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Frontier Impressions: the Role of Daub at the Beaver Creek Trail Crossing Site

Brennan J. Dolan

Abstract: In the summer of 2005 the University of Nebraska-Lincoln archaeological field school excavated at the Beaver Creek Trail Crossing Site (25SW49). Early on the excavations at this historic site began to reveal a high amount of material salvaging by site occupants. This paper takes a systematic look at daub as an investigative substance. This piece discusses what archaeologists can learn by examining daub similarly to the analyses of more traditional archaeological materials (e.g. lithics). Additionally, this manuscript addresses frontier building practices with specific consideration to salvaging activity.

Introduction

The Beaver Creek Trail Crossing Site 25SW49 (from here forward the site will be referred to as Beaver Crossing) is a known fording location of the Beaver Creek watershed on the Nebraska City Cut Off of the California and Oregon Trail System. The site is located approximately 4 miles north-west of the current town of Beaver Crossing, Nebraska and was known to be inhabited from 1862-1871. At one time several buildings stood at Beaver Crossing (Waterman 1927). The site was considered to be a typical 19th century frontier road ranch. Known historical documentation of the site is limited to historical accounts and two photos of the site from 1865 and 1866. Most historical accounts of the site begin with description of Beaver Crossing's first western settler John Leonard (Waterman 1927). Later, Leonard sold the property to the Reed family, who occupied the site for most of its nine year life span.

The written record for Beaver Crossing is by no means extensive, and the summer 2005 University of Nebraska-Lincoln field school learned the archaeological record from the site is also limited. Excavations from the site revealed no substantial timber remains or foundation structure. Construction artifacts were limited to glass, nails, and daub. The lack of substantial building artifacts (e.g. foundations or

timber structures) is likely due to extensive salvaging that took place at the site as the town of Beaver Crossing was moved to its present location relatively few years after occupation (see Johnson, this volume).

This research project is based on a modified lithic attribute analysis to identify the role daub played at Beaver Crossing. In looking at daub as an archaeological indicator, many questions arise, the primary being, why is this particular material not analyzed consistently? Typically, archaeological reports mention clay or daub in passing without any formal analysis (Brown 1964; Carlson 1981; Kniffen & Glassie 1986; Lensink & Tiffany 2005; Nystuen & Lindeman 1969). One reason daub analysis is not conducted may be due to the fact that the material is quite brittle; daub can break much easier than other materials (e.g. ceramics, lithics, metal, etc). Daub is highly susceptible to post depositional processes when compared to the above-mentioned materials; it can be altered in form and composition easily. Additionally, ambiguity in the function that daub played on the frontier (i.e. was it used for pit hearth lining, an adhesive building material, a floor?) may be a cause of why it does not receive the treatment it deserves. Another possible reason why daub is not a material that receives regular analysis is that there is little uniformity between samples; size varies greatly from sample to sample, as well as color, shape, and brittleness. Daub is a part of the material record that can provide clues as to how occupants lived at a site, this research questions the role daub played in construction activities at Beaver Crossing.

As part of a larger theme of construction and salvage activities at the site, this research focuses on daub, as a lesser discussed but prevalent building material. This paper describes how daub was used at Beaver Creek. It begins by defining what daub is and next discusses method and collection of data for this project. This paper then addresses the known building(s) at Beaver Crossing and moves back to the larger issue of site construction activities and site understanding.

Definitions

This research began with a search for a sound definition of daub as an archaeological material class. After consulting a number of introductory archaeology text books (Ashmore & Sharer 2000; Fagan 2000, 2001), I concluded that most authors do not define daub at an introductory level. From there I expanded my search to other media. I found a few web sources with functional definitions of daub, but not a single substantial literary definition of daub. Noting this lack of

definition, I choose to define daub for this project as *clay that has been altered by either heat or weathering processes and no longer retains the ability to re-hydrate to a state of plasticity*. Admittedly, this is a broad definition and is intended to identify an ambiguous material class.

Research Methods and Data

One of the roles historical archaeology can play is to act as a means of testing the historical record. Beaver Crossing is a strong example of this. Through a number of accounts provided by McAlester and McAlester (1996), we know clay was used as a chimney lining or as a weather-proofing sealer, and was used to aid in construction of buildings much like those at Beaver Crossing. This study is a systematic focus on attributes of individual pieces of daub. In developing an interpretation of the daub assemblage of the site, it is necessary to identify a set of characteristics that will allow the project to discern the function that daub played. The key feature identified in this study was a remnant surface of the specimen that was distinctively flat, and contained regular linear impressions. These impressions were left as result of the daub being pressed onto or next to a rough cut timber surface. The remnant surface pieces support the role of daub as an adhesive building material.

As mentioned, this research project was based on a modified lithic attribute analysis identifying the role daub played at the Beaver Crossing. The data collected followed a consistent procedure. Provenience assemblages were sized using a metric diameter gradient (1-8 cm). Size categories were weighed and evaluated to identify the presence or absence of a distinct flat surface (e.g. 5 samples 2-3 cm in size and weighting 4.68 grams). The surface was then categorized as either (1) containing linear impressions, or (2) uniformly flat (smooth). The key element in this analysis is the identification of a flat surface. Hence, the presence or absence of linear impressions was used as a discriminating factor in identifying what role the daub played. The focus of this analysis was to identify pieces with distinct flat surfaces and linear impressions; these specific pieces of daub are considered adhesive building material and the cornerstone of this study. Additionally, a survey of color was conducted on the assemblage. The provenience (individual unit of excavation) which showed the greatest variation of color was .0206, changed from black (5 YR) to brown (7.5YR) to light brownish gray (10YR) on a Munsell color chart. The wide variation of color displayed emphasizes some of the ambiguity in dealing with daub.

Table 1 displays totals from the analysis. This research evaluated every piece that was returned to the lab from the field. Note the quantity of daub examined for this study was 785 individual pieces with a total weight of 3,623.8 grams. Elements with linear impressions made up 5.86 % of the assemblage.

Pieces	Total Weight (g)	Piece(s) with Distinct Flat Surface	Pieces with Linear Impressions	Pieces without Linear Impressions
785	3623.8	108	46	62
Percentage of Total Pieces		13.76%	5.86%	7.90%

Table 1. Daub Totals

The amount of daub collected from the site is given in number of specimens and weight. It should be noted that all material collected was evaluated and selected in the field. All daub from each provenience in this study is considered to be a representative sample of that provenience. Table 2 provides a break-down of the 13 proveniences that contained a distinct flat surface and linear impressions. These portions represent the key element of this research; they provide clear ties to timber construction that once stood at Beaver Crossing. One figure that Table 2 does not represent is that these 13 key proveniences contained 62.5% of the total weight of the assemblage. This figure shows that the total number of pieces with a distinct flat surface and linear impression makes up 5.86% of total assemblage, but these sizeable proveniences make up the majority of the weight of the assemblage.

This data allows us to entertain a few possibilities. From the assemblage, 5.86% of the daub carries evidence of use as a building sealer, in that it was impressed against a rough cut wooden surface. The impressions clearly show evidence of wood grain. Some of the preservation is so clear that it may be possible to identify timber species from this daub assemblage. Although no wooden structures were recovered from Beaver Crossing, we have comprehensible evidence that timber constructed buildings stood at this location.

Provenience	Total Weight (g)	Piece(s) with Distinct Flat Surface	Pieces with Linear Impressions	Pieces without Linear Impressions
0.0049	58.71	3	1	2
0.0073	223.33	13	10	3
0.0087	423.98	4	2	2
0.0136	46.78	6	1	5
0.014	15.51	7	1	6
0.0154	47.65	4	1	3
0.0172	10.99	1	1	
0.0202	130.72	4	1	3
0.0203	150.87	4	3	1
0.0204	93.68	1	1	
0.0205	287.84	5	5	
0.0206	559.9	9	9	
0.0207	218.06	15	10	5
Totals	2268.02	76	46	30

Table 2. Proveniences with Distinct Flat Surfaces and Linear Impressions

This information also tells us that the assemblage of daub from proveniences .0202 through .0207 clearly relate to a concentrated area where daub was used to weatherproof a portion of a building (see McAlester & McAlester 1996: 86). This record tells us that throughout the site, as evidenced by the seven additional proveniences, adhesive building pieces are spaced in lesser concentrations. It is apparent that clay was used to seal certain areas of buildings from Beaver Crossing. This data allows us to infer that one function of daub was to serve as an adhesive building material at Beaver Crossing. This knowledge can be used to construct a reference for the site, which can be used to compare assemblages of other sites.

What other role did daub play at Beaver Crossing? As stated above 13.76 % of the daub assemblage carried a distinct flat surface, while 5.86% displayed distinct linear impressions. So what might the function of the other 7.90% that had a flat surface with no linear impressions have been? Could it have served as a chimney lining to the stove pipe we see in the 1865 and 1866 photos? It is noted that building similar to those which stood at Beaver Crossing used clay to

line chimneys (McAlester & McAlester 1996). This is one additional role daub could have, and likely did serve at Beaver Crossing.

One other possibility is that daub served as a kind of smooth surface. In historic and prehistoric sites, daub use often times is associated with floor lining. Additionally these same pieces may represent the smoothed (opposite) side of the adhesive building pieces. It seems logical that if one side of a piece of clay was forced into the space between rough cut timbers (the side which would create an impression), the other side would likely have been smoothed out to some degree. Using the framework of data built from the attribute analysis, it shows pieces with a distinct flat surface and linear impressions make up 5.86% of the daub assemblage. Pieces with a distinct flat surface and no linear impressions (or smooth) make up 7.90% of the daub assemblage; these pieces may compliment each other.

The daub analysis presents a body of evidence that supports the idea of reuse and salvaging of construction materials from Beaver Crossing. Specimens have impressions of wood, and yet no actual wood remain (i.e. foundation logs or boards, or timber stained soil). It is fair to infer the wood may have been salvaged to another location for a different building. Ziegler et al. (2001) note a similar pattern at Fort Ellsworth in Kansas during the 1860s (213). Nystuen and Lindeman (1969) state evidence for the “intentional removal of most of the building material” from Fort Renville in Minnesota during the mid 1800s (31). This evidence, combined with observations from Beaver Crossing illustrates the commonality of moving and salvage activities.

Construction

When thinking about how daub was used at this site it is beneficial to think holistically about construction styles employed on the frontier. Both photos of the Reed family homestead (1865 and 1866) demonstrate a number of insightful structural hallmarks, which can be used to develop an understanding of construction techniques and building function at Beaver Crossing. The photos from Beaver Crossing allow for many comparisons. The first characteristic of the structure in the photo, which is most noticeable, is its linear orientation. The only windows and doorway to be observed are on the long narrow axis of the building. Additionally, the structure is a front gabled preclassical box, due to the orientation of the door and the buildings central axis. The structure was a one and a half story building with an attic. This attic usually served as a sleeping loft (McAlester & McAlester 1996). Estimations to the interior of the structures at

Beaver Crossing are less exact than the kinds of understandings we can derive from the sources that describe the exterior. The walls in the photos resemble corner notched, although the corners may have been half-dovetailed (Sizemore 1994), or some other type of rough cut construction (McAlester & McAlester 1996; Perrin 1961). Clearly, a difference in the wall material at the articulation of the rough cut wall and the beginning of the overlaying half story can be observed. This particular observation has implications for other building materials such as nails. Specifically, the type of nail used to secure wood siding, like that of the upper half story, would have been different from the nails used to secure the rough cut plank walls.

All building walls must rest on a foundation. The foundation of this building is not clearly observed from the photos. It must be kept in mind that wood is not rot-resistant; therefore evidence of a structured foundation such as masonry will aid in the understanding of building techniques and processes from Beaver Crossing. McAlester and McAlester (1996) note:

Simplest are walls of horizontal logs, either left round or hewn square, which serve to provide both structural support and, when the cracks between the logs are filled with clay or other materials, weather screening as well. The principle structural support of a log wall is provided by the notched corners, where adjacent logs are on close contact (34).

This comment provides insight to one of the possible uses of clay at Beaver Crossing. The additional information gleaned from this understanding of log wall strength comes to light when considering the salvaging of materials from Beaver Crossing. As stated above, these walls were very strong, stronger than the studded frame walls used today. If an individual wanted to salvage Beaver Crossing lumber to use at another location, a considerable amount of effort must have been required. Still, this kind of effort must not have exceeded the monetary value needed to acquire new materials, and/or additional materials must not have been available. McAlester and McAlester (1996) note:

Over much of the plains, rivers and streams were bordered by at least small trees that provided short timbers for roof support and other essential construction details. Walls and roofs made entirely of wood were, however, rare and expensive luxuries on the plains before the expansion of the western railroad network in the later 19th century. Like their Native American predecessors, early settlers on the plains

generally solved the shortage of wood by building with crude masonry (86).

One additional hallmark in both the 1865 and 1866 is the stove pipe which rises out of the far side of the roof. The stove pipe is a “sloped” style (McAlester & McAlester 1996: 51). This structure was probably attached to a wood burning stove, although other sources of fuel could have been used. As mentioned above, another possible use of clay or daub at Beaver Crossing could have been to fill in the area where the stove pipe and the roof met. The daub would have kept moisture from coming in, but also acted as insulator from the heat of the stove pipe and the dry flammable wooden shingles.

Both photos from the site allow for a description of the roof/wall over hang. The photos show no indication of brackets (McAlester & McAlester 1996). This style of construction is consistent with what McAlester and McAlester term prairie roof wall junctions. Further research to the intricacies of this type of construction might be able to tell us more about interior aspects of the building.

One additional aspect of building focuses on is the presence of windows in the photos. Both photographs show us a center placed half-story window and two longer windows on either side of the front door. Neither photo indicates that the half story window is divided up or partitioned. This information will bring more detail to a study of pane glass. The two windows adjacent to the door indicate partitioning. This insight allows predicting what kinds of variation may be found in the size of pane glass assemblage of the site.

Construction References

One of the most functional aspects of historical archaeology is its ability to compare historical information to the material record, and Beaver Crossing is no exception. McAlester and McAlester (1996) present a photo of a single-pen house in Summers, Missouri from 1880 (Fig. 1). This building differs from our Beaver Crossing photo (Fig. 2) in a number of ways in that it has no windows, it has a stick chimney, which is lined with clay, and it is side gabled. Yet, it has a striking number of similarities. First, it appears to employ a corner-notched or possible half-dovetailed rough cut wall construction style. Second, it too is one and a half stories with a switch from plank to siding at the meeting of the first and half stories. Lastly, the caption notes that clay was used on the stick fireplace.

Both structures display signs of building extension. The Summers building indicates an addition on the right side of the single

pen and the Beaver Crossing photo indicates more of a secondary structure which butts up to the formal building. McAlester and McAlester (1996) note difficulty in extending for new construction with corner-jointed wall construction like those found at Summers and Beaver Crossing. Peterson (1986) illustrates an elaborate succession of building based from a single-pen log constructed home (see also Sizemore 1994 for a chapter on additional farmstead buildings). This is an interesting consideration, and one that allows understanding of how day-to-day activities brought about changes in building styles and choices.



Figure 1. Summers, MO – 1880 (McAlester and McAlester 1996: 85)

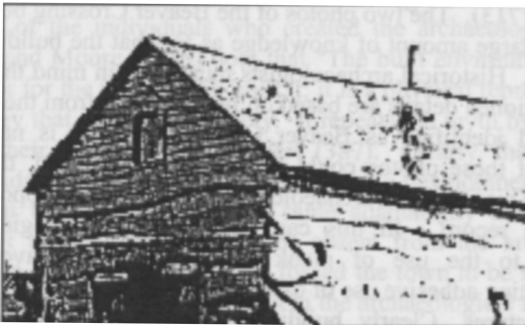


Figure 2. Beaver Crossing, NE–1865 (Waterman 1927: 32)

The process of log cabin construction was known to have taken little time, as well as requiring few tools and materials (Sizemore 1996). Wooden skids aided the labor of building walls to heights

above one story. As noted above, the corners of these structures afforded a sturdy building. Perrin (1962) notes the trickiest part of the process was the notching and fitting of the corners, usually done by a "corner man who was particularly dexterous" (3). Sizemore (1994) presents the idea of these individuals being "professional or semi-professional" carpenters (150,154). Kniffen and Glassie (1986) provide a tremendous visualization of corner notching technique movement across the east and mid parts of the country during the mid nineteenth century. The construction of log style buildings took many turns. Perrin (1962) points out "as soon as the walls were up, the spaces between the logs were chinked with wooden slats or stone chips to fill the crevices, and these were then covered with clay mixed with straw, followed by lone mortar pargeting". Sizemore (1994) goes on to state:

After the log walls were completed, the Ozark builder filled the interstices between the logs using one of two methods. The simpler, but less often used method was simply to plaster over the cracks, inside and out, with mud or clay or a mortar of lime mixed with mud, clay or sand. The more common method was to apply one of these mortar mixtures in combination with riven wood shingles that were wedged diagonally in the cracks. In a few instances, the interior was sheathed with wood and no chinking appears at all. (151)

The clay mixture discussed by these two authors gives rise to a possible use of daub from Beaver Crossing. Nystuen and Lindeman (1969) note the use of a similar "clay-chinked" technique from Minnesota (713). The two photos of the Beaver Crossing building have afforded a large amount of knowledge as to what the building actually looked like. Historical archaeologists must keep in mind that all of the above mentioned details are based on facts derived from the two photos labeled and identified as Beaver Crossing. There is no reason to suspect that these photos could have been mis-marked, though, it is possible. This is where archaeological research can support or refute the written record. In this case we have archaeological material connected to the use of plank construction at Beaver Crossing (demonstrating adhesive use of daub), yet no remains of any substantial timber structures. Clearly, buildings stood here at one time, although this particular archaeological record is incomplete based on the salvaging that took place once the town was moved.

Vernacular Design

As defined by Sizemore (1996), "Vernacular architecture is not sophisticated, not high style, not monumental, not designed by professional architects. The consumers of vernacular architecture are also important form givers, a circumstance that provides vernacular architecture with a strong popular or social identity" (4). The term "vernacular" is used to describe the use of common designs, styles, techniques and materials in the context of specific areas or regions. Most likely construction at Beaver Crossing employed a multitude of ideas and designs, but like many technologies, form follows function. Presumably, individuals employed designs and techniques that allowed them to place a structure on a location as time and material resources allowed. Kniffen and Glassie (1986) discuss vernacular architecture in context of movement from the "timber-rich eastern United States" to the more barren landscapes of the west (160). This area of question, one of traditional wood construction styles of the east and fewer timber resources of the west, is where Beaver Crossing can provide excellent insight to frontier life. Clearly material salvaging is evident at Beaver Crossing as well as other areas mentioned above, but how does this compare to what Kniffen and Glassie consider the timber-rich east? This may be a line of future research.

Conclusion

A study such as this should not go without a specific discussion of the individuals who created the archaeological record. Anderson and Moore (1988) note that "The built environment is more than shelter for the people who built it; it is a physical representation of the ideology that shapes the society. It repeats the myth by which they construct their lives and social order" (387). Clearly, the inhabitants' ability to adapt is one reason why we see the development of Beaver Crossing at this local. It is that same adaptability that causes the majority of building materials to be absent from the archaeological record when logistic circumstances forced the town to be moved. The lack of substantial building materials in the archaeological record left at Beaver Crossing is a sign of the temporal and spatial placement of the site on a growing frontier. The people of Beaver Crossing constructed their ranches from what materials were available, and when economic conditions changed, as tends to happen (see Johnson this volume; Myhrer et al. 1990), they tore down and started over. The buildings represented their ability to adapt and shift, which may be the most

informative story evidenced in the archaeological record, or, in this case, lack there of.

The unique circumstances associated with the Beaver Creek Trail Crossing Site allow insight into many of the activities that took place there. All archaeologists, historic and prehistoric, would jump at the opportunity to see inhabitants of the site standing for a photo during the heart of the occupation; Beaver Crossing offers that exact scenario. This is one of the reasons why we must take advantage of all that can be learned from this opportunity. We should strive to create a set of reference data that will allow for comparison of other archaeological site of similar time periods and functions.

What does the type of construction used at Beaver Crossing tell us about patterned movement of construction styles across the wooded east on to the prairie plains of the west? Why was it that occupants of the site salvaged so much material once the location of Beaver Crossing was moved? These may be some of the most interesting questions we can begin to answer. We have the ability to combine widely published historical accounts about frontier movement and life to the material record from the site, to develop an intimate understanding of activity from Beaver Crossing.

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References

- Anderson, TB and Moore, RG. (1988) "Meaning and the Built Environment: A Symbolic Analysis of a 19th Century Urban Site". In Loene, M and Potter Jr., PB. (Eds) *The Recovery of Meaning: Historical Archaeology in the Eastern United State*. Washington, DC: Smithsonian Books.
- Ashmore, W and Sharer, R. (2000) *Discovering our Past*. Columbus: McGraw Hill.
- Brown, JA. (1964) "The Identification of a Prehistoric Bone Tool from the Midwest: The Deer-Jaw Sickle". *American Antiquity* 29 (3):381-386.
- Carlson, GF. (1981) *The 1981 Archaeological Investigations at Rock Creek Station State Historical Park, Nebraska: A Preliminary*

- Report on the Results of the Second Season of Excavations.*
Lincoln: Nebraska State Historical Society.
- Fagan, B. (2000) *Ancient North America*. New York: Thames & Hudson.
- _____. (2001) *People of the Earth*. New Jersey: Prentice-Hall.
- Kniffen, FB and Glassie H. (1986) "Building in Wood in the Eastern United States: A Time-Place Perspective". In Upton, D and Vlach, JM. (Eds) *Common Places: Readings in American Vernacular Architecture*. Athens: University of Georgia Press.
- Lensink, SC and Tiffany, JA. (2005) *The Cowan Site: A Great Oasis Community in Northwest Iowa*. Iowa City: Office of the State Archaeologist, Report 22.
- McAlester, V and McAlester, L. (1996) *A Field Guide to American Houses*. New York: Alfred A. Knopf.
- Myhrer, K, White, WG, and Rolf, SD. (1990) *Archaeology of the Old Spanish Trail/Mormon Road: From Las Vegas, Nevada to the California Border*. Las Vegas: Bureau of Land Management Nevada.
- Nystuen, DW and Lindeman, CG. (1969) *The Excavation of Fort Renville*. St. Paul: Minnesota Historical Society.
- Peterson, FW. (1986) "Vernacular Building and Victorian Architecture: Midwestern American Farm Homes". In Upton, D and Vlach, JM. (Eds) *Common Places: Readings in American Vernacular Architecture*. Athens: University of Georgia Press.
- Perrin, RWE. (1962) *Historic Wisconsin Buildings: A Survey in Pioneer Architecture 1835-1870*. Milwaukee: Milwaukee Public Museum.
- Sizemore, J. (1994) *Ozark Vernacular Houses: A study of Rural Homeplaces in the Arkansas Ozarks 1830-1930*. Fayetteville: The University of Arkansas Press.
- Waterman, JH. (1927) *General History of Seward County Nebraska*. Beaver Crossing: Beaver Crossing Centennial Committee.
- Ziegler, RJ. (2001) *Historical Archaeology at Locality 6 of the Fort Ellsworth Site (14EW26) Kanopolis Lake, Ellsworth County, Kansas*. Kansas City: US Army Corps of Engineers Kansas City District.