabilization/preservation methods used on the cabin will seek to protect, if not enhance, the historic integrity of the building. In short, the cabin should be interpreted accurately and not made the object of a romanticized past (Elbert and Sculle 1982:2).

The structural problems observed during the field investigation are largely linked to the fact that the exterior logs of the cabin are exposed and unprotected. Therefore, we strongly recommend that the exterior of the cabin be covered with horizontal weatherboard. This recommendation not only has a firm historical basis, but also has practical merits as well. The photographs that were taken during the dwelling's dismantlement in 1974 provide documentary evidence for the cabin having been covered with weatherboard previously. We also have physical evidence for the siding in the form of the nail patterns that were left behind after the furring strips for the siding were removed (see Figure 9). The nails used to attach the furring strips were machine cut, rather than wiredrawn, which strongly connotes a pre-1900 date for the siding.

Although it flies in the face of popular belief, with its emphasis on the rustic aspects of pioneer life, the use of siding on hewn-log houses was quite common during the nineteenth century and has been demonstrated in architectural surveys of log housing in Illinois and elsewhere in the Midwest. After studying nearly 300 hewn-log in southern Indiana, folklorists and cultural geographer Warren Roberts became "convinced that most hewn-log houses in this area were covered with siding at the time they built or shortly thereafter and that the technology or tradition of building houses with hewn logs developed with the use of siding as a vital and integral part of the tradition" (Roberts 1996:75-6). Similarly, five of the older log houses that Fever River Research has documented in detail in Illinois appear to have been covered with siding originally or within several decades of their construction.[2] Four of these dwellings were covered with horizontal siding during the nineteenth century, while the fifth --the Barth House, in Carroll County –initially seems to have been covered with board-and-batten siding that was removed and replaced with weatherboard during the early twentieth century (Stratton and Mansberger 1996a:6; 1996b:6; 1996c:7; 1998:19-20, 39; n.d.). The siding on these homes helped insulate the interior and also protected the logs and chinking from weathering. The Hoerr House, which was constructed circa 1870 and thus is contemporary with the Zeine Cabin, does

[2] The five log dwellings in question are: the Allard House, which is believed to have been constructed circa 1790-1800 and was located outside Prairie du Rocher, Randolph County; the Hogan (circa 1835-1845), Patten (1848-1850), and Hoerr (circa 1870) Houses, all of which were located in Monroe County; and the Barth House, built circa 1868 and situated in Carroll County.

have one section of wall where the logs are exposed, but this wall has always been sheltered within a front porch (Stratton and Mansberger n.d.) (see Figures 10 and 11). Part of the confusion about whether log houses were, or were not, sided historically derives from the failure to distinguish between round-log, saddle-notched cabins and the hewn-log houses of the type represented by the Zeine Cabin. Its formal name notwithstanding, the Zeine Cabin is in fact a log house. Whereas the cabins usually represented the first generation of housing and were meant to be temporary, hewn-log houses in the Midwest were built with permanence in mind and many were sided for aesthetic reasons, as well as practical ones (Elbert and Sculle 1982:2, 4; Bomberger 1991:2, 6; Roberts 1996:82-6). There are always exceptions to the rule of course (the log house erected by Thomas Lincoln in Coles County, Illinois being a notable one), but most nineteenth-century builders of hewn-log houses wanted to their homes to appear more formal and finished rather than rustic, in contrast to modern log homes. Historic log housing should be viewed in the context of *method of construction* as opposed to an architectural style in of itself (Elbert and Sculle 1982:2).

Covering the Zeine Cabin with siding also has its practical aspects, in that it will significantly reduce the costs involved in maintaining the dwelling over the long term. If the exterior walls are left exposed, the logs will continue to weather and ultimately will require specialized preservation treatments to mitigate the resulting damage. These treatments might include wood splicing and epoxy consolidation on individual logs with localized deterioration, or the complete replacement of irepairable logs with similar material. The general application of chemical preservatives on historic log buildings, while commonly used in years past, is no longer considered appropriate due to the residual toxins and odor that are left behind after the application; furthermore, chemical treatments often change the color of the logs and will need to be repeated over time. A safer alternative would be to treat the logs with linseed oil, but this too will result in a darkening of the log's color and require additional applications in the future (Bomberger 1991:10-12; Elbert and Sculle 1982:7). The chinking on the cabin also will require continued maintenance if the logs walls are exposed. Appropriate methods for log and chinking repair are discussed in detail in the National Park Service's *Preservation Brief* No. 26, "The Preservation and Repair of Historic Log Buildings" (Bomberger 1991). *Illinois Preservation Series* No. 3, "Log Buildings in Illinois: Their Interpretation and Preservation" (Elbert and Sculle 1982), also provides valuable guidelines. While the preservation methods suggested by these publications will certainly work on the Zeine Cabin, it is difficult to justify the initial cost and continued expense of implementing them when we have strong physical and documentary evidence for the exterior of the dwelling have been covered with siding historically. If the cabin is sided, for instance, deteriorated logs could be replaced with modern materials if need be, since they will be hidden from view. Likewise, the task of needing to maintain the exterior chinking will be eliminated. Most importantly, the application of exterior siding will be in keeping with the historic character of the building.

We recommended that the exterior of the cabin be covered with beveled horizontal weatherboard with a 4-1/2" exposure. This siding appears to be similar to that originally used on the cabin and also would be appropriate for the period of construction. The siding should be nailed to vertical furring strips in the same manner as was originally utilized on the cabin. Figure 11 provides representative illustrations of the application of horizontal siding on two other log houses. The vertical plank siding now in place on the gable ends should be removed and

replaced with horizontal weatherboard, as was the case prior to the cabin's dismantlement (see Figure 12). It would be appropriate to finish out the corners and openings with flat trim boards, perhaps 1"x4" or 1"x5" stock. The exterior siding should be primed and painted.

Improving the drainage around the cabin also will contribute to the long-term maintenance of the building. This could be addressed in part by adding gutters to the building, preferably of the half-round variety. However, we have no evidence of the cabin ever have been equipped with gutters, and they may not be necessary if the grading around the building is improved. Bomberger (1991:9) recommends a minimum of 8" between the bottom of the sill log or siding and the ground. Although the grade on the east side of the cabin meets this requirement, this is not case on the west elevation, where the deterioration of the logs is most pronounced. As such, it recommended that the grade be lowered in this elevation and anywhere else around the cabin, in order to provide the minimum 8" distance between the sill log and ground surface.

Leaving the logs exposed on the interior of the cabin would not present significant maintenance problems. It would also serve to illustrate the method of construction for the house and thus add to the interpretive value of the building –and still appeal to the public. In the event that the cabin needs to be stabilized on its interior with framework or bracing, these materials possibly could be hidden from view by furring out the walls and having a finished wall surface. This would not detract from the historic character of the building, so long as the furring depth was not excessive, since the interior walls were once plastered. Gypsum board or dry wall could be used in place of plaster and lath, and a section of log wall could still be left exposed for interpretive purposes.

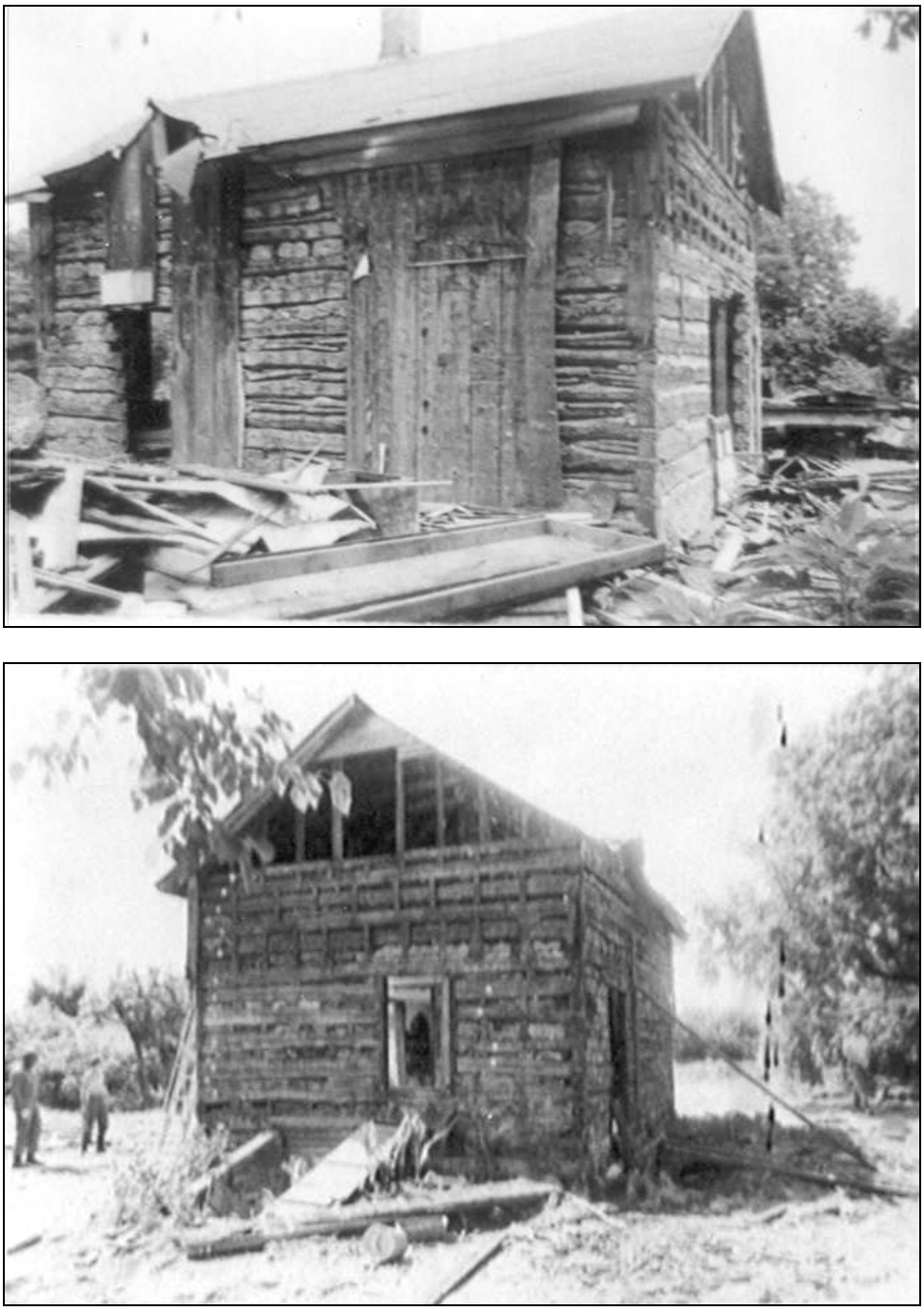


Figure 1. Two views of the Zeine Cabin during the course of its dismantlement in 1974. (Top) Oblique view, showing the present west and south elevations of the cabin. The demolition debris in the foreground is from a later frame addition. (Bottom) View of the cabin after the partial clean up of demolition debris. The gable-end wall shown is now the north elevation of the building. Note the bulkhead entrance to the cellar (WPSP August 1974).

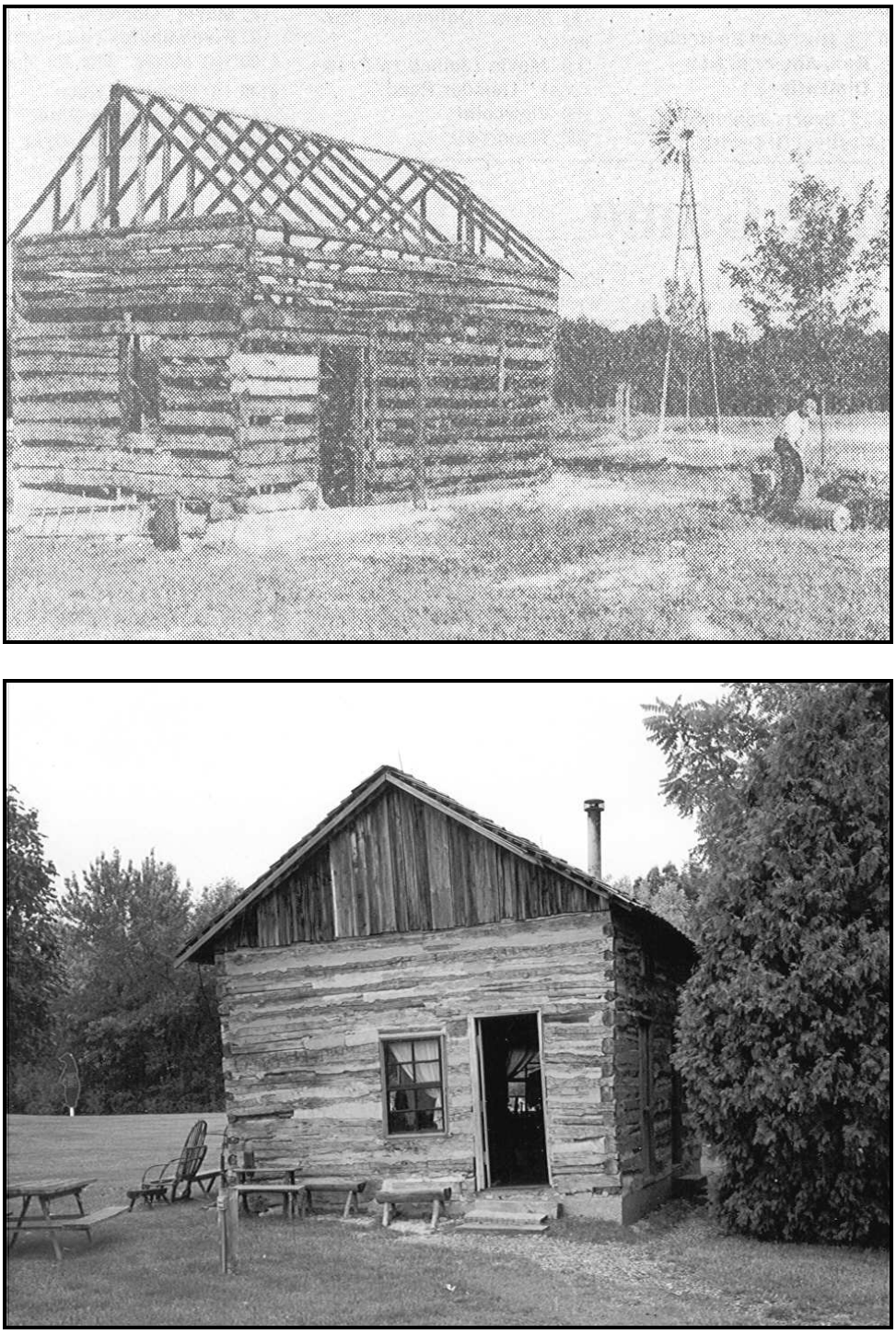


Figure 2. (Top) The Zeine Cabin during the course of its reconstruction in 1980. This view is looking toward the northeast (*Peoria Journal-Star* 25 August 1980). (Bottom) The south elevation of the cabin, showing existing conditions (FRR September 2001).

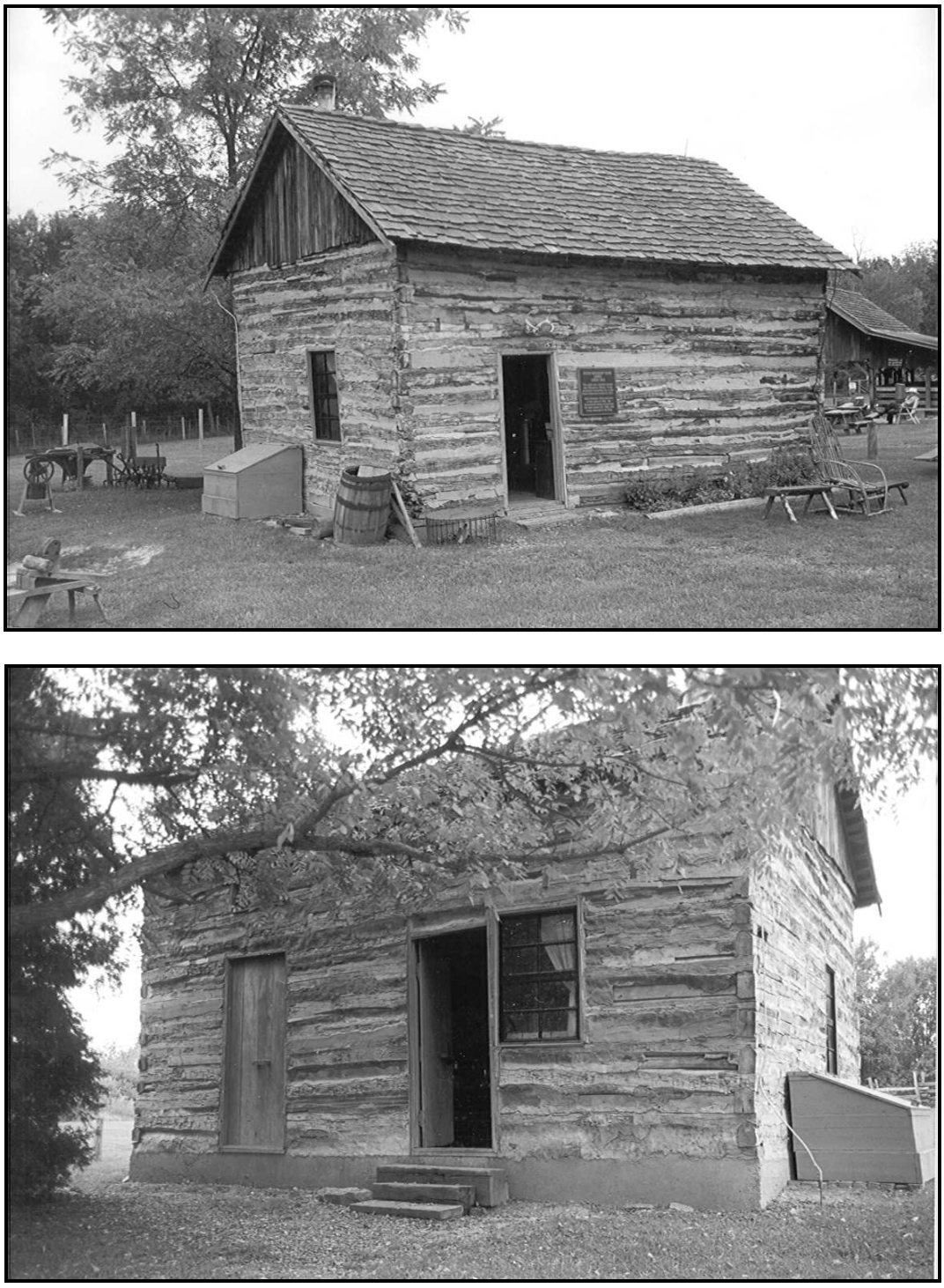


Figure 3. (Top) Oblique view, showing the west and north elevations of the cabin. (Bottom) View of the east elevation. The presence of two doorways here suggests that an addition may have once been present on this side of the dwelling, as was the case on the opposing elevation (FRR September 2001).

Figure 4. Detail of the northeast corner, showing the corner notching and hewing methods utilized in the construction of the cabin (FRR September 2001).

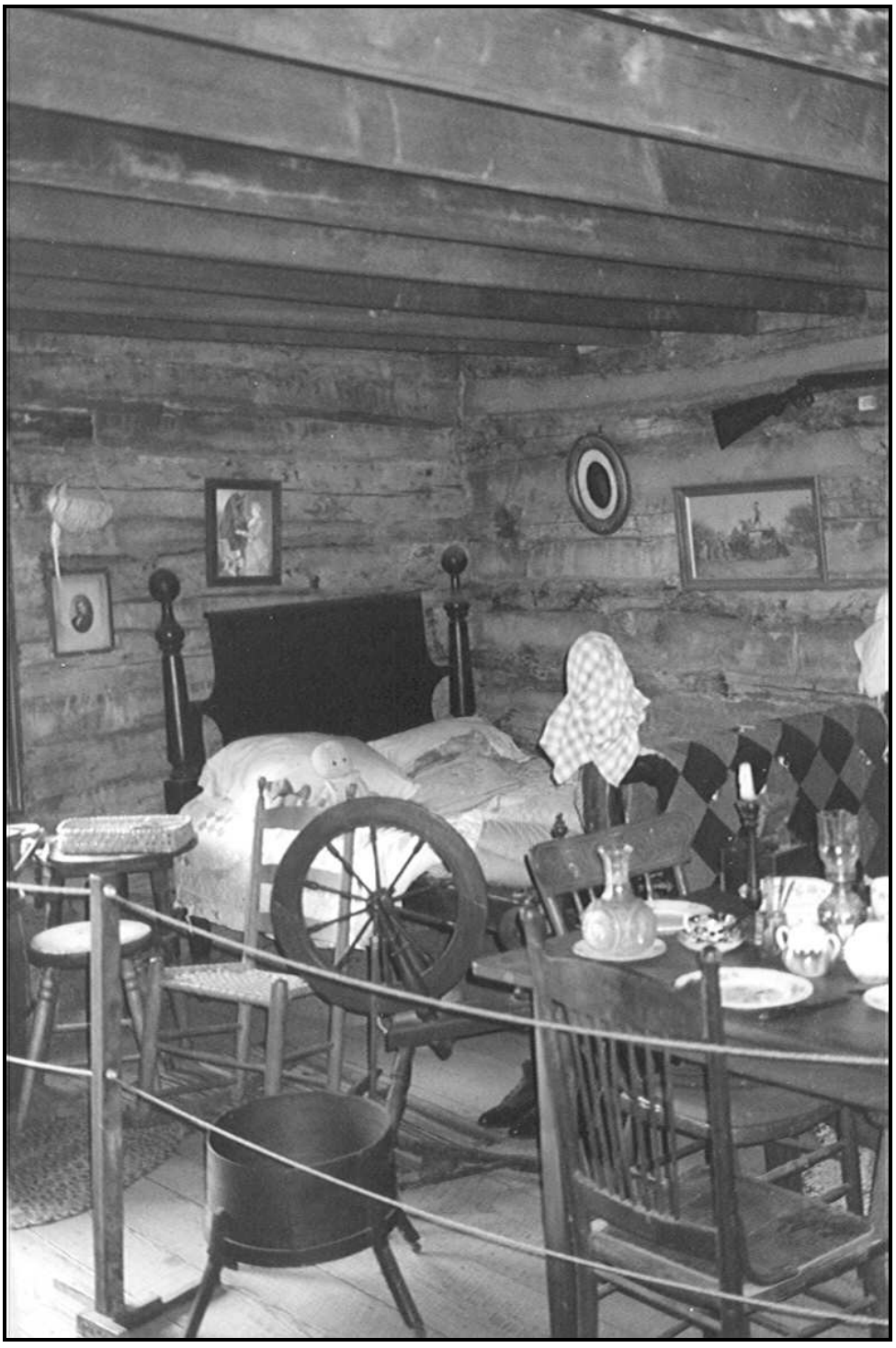


Figure 5. Interior view of cabin, looking toward the southwest corner. The cabin is filled with artifacts illustrating pioneer life (FRR September 2001).

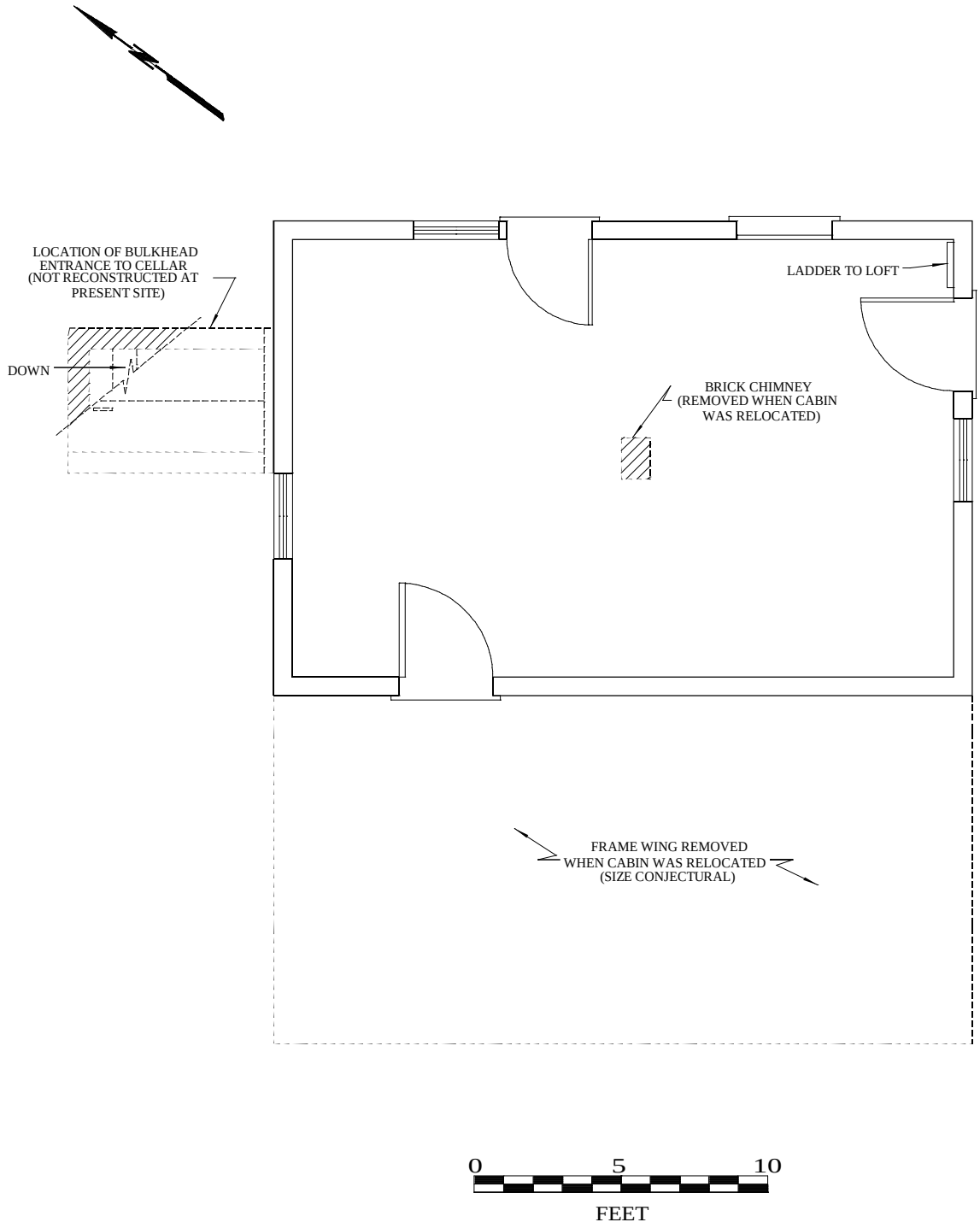


Figure 6. Floor plan of the Zeine Cabin, showing existing conditions. The dashed lines indicate features that were removed when the cabin was dismantled in 1973 (FRR 2001).

Figure 7. Detail of the west wall of the cabin, illustrating the variety of problems facing the cabin. Note the deteriorated conditions of the lower logs, the modern replacement materials that have been used to stabilize the cabin, and the failed chinking (FRR September 2001).

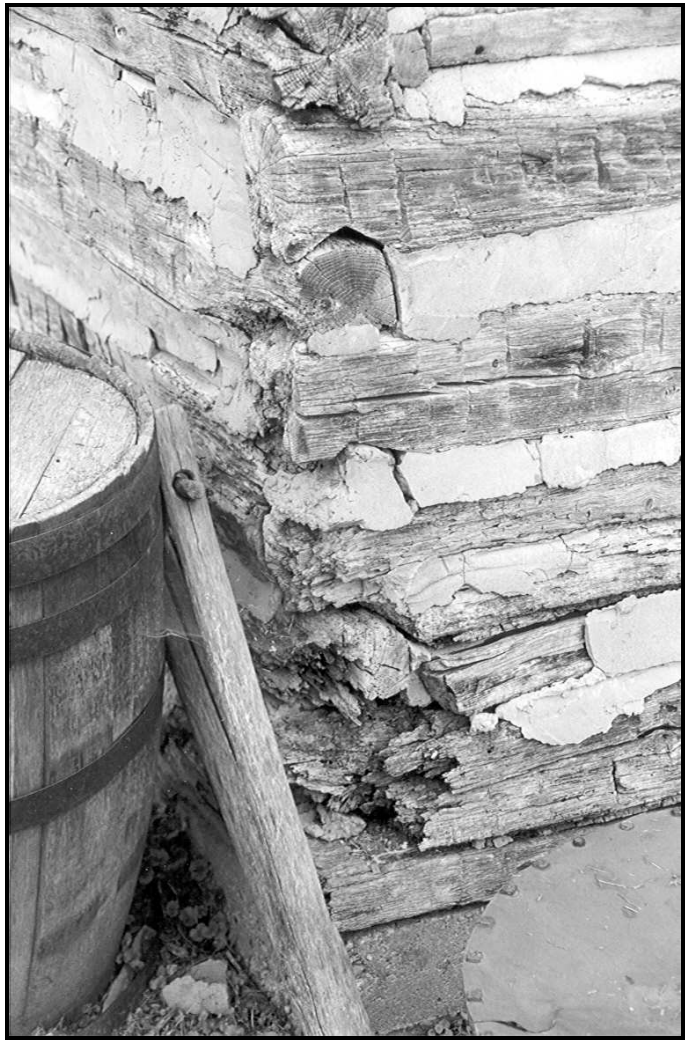


Figure 8. (Left) View of the northwest corner of the cabin, which is badly weathered. (Right) View down the west wall of the cabin (looking north), showing the deflection in the wall (FRR September 2001).

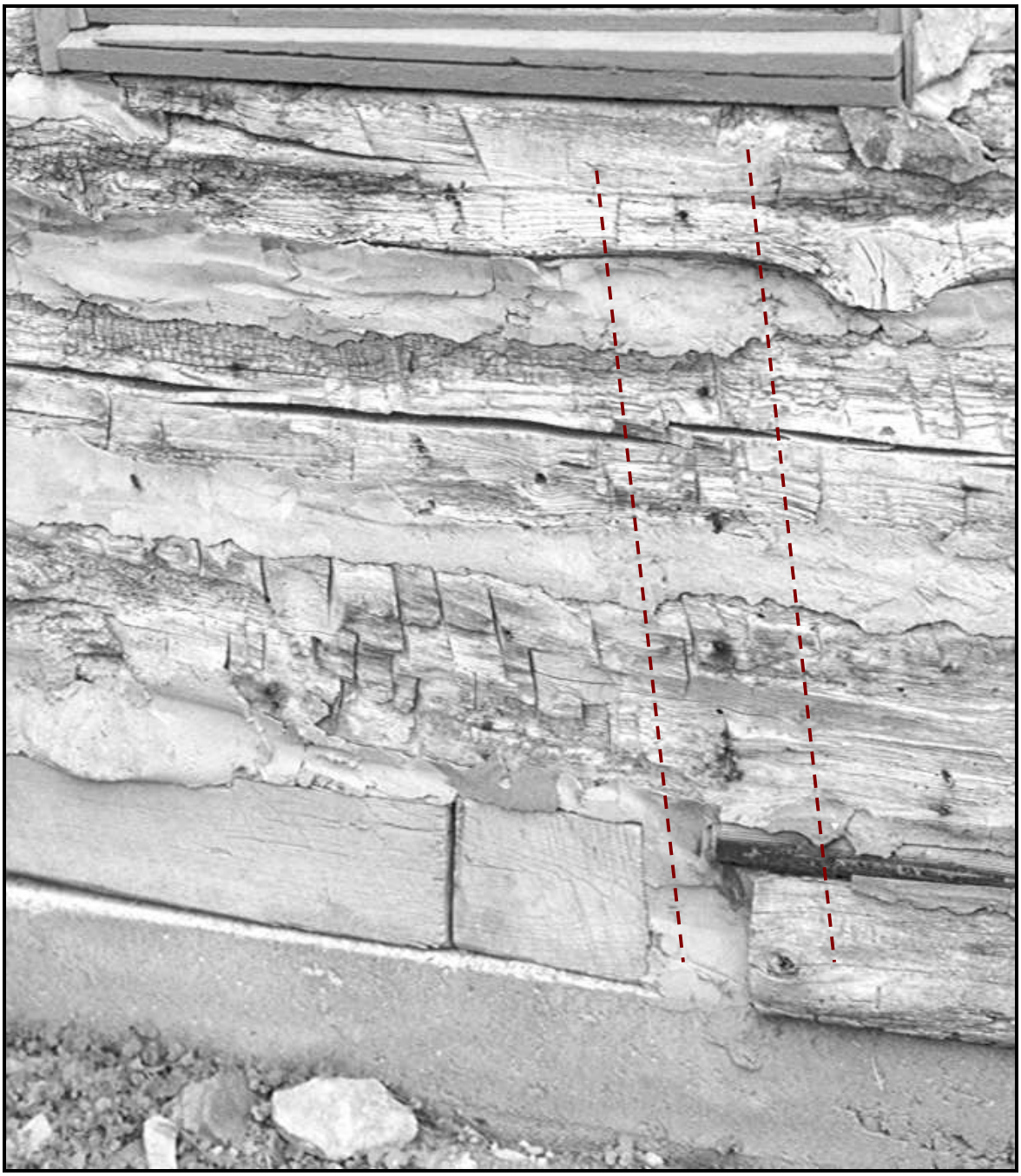


Figure 9. Nail pattern indicating the location of one of the furring strips to which the original exterior siding on the cabin was attached. The dashed lines represent the approximate edges of the furring strip (FRR September 2001).

Figure 10. The Hoerr House in rural Monroe County, Illinois. This log house was constructed by a German family circa 1870 and is contemporary with the Zeine Cabin. The exterior is covered with beveled weatherboard siding, except for a short section of wall that is sheltered by the front porch (FRR October 1996).

Figure 11. View of the front porch of the Hoerr House, showing the section of log wall that was not covered with siding. The logs have been coated with whitewash to provide a more finished appearance, as well as to protect them from infestation by insects. The exterior stairway shown provides the only access to the upper floor of the house (FRR October 1996).

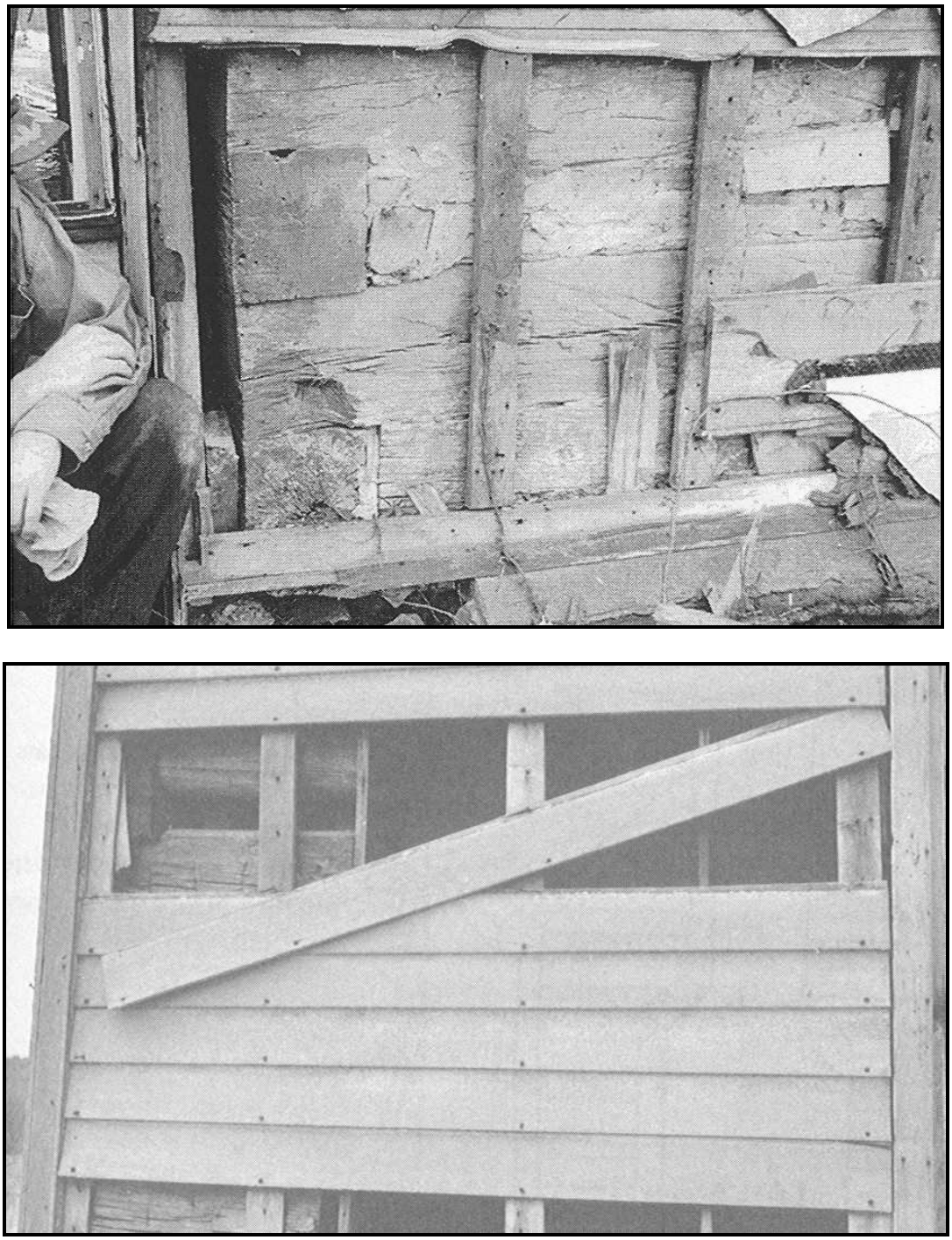


Figure 12. Two views illustrating the manner in which horizontal siding was attached to log buildings using vertical furring strips. A similar procedure should be used on the Zeine Cabin. (Top) The Barth House, in rural Carroll County, Illinois (Stratton and Mansberger 1998:39). (Bottom) A log house in southern Indiana (Roberts 1996:plate 14).

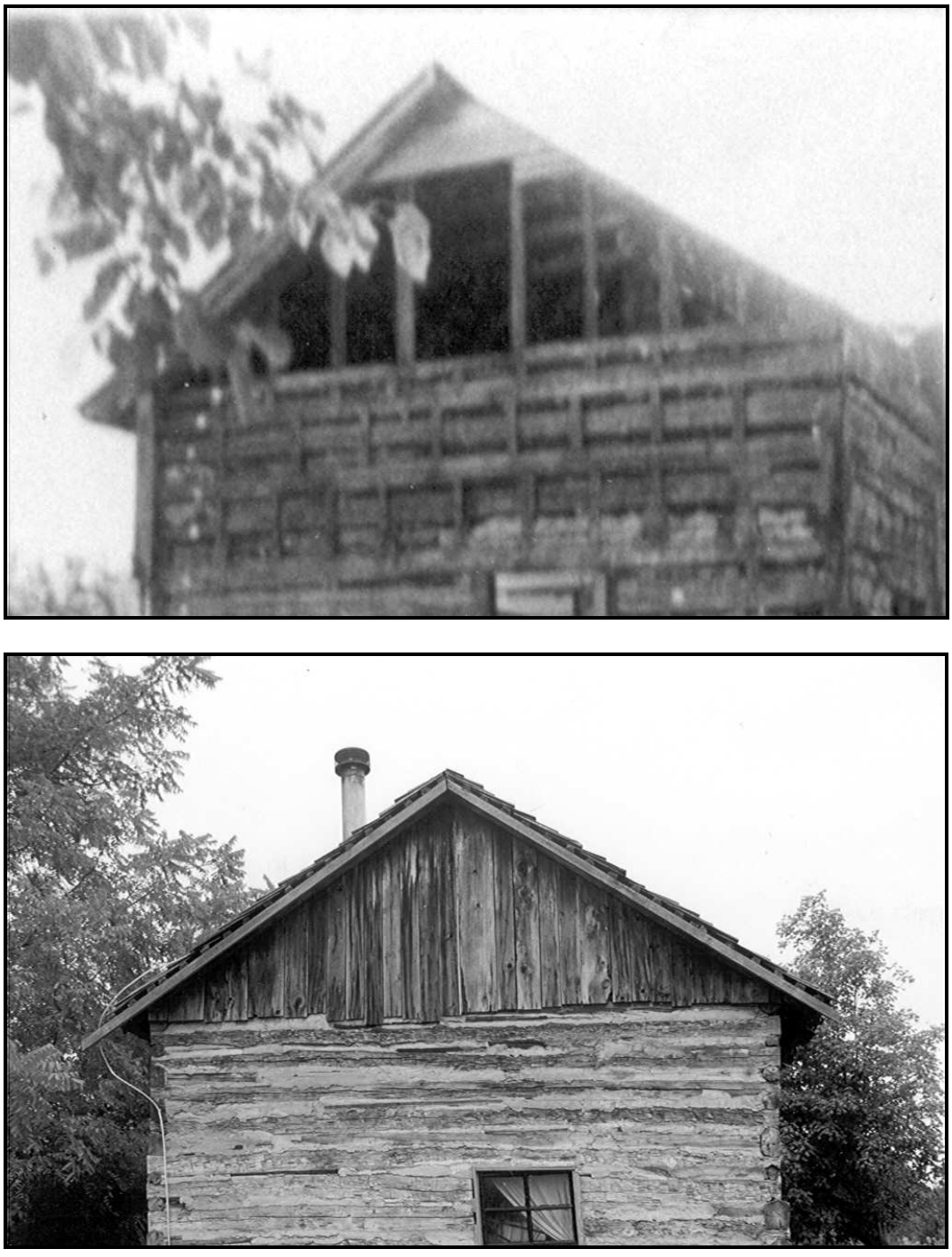


Figure 13. (Top) Detail of an 1974 photograph of the Zeine Cabin, showing the remnants of the horizontal siding originally used to enclose the north gable (WPSP August 1974). (Bottom) View of the vertical plank siding that currently encloses the north gable (FRR September 2001). It is recommended that the vertical planking be replaced with horizontal siding in event that the exterior of the cabin is sided.

REFERENCES CITED

Bomberger, Bruce D.

1991 The Preservation and Repair of Historic Log Buildings. *Preservation Briefs*, No. 26. Preservation Assistance Division, National Park Service, U. S. Department of the Interior, National Park Service, Washington D. C.

Elbert, E. Duane and Keith A. Sculle

1982 Log Buildings in Illinois: Their Interpretation and Preservation. *Illinois Preservation Series*, No. 3. Division of Historic Sites, Illinois Department of Conservation, Springfield, IL.

Fever River Research (FRR)

1996 Photographs of the Hoerr House, taken October 1996. On file at Fever River Research, P. O. Box 5234, Springfield, Illinois, 62705

2001 Photographs of the Zeine Cabin, taken on September 13, 2001. On file at Fever River Research, P. O. Box 5234, Springfield, Illinois, 62705.

Peoria Journal-Star

1980 "Wildlife Prairie Park." *Peoria Journal-Star*, 25 August 1980:B-8. Peoria, Illinois.

Roberts, Warren

1996 *Log Buildings of Southern Indiana.* Trickster Press, Bloomington, IN.

Stratton, Christopher and Floyd Mansberger

1998 Historic Structure Report: The Barth House, Rural Carroll County, Illinois. Report prepared by Fever River Research for the Illinois Department of Natural Resources.

1996a Illinois Historic American Buildings Survey of the Allard House (IL HABS No. R-1996-1). Report on file at the Illinois State Historic Library.

1996b Illinois Historic American Buildings Survey of the Hogan House (IL HABS No. MO-1996-4-C). Report on file at the Illinois State Historic Library.

1996c Illinois Historic American Buildings Survey of the Patten House (IL HABS No. MO-1996-4-D). Report on file at the Illinois State Historic Library.

n.d. The Hoerr Site: An Architectural Assessment of a Middle-Nineteenth-Century Log House and Barn, in Rural Monroe County, Illinois. Unfinished manuscript prepared by Fever River Research.

Wildlife Prairie State Park

1974 Photographs of the Zeine Cabin taken in August 1974. Photographs on display in the Zeine Cabin, Wildlife Prairie State Park.