

EXCAVATIONS INSIDE HISTORIC STRUCTURE 4,
THE NEW COMMISSARY,
AT FORT LARNED NATIONAL HISTORIC SITE, KANSAS



National Park Service
Midwest Archeological Center

Excavations
Inside Historic Structure 4,
The New Commissary,
at Fort Larned National Historic Site,
Kansas

by
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ABSTRACT

In March, 1989, the Midwest Archeological Center conducted excavations inside Historic Structure 4, the New Commissary, at Fort Larned National Historic Site, Kansas. The excavations were intended to mitigate the impact from the planned adaptive restoration of the structure. The excavations succeeded in determining the depth of fill deposited after the close of the military-period, locating remnant segments of the floor joist supports, and locating a single post feature which dates to the military-period or earlier. Artifacts were mixed with regard to temporal period, and may have been introduced into the structure along with the fill.

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INTRODUCTION

In March, 1989, a crew from the Midwest Archeological Center conducted excavations inside Historic Structure 4 (HS-4), the New Commissary, at Fort Larned National Historic Site, Kansas (Figures 1 and 2). Plans to restore a portion of the structure as a schoolroom and to adapt the rest of the structure as a curatorial facility and washroom called for the removal of up to three feet of deposits from the floor of the structure. The excavations were intended to determine whether the deposits contained intact military-period features and artifacts and to mitigate the impact of construction on such features and artifacts.

The New Commissary was built in 1867 and 1868, 10 years before Fort Larned was closed. Subsequent owners of the fort remodeled the buildings, gutting the interior of HS-4 and removing its original wood floor. A concrete floor, poured sometime during the first half of the nineteenth century, was removed in 1987 as an initial step in restoring the structure.

Investigations conducted during removal of the concrete floor showed that the fill exposed below the floor consisted of several layers. It was not clear, however, whether military-period deposits remained intact in the layers.

To determine the existence of military-period deposits, the 1989 crew sampled the fill inside HS-4, excavating 273 sq ft out of a total of 2,187 sq ft. Excavations showed that an average of 20 in of fill, accrued since the removal of the original wood floor, covered the native prairie soil. Excavations uncovered the remains of the sandstone floor joist supports and only one other feature datable to the military period or earlier. Artifacts were confined primarily to the fill.

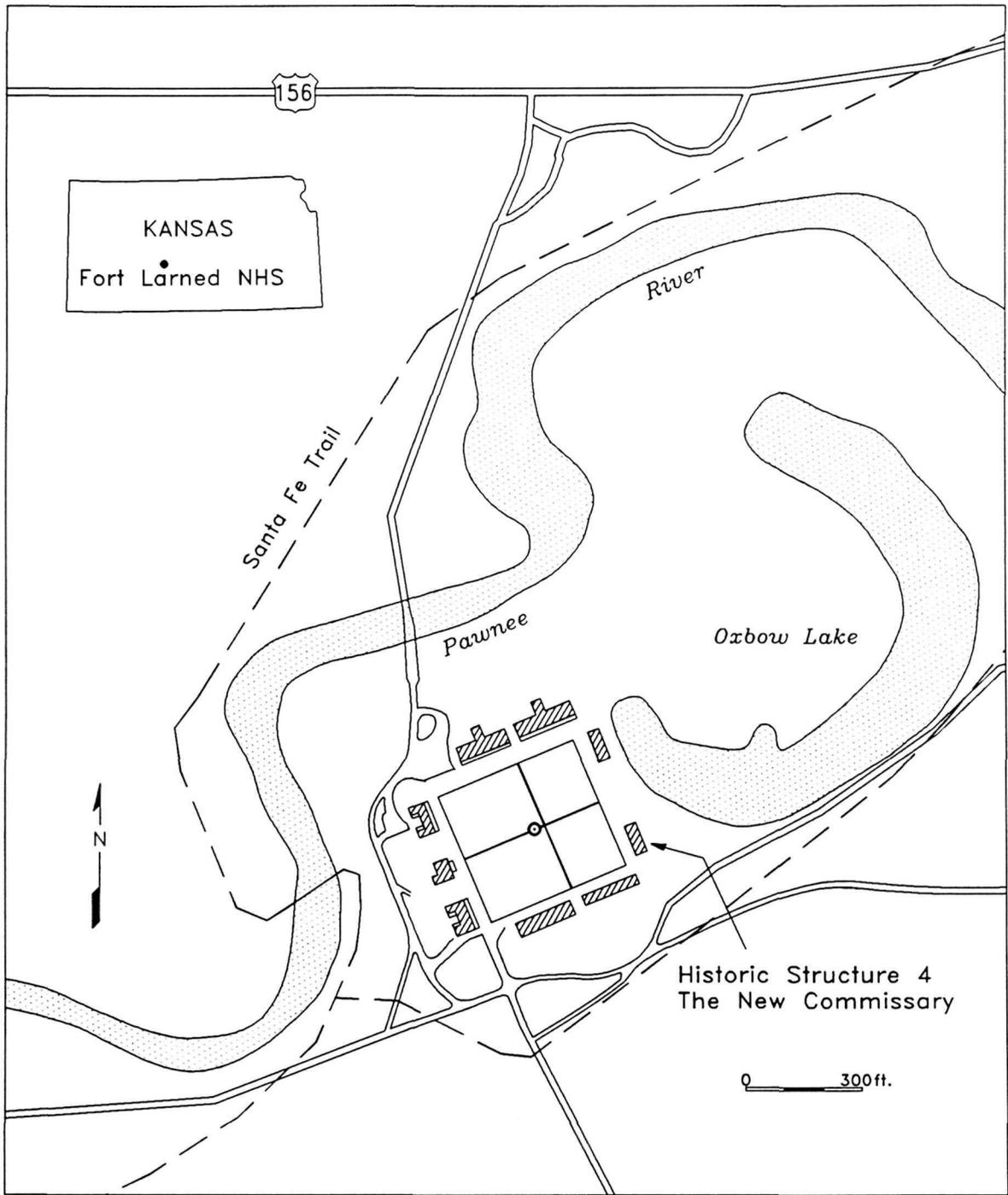


Figure 1. Overview of Fort Larned National Historic Site.



Figure 2. HS-4--exterior view, east side.

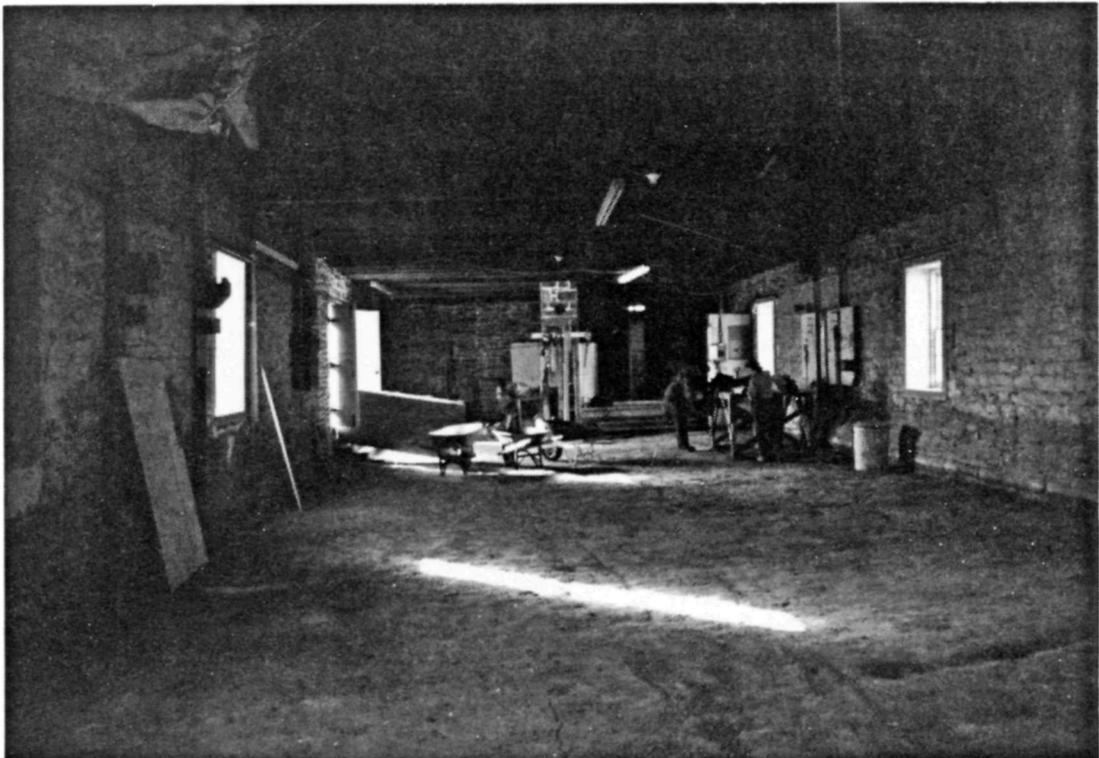


Figure 3. HS-4--interior before excavation, view to south.

HISTORICAL BACKGROUND OF FORT LARNED AND THE NEW COMMISSARY

Fort Larned

In 1860, Fort Larned was established at its present location to protect commerce and traffic on the Santa Fe trail. During that decade, its function expanded to include distribution of Indian annuities. Troops garrisoned there participated in several Indian "campaigns."

Until 1866, Fort Larned was considered a temporary encampment. But in that year, renewed Indian activity and the return of troops following the Civil War prompted the upgrading of the fort to permanent status. The original adobe structures were replaced with stone structures. HS-4, the New Commissary, was one of the last of these stone structures to be built. Started in late 1867, it was completed in 1868.

By the early 1870s, the importance of Fort Larned was eclipsed by two factors: the decline of Indian threats and the replacement of traffic along the Santa Fe trail with the use of the Atchison, Topeka and Santa Fe Railroad. The fort was closed in 1878, but was protected by a small garrison until it was transferred to the Government Land Office in 1883.

The years from 1883 to 1902 saw the fort's ownership change hands several times. In 1902, the Frizell family purchased the property, and during a period of over sixty years, remodeled the fort extensively to accommodate their ranching operations. The fort gained status as a National Historic Site in 1964 and in 1967 was purchased by the National Park Service. Shortly thereafter, plans were developed to restore the standing stone structures. The latest portion of this effort is the adaptive restoration of the interior of HS-4.

The New Commissary

The New Commissary was among the last of the stone structures to be built at Fort Larned. Begun in the fall of 1867 and completed almost a year later in 1868, the sandstone block structure measures 84 ft 5 in x 30 ft 4 in on its exterior. Both east and west elevations had three windows, with two on the north elevation. The structure had two doors: one on the west elevation at the north end, and a double door on the south end of the east elevation. Two stone chimneys surmounted the roof (National Park Service n.d.:31).

The building was divided with frame walls into three rooms with a large central room serving as the commissary storeroom. The smaller north and south rooms housed an office and the

officers' stores, respectively. The structure was also used to store ammunition and equipment (National Park Service n.d.:35). During a cholera outbreak in 1870, a shortage of hospital space necessitated the temporary use of the New Commissary as an overflow hospital (Wagner 1976:5). By 1871, the office at the north end of the structure was converted to a schoolroom (Albright and Scott 1974:91).

Following transfer of Fort Larned to civilian ownership, and sometime during the first two decades of the twentieth century, the New Commissary building was completely gutted. A new metal roof was added and the building was joined to the former shops building (HS-3) to the north by a large shed. At some point, a concrete floor was added. While other structures at the fort are known to have been used during the ranch-period to house livestock or store equipment, no record is available to indicate what purpose HS-4 served.

During the 1950s the building was used as barracks-style housing by visiting youth groups. By this time, the double doorway on the west elevation had been widened and the opposite door had been lowered to the level of the concrete floor. The latter provided entrance to washroom facilities which had been installed in that end of the building (Wagner 1976, part 3:6). During the 1960s, a local Boy Scout group, intending to replicate a tunnel wrongly supposed to have lead to the blockhouse, constructed such a tunnel with a stairway entrance inside the southeast corner of the HS-4. In 1968, an accident involving a crane boom destroyed the roof and damaged the concrete floor. The metal roof was replaced with the current wooden roof, and the repair of the floor occasioned the filling in and covering of the tunnel stairway as well.

From 1969 to 1987, HS-4 served the Historic Site as a maintenance shop. During this period, the exterior of the building was gradually restored to its military-period appearance, with doorways restored to their original size and position. In 1987, the concrete floor was removed as an initial step in the interior restoration of the structure.

PREVIOUS INVESTIGATIONS

Archeological investigations to locate foundations of non-standing structures were conducted during the 1960s. The results of those investigations remain unpublished. It was not until 1972, however, that formal excavations were begun (Scott 1973). Since that time, all standing structures, many non-standing structures, and features such as parade ground paths, dumps, and surface drains have been formally investigated (Pertulla and Shaw 1980:93-102).

Archeological investigations have been conducted at HS-4 on two previous occasions. The first was in 1974 when Scott excavated a trench along the exterior of the structure's west wall near the southwest corner. The trench showed the foundation to be constructed of six courses of irregular sandstone block. The base of the foundation was set in sterile clay, 24.5 in below the present surface (Scott 1975:16).

The second investigation was conducted in 1987 when Griffin monitored the removal of the concrete floor and the plumbing from the south half of the building (Griffin 1987).

Removal of the concrete exposed a dirt surface of uniform, compact pale brown silt (Figure 3). Its level relative to the position of the floor sill, joist pockets, and mopboard nailers, all visible in the walls of the structure, indicated the existing dirt surface was approximately two feet below the level of the original wood floor. Clearly, at least the upper portions of supports for floor joists, or any other subfloor foundations such as might have been laid for walls or chimneys, were destroyed following the removal of the wood floor.

Soil cores taken in the northern portion of the building and profiles of the plumbing trenches in the southern part showed that the depth of the fill varied but averaged two feet below the surface and covered dark brown to very dark grayish-brown silty clay, apparently the native prairie soil. Whether the original prairie grade or the surface on which the structure was built, was intact was not evident. This surface would have carried any interior foundations (joist supports) and would have collected objects deposited during construction or which later happened to fall through floorboards.

FIELD METHODS

Interior restoration plans for HS-4 called for the removal of approximately 1 ft 8 in of fill along the east and west walls and up to 3 ft along the middle of the structure. This would likely affect any portions of the military-period surface and features that had not been obliterated by ranch-period (1883-1967) activities. Goals of the 1989 excavations were to determine whether military period deposits and features remained intact and to mitigate the loss of any military period deposits by sampling them.

Since restoration activities would disturb deposits throughout the building, excavations were distributed throughout but placed in areas where military-period features were most likely to be preserved. Test units were placed as follows (Figure 4):

- in suspected locations of joist supports;
- in the suspected locations of interior walls and chimneys to locate evidence of any subfloor foundations;
and
- along walls, where unanticipated military-period features and artifacts would have received the greatest protection from ranch-period disturbance.

Much of the southern portion of the structure was excluded from excavation, since the fill in this area had sustained repeated disturbance, following the military-period, from plumbing installation and renovation, excavation and refilling of the Boy Scout tunnel, and repair of the damaged concrete floor. Furthermore, at the time of our investigations, a 16 ft x 12 ft platform supporting temporary washroom facilities stood in the structure's southwest corner. For these reasons, approximately 430 sq ft were eliminated from the 2,187 sq ft interior, leaving 1,755 sq ft to sample.

Sampling was initiated with 3 ft x 3 ft units which allowed the determination of the depth of the ranch-period fill, and the position of the joist supports remnants. Trenches, 2 ft wide and of varying lengths, were then placed to expose longer segments of the joist support remnants and portions of the exterior wall foundation and to clarify the stratigraphy throughout the structure.

Units and trenches were excavated to an average depth of 26 in below the surface--generally 6 in into sterile native prairie soil. This permitted the location of the base of the joist supports and helped to insure the recovery of artifacts which might have moved from trampling or other natural processes downward into the soil. A single 3 ft x 3 ft unit was placed near the center of the building and excavated to 3 ft below the surface--the expected

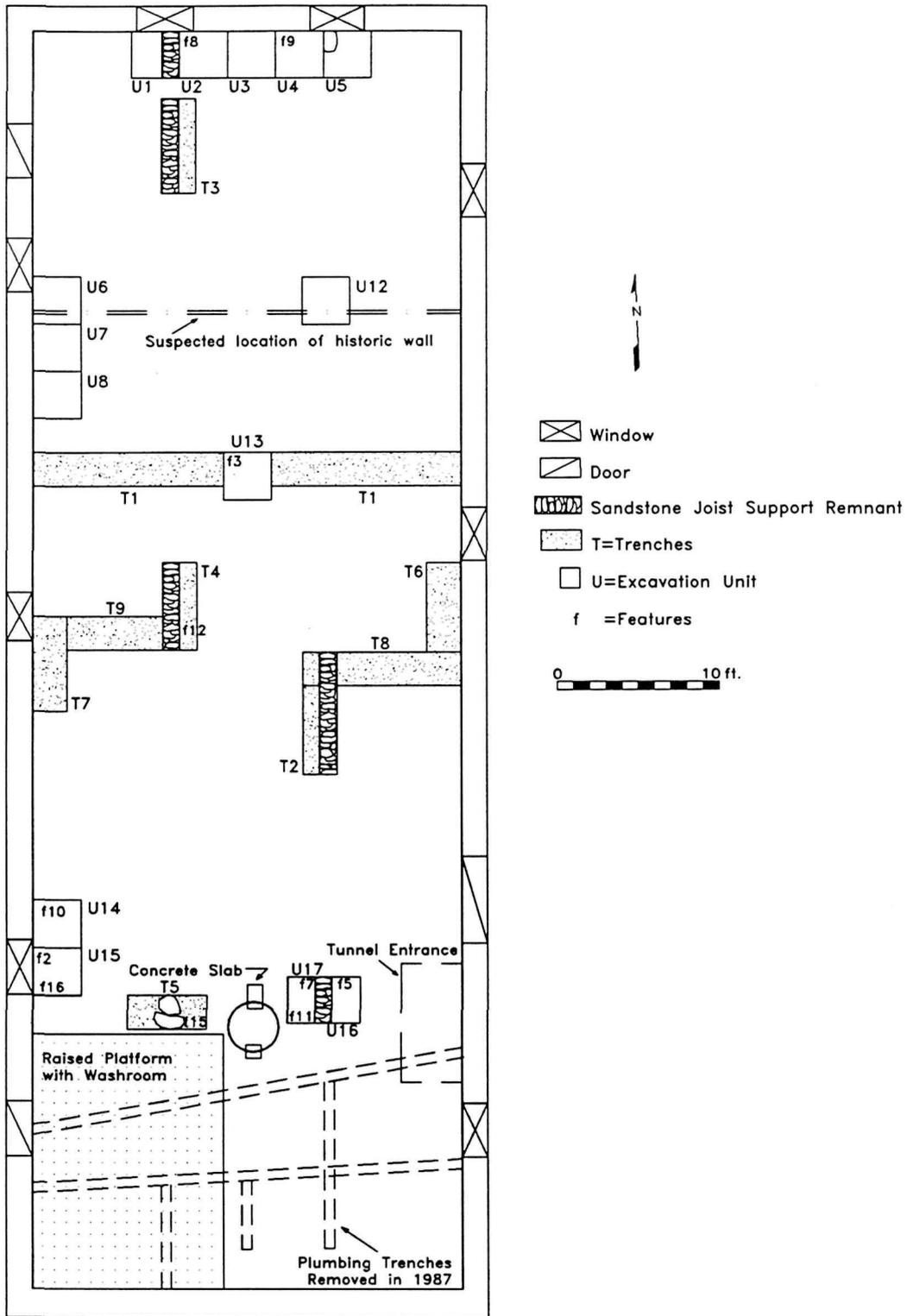


Figure 4. Plan of the interior of HS-4, showing locations of excavations and features.

depth of disturbance at that location. Two 2-ft-wide trenches (Trench 1, east and west) were excavated adjoining Unit 13 on the east and west sides and extending to the east and west walls of the building. This permitted the examination of the base of the wall foundation at two locations. The north profiles of Unit 13 and Trench 1 together provided a stratigraphic cross section of the building.

Matrix was removed from excavation units by skim shoveling. In the 3 ft x 3 ft units, this was initiated in 3-in levels and increased to 6-in levels when it became apparent that the depth of the ranch-period fill was greater than anticipated. Trenches were excavated in natural levels. In the first units excavated (units 1-6) one-third of the matrix was screened to recover artifacts which might aid in determining the depth of the ranch-period fill and identifying any episodes within it. When it became possible to distinguish the fill zone from the native prairie soil beneath, the fill was discarded without screening. Artifacts recovered while skim shoveling were collected.

A total of 273 sq ft in 24 units and trenches was excavated. These units and trenches consisted of:

- 13 3 ft x 3 ft square units;
- 1 3 ft x 2 ft unit;
- 1 2 ft x 5 ft trench;
- 6 2 ft x 5 ft trenches;
- 1 2 ft x 10 ft trench; and
- 2 2 ft x 12 ft trenches.

INVESTIGATION RESULTS

Stratigraphy

The sediments in the floor of HS-4 could be broadly divided into fill accrued during the ranch-period and the native prairie soil. The fill consisted of fill zones A, B, and C. The native prairie soil is that upon which the New Commissary was constructed.

The fill extended to an average depth of 20 in below the surface, but reached as deep as 26 in in the north-central portion of the building as is visible in the profiles of Unit 13 and Trench 1 (Figure 5).

Fill Zone A averaged 14 in to 16 in in depth and included up to four layers of compact sand, ranging in color from dark brown, yellowish-brown, to brownish-gray. The character of this zone in the southern part of the structure differed from that in the northern part of the structure in several respects: in the southern part of the building (Units 15-17 and Trench 5), Fill Zone A was more sandy and less compact at the surface and more homogeneous. This is likely a result of repeated disturbance in this part of the building. In addition, the profiles in these southernmost units displayed thin lenses of chalky white specks at about 8 in below the surface.

Fill Zone B consisted of dark brown to dark yellowish- or grayish-brown sandy clay from 4 in to 9 in thick, extending to an average depth of 18 in below the surface. In the northern part of the building (in Units 1-13, Trenches 1 and 3), Fill Zone B had an irregular surface and contained fibrous organic material, presumably from manure (Figure 6). Trench 1 revealed that the brown clay from the surface of Fill Zone B was "smeared" into the sand at the base of Fill Zone A (Figure 5).

Fill Zone C was a thin zone (1 in or less) of dark grayish-brown clay with a sticky or greasy texture. In the north and south profiles of Trench 1, this zone was present at both the east and west ends of the profile but was missing--apparently truncated--across the center (Figure 5). This suggests that the addition of Fill Zone B was preceded by the removal of Fill Zone C in some parts of the structure.

The fill contained a variety of construction/architectural material as well as bone, charcoal, coal, unidentified ferrous metal, and small amounts of whiteware, stoneware, and bottle glass.

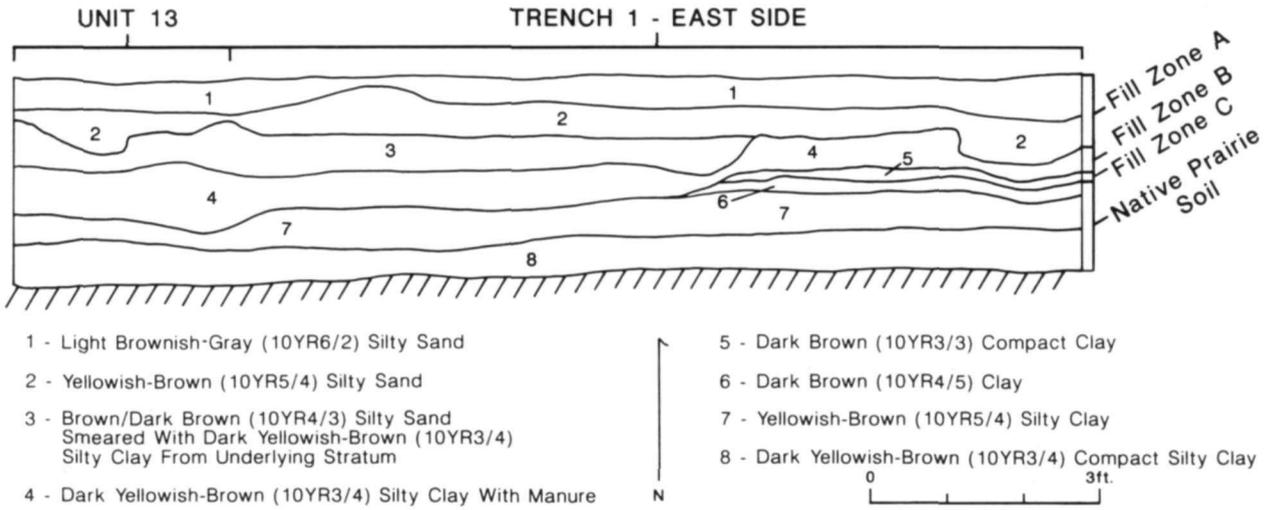


Figure 5. Trench 1, north profile.



Figure 6. West side of Trench 1, north profile.

The native prairie soil was present at an average depth of 20 in below the surface. In the north-central part of the building, where its surface appeared to have been truncated, the top of the native prairie soil was at 26 in below the surface. (Unit 13 and Trench 1). The prairie soil was compact clay, grading from brown to dark yellowish-brown. Except for small amounts of sandstone which were not collected, artifacts found in the native prairie soil were limited to a single cut nail and a fragment of wood.

Foundation and Features

Thirteen features were discovered during excavation in HS-4. Two of these are remnants of the sandstone joist supports, nine are post remnants or post holes, and two are lenses of dark clay with sandstone rubble. In addition, segments of the structure's foundation were exposed and recorded.

Foundation

The foundation of HS-4 was exposed in each unit and trench placed against the wall (Figure 7). Trench 1, which was excavated to a depth of 36 in, exposed the base of the foundation. The foundation was 17 in high and constructed of irregular sandstone rubble. Its base was set in the native prairie soil, 10 in below the surface of the prairie soil, 28 in below the surface of the fill, and 40 in below the joist ledge (Figure 8). No builder's trench was evident.

Joist Supports

Although remnants of joist supports were uncovered in twelve excavation units (Units 1, 2, 4, 5, 16, and 17, and Trenches 2, 3, 4, 5, 8, and 9) the remnants were given feature designation in only the first two units where they were discovered (Features 1 [Unit 6] and 6 [Unit 16]).

The joist support remnants formed two columns oriented with the long axis of the building (Figure 5). The centers of each column were approximately 9.5 ft apart and 8.5 ft from the nearest parallel wall. The remnants were 13 in to 15 in wide and 4 in to 8 in high. They consisted of a single course of irregularly shaped, mortared sandstone rocks and cobbles, set on a base of sandstone rubble.

The remnants were located between 18 in and 26 in below the surface with their bases set in the prairie soil. The top of the remnants, in most cases, was approximately level with the interface



Figure 7. Trench 6, east profile, showing wall foundation.

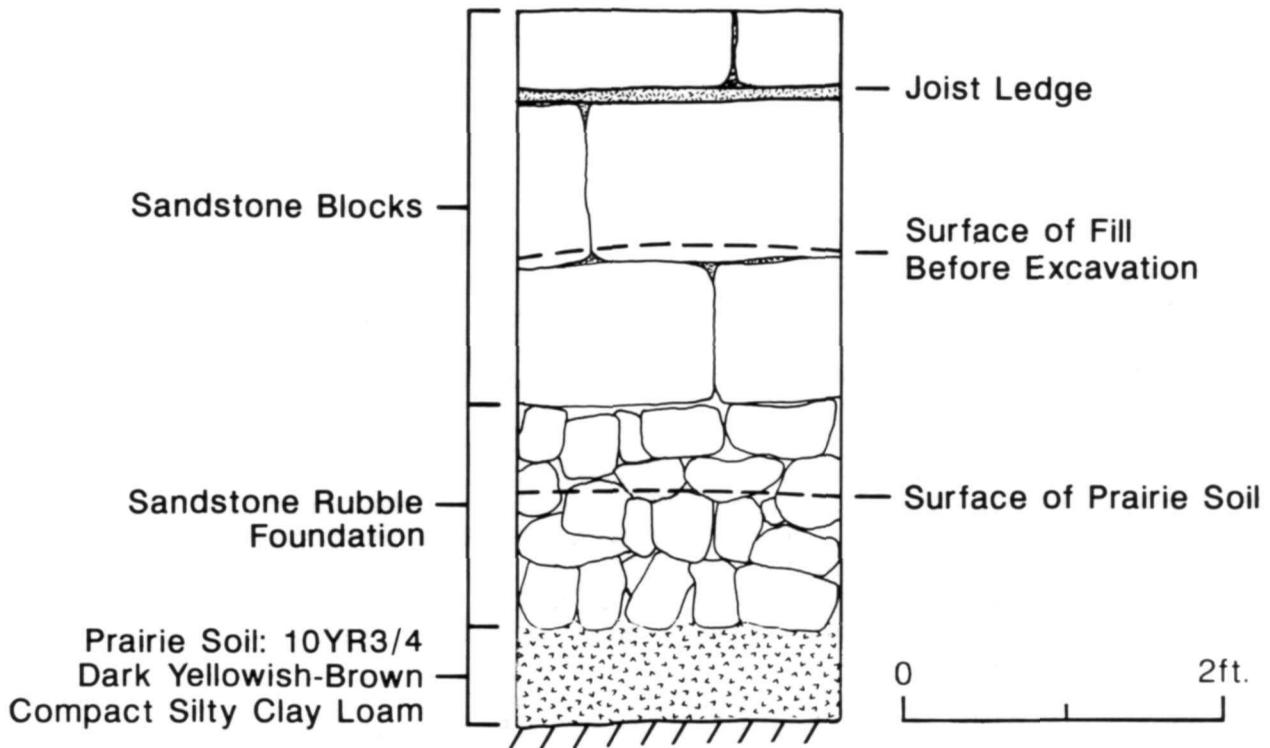


Figure 8. Trench 1, east profile, showing wall foundation.

of fill and the prairie soil and in some cases (in Unit 5, and Trenches 3 and 5) the remnant tops were covered with 2 in to 4 in of fill. No builders trenches were evident.

The remnants indicate the joist supports had to have been 40 in high in order to bear a floor at the level indicated by flooring elements (joist ledges, joist pockets, and mopboard nailers) extant in the walls of the building. Figure 9 shows the profiles of Trenches 6 and 8 and a cross section of the east wall with the flooring elements, along with the portion of the joist support estimated to have been removed. Following removal of the original wood floor the upper 32 in to 36 in of the joist supports were removed leaving the remnants with their surface at or near the native prairie grade. In parts of the structure the joist supports were removed completely. This is the case at least just north of the center of the building. Unit 12, positioned where the east support would have been, produced no evidence of that support. Trench 1, which extended the width of the building, produced evidence of neither support. In these areas, the surface of the native prairie soil appeared to be truncated as well suggesting it was removed along with the joist supports. The native prairie soil and the remnants of the joist supports were then covered with fill.

Post Remnants

Eight features identified as post remnants include hollow cavities where posts stood, cavities filled with loose sediment, and parts of posts in various states of preservation. One feature (Feature 3) is considered a possible post remnant. A description of each of these, along with its location and dimension, is presented in Table 1.

Four of the features (Features 2, 5, 7, and 11) represent posts which were apparently set in one of the fill zones (Figure 10). In the case of Features 3, 8, 9, 12, and 15, it is not clear whether the posts were set in the fill, or were set in the prairie soil and survived in place as the fill was subsequently added. Feature 13 may represent a root instead of a post since in profile it is positioned at a slight angle rather than vertically. This was the only feature positioned completely beneath the fill and likely, therefore, to date to the military-period or before (Figure 11). It is not known what function a post at this location would have served.

Other Features

Features 10 and 16, in Units 14 and 15, respectively, are shallow lenses of dark clay containing sandstone rubble and mortar, located about 4 ft apart along the west wall of HS-4. The fill in the area around the features is highly mixed and contains large amounts of sandstone rubble (see Figure 10).

Artifacts

Summary of Artifacts

Artifacts were divided into seven groups:

- construction/architectural
- ceramic
- bottle glass/caps
- metal
- ammunition
- fauna
- miscellaneous

Table 2 presents the amounts and/or weights of the types of materials in each group, organized by provenience. Those materials which were useful in dating the fill zones are discussed in greater detail in this section.

The construction/architectural group included concrete, brick, sandstone, plaster, mortar, paint chips (blue), wood, window glass, cut nails, unidentified nails, and drain tile. These materials are likely to be present in the fill as a consequence of the many remodeling episodes at HS-4 since the close of the military period. As a group, construction/architectural material was most abundant in Fill Zone B (660.0 g compared with 360.5 g from Fill Zone A). The native prairie soil produced a single cut nail and a single fragment of wood.

Window glass totaled 38 pieces, including 35 from Fill Zone B, and 3 from Fill Zone A. On each window glass fragment, a single measurement of thickness was made. A mean thickness of 1.98 mm was calculated for both fill zones A and B. The mean for this small sample was compared to Schoen's predictive model for dating nineteenth century plains frontier structures which proposes a mean of 1.9914 mm for the year 1860. Means for 1850 and 1870 are 1.8840 mm and 2.1387 mm, respectively (Schoen 1990:87).

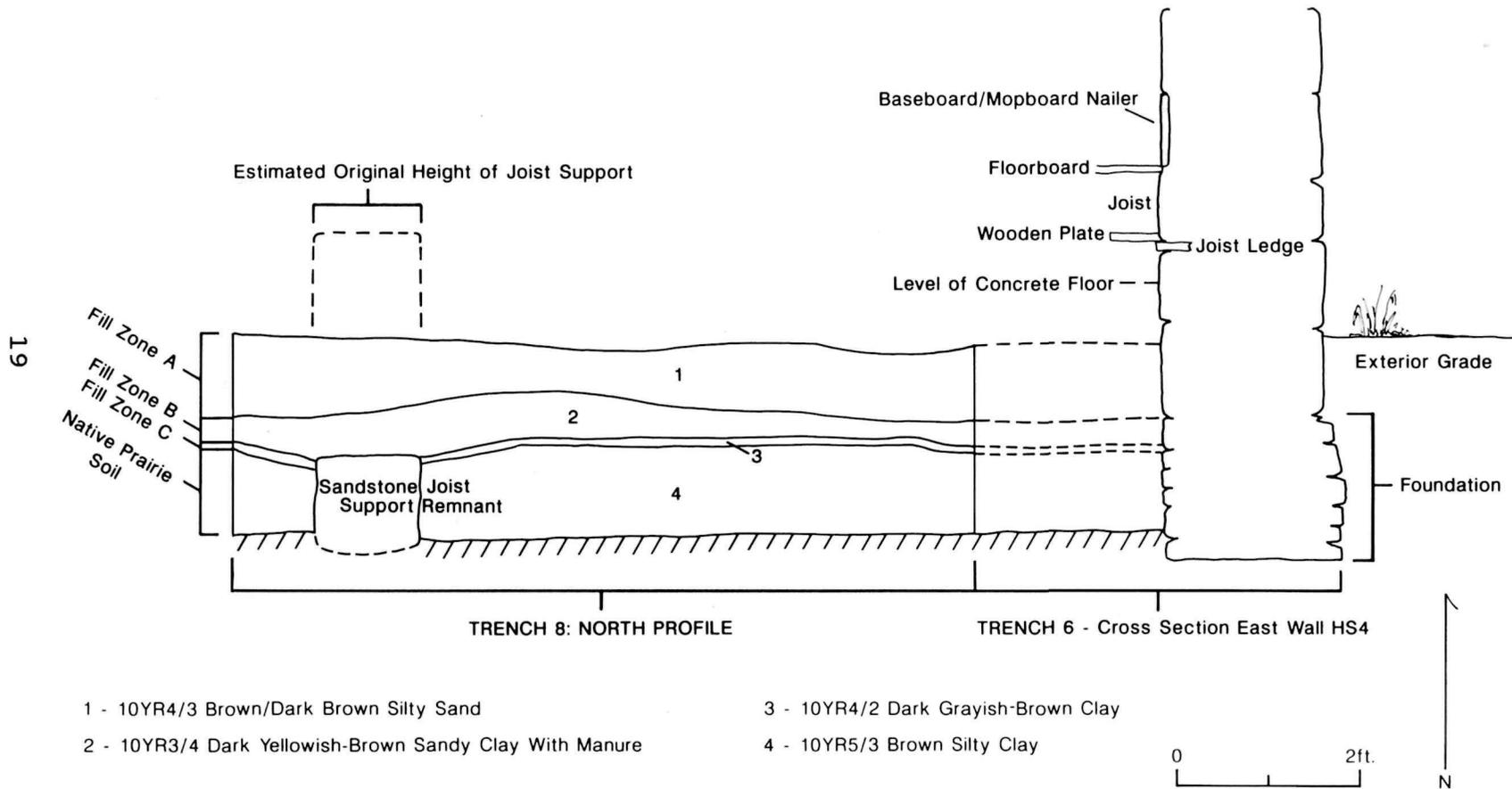


Figure 9. Trenches 6 and 8, north profile, with cross section of east wall and estimated original height of joist support.



Figure 10. Feature 2.



Figure 11. Feature 3.

Table 1. Post remnants and other features recorded in HS-4.

FEATURE	HORIZONTAL PROVENIENCE	DEPTH BELOW SURFACE	STRATIGRAPHIC POSITION (TOP/BOTTOM)	HORIZONTAL DIMENSION	DESCRIPTION	FILL
Post Remnants						
2.	Unit 15, of 8" East west wall	0-24"	Surface/prairie soil	2.75"x2.75"	1/4 section of a round wood post, encompassed at 14" B.S. by 9" diam. hole filled with gray clay.	Gray clay
3.	Unit 13	24-33"	Surface of prairie soil/prairie soil	12x9" rectangular stain 5" diam. circular stain	Faint rectangular stain encompassing circular area of loose sediment containing bits of charred & uncharred wood.	Brown silty clay (prairie soil) mottled with darker brown clay
5.	Unit 16 4" west of joist support	14-31"	Fill zone B prairie soil	7" diam. stain, 5" diam. cavity	Circular stain encompassing circular cavity lined with fragments of unburned wood, and containing small fragments of red brick.	Dark brown clayey silt (of base of fill zone) mottled with yellow brown silt clay of prairie soil
7.	Unit 17, adjacent (west) to joist support	0-23"	Surface/prairie soil	Ca. 5" diam. post remains, ca. 8" diam. post hole	2-12" B.S. ca. 5" diam. stain from wood post, 12-23" B.S. remains of wood post, 2" diam., both encompassed from 10-17" B.S. by 8" diam. post hole.	Brown silty sand from upper stratum of fill zone A.

Table 1. Continued.

FEATURE	HORIZONTAL PROVENIENCE	DEPTH BELOW SURFACE	STRATIGRAPHIC POSITION (TOP/BOTTOM)	HORIZONTAL DIMENSION	DESCRIPTION	FILL
Post Remnants						
8.	Unit 2, 4" east of joist support, 10" south of wall	16-28"	Interface of fill zones A & B prairie soil	5.5" diam. stain, 4" diam. cavity	Circular area of loose sediment to 23" B.S., over circular cavity lined with charred wood fragments.	
9.	Unit 4, 7" south of wall	20-24"	Interface of fill zones A & B/ prairie soil	5" diam.	Decayed remains of wood post.	
11.	Unit 17, 8" west of joist support	14-32"	Fill Zone B 1" above prairie soil/ prairie soil	9"diam.	Circular stain with fragment of wood board at surface of stain; from 17-32" B.S. stain encompassing cavity left by 2x6 vertical board, contains decayed remains of board.	Mottled light & dark silty clay
12.	Trench 4, 8" east of joist support	18-38"	Fill Zone B/ 1" above prairie soil	3.75" diam.	Circular cavity lined with unburned wood fragments. Surface consistent with surface of joist support. Rodent disturbance.	
15.	Trench 5, adjacent (east) to joist support	19-32"	2" above surface of prairie soil/ prairie soil	8-10" diam.	Circular cavity loosely filled with sediment and decayed wood. Base shaped as if dug with clam shell post hole digger. Rodent disturbance.	Dark yellow-brown clay of Fill Zone B

Table 1. Continued.

FEATURE	HORIZONTAL PROVENIENCE	DEPTH BELOW SURFACE	STRATIGRAPHIC POSITION (TOP/BOTTOM)	HORIZONTAL DIMENSION	DESCRIPTION	FILL
Other Features						
10.	Unit 14, adjacent to wall	20-23.5"	At surface of prairie soil	Ca. 18"x9"	Rectangular lense of clay extending laterally from west wall of structure, 3" below top of wall foundation. Surrounding area disturbed.	Black clay large pieces of sandstone
16.	Unit 15	16-19"	Fill Zone C/ prairie soil	Ca. 15" diam.	Amorphous lense of black clay with small sandstone cobbles.	Black clay Sandstone cobble

Table 2. Artifacts collected from HS-4.

PROVENIENCE			MATERIAL										
Hori- zontal	Verti- cal	Number/ Weight	Construction/Architectural										
			Con- crete	Brick	Sand- stone	Mortar	Plaster	Paint Chip	Wood	Window- glass	Cut Nail	Unid. Nail	Drain Tile
UNIT	FILL ZONE												
24	1	A	n. wt(g)	40.8		54.0							
		B	n. wt(g)			154.1	0.4						
	2	A	n. wt(g)										
		B	n. wt(g)	48.7									
	3	A	n. wt(g)			5.0	8.6				1		
		B	n. wt(g)			4.8					8.0		
	4	B	n. wt(g)								1		
			n. wt(g)			31.8	0.5				3.0		
	5	A	n. wt(g)	11.7		11.8	8.0				6	1	
		B	n. wt(g)								3.4	2.0	
	6	A	n. wt(g)			41.0	3.0						
		B	n. wt(g)	7.4				4.4					
			n. wt(g)			124.3	105.0						
	7	B	n. wt(g)					0.3					

Table 2. Continued.

PROVENIENCE			MATERIAL Construction/Architctural										
Hori- zontal	Verti- cal	Number/ Weight	Con- crete	Brick	Sand- stone	Mortar	Plaster	Paint Chip	Wood	Window- glass	Cut Nail	Unid. Nail	Drain Tile
8	A	n. wt(g)	83.7	3.4	5.8	4.0	3.5						
12	B	n. wt(g)							1 1.7				
13	Prairie Soil	n. wt(g)											
14	A	n. wt(g)								1 0.4			
15	B	n. wt(g)								1		11	
	A	n. wt(g)								0.9		42.6	
16	B	n. wt(g)								1		1	
	B	n. wt(g)								2.1		2.9	
17	B	n. wt(g)		0.1					15.3	0.2			
TRENCH	FILL ZONE												
6	B	n. wt(g)						0.6		22 20.0		2 10.9	
7	Prairie Soil	n. wt(g)									1 26.4		1 9.9
	A	n. wt(g)							0.9				

25

Table 2. Continued.

PROVENIENCE			MATERIAL Construction/Architectural										
Hori- zontal	Verti- cal	Number/ Weight	Con- crete	Brick	Sand- stone	Mortar	Plaster	Paint Chip	Wood	Window- glass	Cut Nail	Unid. Nail	Drain Tile
8	B	n. wt(g)				94.3							
9	A	n. wt(g)										3	
	B	n. wt(g)	29.6							1 0.4		7.6	
FEATURE													
26	5	n. wt(g)		8.1					12.3				
	9	n. wt(g)							29.9				
	11	n. wt(g)							45.3			1 20.1	
	15	n. wt(g)		9.9	44.8	37.4					1 1.7		
TOTAL		n. wt(g)	291.9	24.8	476.4	265.9	3.5	0.6	105.4	38 476.8	3 30.1	19 90.9	1 9.9

Table 2. Continued.

PROVENIENCE			MATERIAL										
Horizontal	Vertical	Number/ Weight	Ceramic White- ware	Bottle		Ammunition Bullet	Metal			Fauna Bone/ Tooth	Miscellaneous		
				Crown Cap	Glass		Uniden- tified	Barbed Wire	Bolt		Char- coal	Coal	
UNIT	FILL ZONE												
27	1	A	n. wt(g)				6.2			2 2.2	0.1		
		B	n. wt(g)				8.6			5 1.1			
	2	A	n. wt(g)							1 1.8			
	3	B	n. wt(g)			1 29.7				1 7.7			
	4	B	n. wt(g)									0.2	
	5	B	n. wt(g)			1 0.3				2 0.5	0.4		
	6	B	n. wt(g)							2 103.5			
	7	A	n. wt(g)	1 0.6									
		B	n. wt(g)			2 23.7							
	8	A	n. wt(g)			1 1.5							0.2
	13	A	n. wt(g)							1 5.1			
	14	A	n. wt(g)		2 10.2					3 10.6			
		B	n. wt(g)						31 330.4				

Table 2. Concluded.

PROVENIENCE			MATERIAL									
Horizontal	Vertical	Number/ Weight	Ceramic White- ware	Bottle		Ammunition Bullet	Metal			Fauna Bone/ Tooth	Miscellaneous	
				Crown Cap	Glass		Uniden- tified	Barbed Wire	Bolt		Char- coal	Coal
15	A	n.			1					85		
		wt(g)			1.8					234.3		
	B	n.								10		
17		wt(g)								245.4		
	B	n.								1		
		wt(g)								1.1		
TRENCH	FILL ZONE											
28	1	B	n.				7.1					
			wt(g)									
	2	B	n.		1							
			wt(g)		0.7							
	4	B	n.							1		
			wt(g)							91.3	3.6	
	6	B	n.									1.0
			wt(g)									
	7	A	n.		1		465.9			1		
		wt(g)		1.3					0.0			
	B	n.				234.0			1			
		wt(g)							752.9			
9	A	n.							1			
		wt(g)							0.8			
TOTAL	n.	1	2	7	1	31	1	116				
	wt(g)	0.6	10.6	29.3	29.7	721.8	330.4	67.6	1408.3	5.10	0.4	

Twenty-two heavily rusted scraps of ferrous metal were identifiable as nails or nail fragments. Fifteen of these nails derived from Fill Zone A, four from Fill Zone B, and one from the native prairie soil. Only two of the nails could be identified as cut: one from Fill Zone A and one from Feature 11. One out of the sample may be a wire nail. This was found in Trench 5, resting directly on the upper surface of the joist support remnant. Cut nails date from around 1800 to the present. The process for manufacturing wire nails was developed by the 1850s but they were not the dominant type used until the 1890s (Nelson 1968).

Bottle glass and bottle caps were grouped together. Bottle glass fragments numbered only seven, with three from Fill Zone A and four from Fill Zone B. Those recovered from Fill Zone A included two olive green fragments and a single colorless fragment. Olive and colorless glass, in general, date from the 1860s and 1875 to the present, respectively (Fike 1987:13). The glass fragments from Fill Zone B include two aqua fragments and two amber fragments. Of the later, one is part of the base of a square bottle, possibly a case whiskey bottle. Amber glass has been in use since circa 1860 and aqua glass dates from 1800 to 1910 (IMACS 1988).

Two bottle caps, both found in Fill Zone A, are crown style, which was patented in 1892 and in general use by 1900 (Cleland 1983:55).

The ceramics group was limited to a single fragment of burned whiteware found in Fill Zone A.

The ferrous metal group consisted largely of unidentifiable scraps from fill zones A (472.1 g) and B (249.7 g). Among the identifiable metal objects were a carriage or stove bolt (from Fill Zone A) and segments of barbed wire (from Fill Zone B). The barbed wire is badly rusted and corroded but appears to be of two twisted strands of wire with two-pronged wire barbs, similar to that called "the Winner," pictured by McCallum and McCallum (1965:244). According to McCallum and McCallum, this was patented in 1874 and was the type after which most modern domestic barbed wire is patterned.

The ammunition group is composed of a single .55-caliber lead bullet recovered from the base of Fill Zone B, less than 0.5 in above its interface with the prairie soil. The bullet has a blunted round tip and a hollow base, but no other distinguishing features.

Fauna collected from HS-4 consisted of 116 vertebrate faunal specimens. Of these, 96 were recovered from Fill Zone A and 20 from Fill Zone B. Analysis of the faunal collection indicated it includes the remains of at least eight species and a minimum of 16 individuals. Species present include non-specific toads or frogs, rock dove, house sparrow, horse, cattle, swine, and Old World rats

(Cannon, Appendix A). The domestic animal bones were probably introduced into the structure along with the fill. Whether they represent individuals that died or were butchered during the military period or during the ranch period is uncertain. The other bones are likely the remains of ranch-period building inhabitants.

Additional material not collected consisted of a rectangular frame constructed of 1 in x 4 in boards fastened at the corners with iron strap hinges. The leaves of each hinge measured approximately 10 in in length, and the frame was 30 in x 27 in. This was approximately 15 in below the surface (Fill Zone A) in Unit 15, adjacent to the west wall of the structure. Matrix in the box contained small bird bones and eggshells. Immediately above the box were several rotted boards, approximately 1 in x 4 in in size. Adjacent to the box was a leather strap about 1.5 in wide and 15 in long.

Discussion

While fill zones A and B contain artifacts which date potentially as early as 1800, both also contain items which date later than 1890, almost ten years after the close of the military period (1883). The temporal mix of artifacts is typical of archeological assemblages from other structures at Fort Larned and is a result of deposition and disturbance during the ranch period (Scott 1975:71). It is possible that some, if not most, of the artifacts in the HS-4 sample were introduced into the structure along with the fill. A .55-caliber bullet found near the base of Fill Zone B is one artifact which is likely to remain from the military-period use of the structure and which was displaced when the fill was added.

Only two artifacts were found in the native prairie soil and were likely to have been deposited there during the military period. It is not known whether the paucity of artifacts in the native prairie soil indicates that military-period artifacts were displaced when fill was added or simply that very few things were deposited on the native prairie surface during construction or use of the New Commissary. In some parts of the structure, notably the area profiled by Unit 13 and Trench 1, it is apparent that the surface of the native prairie was truncated before fill was added, accounting for the loss of some military-period deposits.

CONCLUSION

It was the goal of the 1989 archeological investigations in HS-4 to determine whether the deposits in the floor of the structure contained military-period features and/or artifacts. Toward this end, 24 square units and trenches were excavated, for a total of 273 sq ft. The units and trenches were excavated to an average depth of 26 in.

Previous investigations in HS-4 indicated that the deposits in the floor of the structure consisted of approximately 2 ft of fill covering the native prairie soil. It was not apparent at that time whether the original prairie grade, the surface on which the New Commissary was built, was intact. This surface would have carried any interior foundations and would have collected objects dropped during construction or which later happened to fall through the floorboards. The 1989 investigations confirmed the depth of the fill locating the native prairie soil at about 20 in to 26 in below the surface. Except for the remains of the floor joist supports, the native prairie soil bore few features and artifacts to assist in determining whether the native prairie was indeed an intact military-period surface.

The joist supports which carried the structure's original wood floor are estimated to have stood 40 in high, with their bases set 10 in to 12 in into the native prairie soil. After the wood floor was removed, the joist supports were razed to the level of the native prairie soil. In some places, the joist supports were removed completely along with the surface of the prairie soil.

Out of 11 features, only one, possibly the remains of a post, could be positively dated to the military period or earlier. Four post features represent posts which were set in place during the ranch period. Evidence was not sufficient to date the other six features.

Artifacts found in the native prairie soil were limited to two, indicating either that few artifacts were deposited on this surface during construction and use of the New Commissary or that other artifacts were displaced with the addition of the fill. As noted in parts of the structure, the surface of the prairie soil was truncated along with the joist supports, probably resulting in the blending of the prairie soil, and any artifacts therein, with the fill. Indeed, artifacts in the fill were temporally mixed and included items which date potentially as early as 1800 along with items which postdate 1900.

Not only could ranch-period earth moving have displaced military-period artifacts inside HS-4, it could have introduced artifacts into the structure from elsewhere at the fort. It is not clear, therefore, whether the artifacts in HS-4 remain from activities which actually took place in that structure.

Although the 1989 excavations uncovered few artifacts and features which could be positively attributed to military period use of the New Commissary, the excavations did expose the joist support remnants as well as the structure's foundation. Information gathered about these can provide data for comparison with other historic structures at Fort Larned and can guide efforts toward restoration and maintenance of historic structures.

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APPENDIX A

Vertebrate Faunal Remains from Excavations Inside Historic Structure 4, Fort Larned National Historic Site

by

Kenneth P. Cannon

INTRODUCTION

The following report provides the results of the analysis of vertebrate faunal remains recovered during the 1989 excavation of the interior floor of Historic Structure 4, Fort Larned Historic Site, Kansas.

Specimens were identified using the zooarcheological comparative collection at the Midwest Archeological Center, Lincoln, Nebraska. Arguments made by Olsen (1961), and later by Binford and Bertram (1977), suggest all bone, no matter how fragmentary, is of some utility in assessing subsistence patterns as well as past environmental settings. Based upon this assumption identification was attempted at least to general taxonomic categories, such as non-specific mammal.

A minimum of eight species of vertebrates was identified from the 1989 excavations. These included non-specific frog/toad, house sparrow, non-specific sparrow, domestic hog, cow, rat, horse, and goat or sheep. More extensive collections of faunal material from the fort are reported in Scott (1973) and Perttula and Shaw (1980). Except for the rat, the domestic animal bones in the sample were probably introduced into the structure along with the fill but whether they represent individuals which died or were butchered during the military period or during the ranch period is uncertain. The other animals represented in the sample were likely inhabitants of the building during the ranch period or were the prey of other animals living there.

ACCOUNT OF SPECIES

One hundred and sixteen vertebrate faunal specimens were recovered from the 1989 excavations at Historic Structure 4, Fort Larned, Kansas. These are described in the following sections and tabulated in tables 3 and 4, which follow the text. The remains represent at least eight species of vertebrates and a minimum of 16 individuals. These include amphibians, birds, and mammals.

Domestic species constitute a large portion of the assemblage but non-domestic species are also present. The presence of non-native species such as the house sparrow and Old World rats have implications for the dating of the deposits.

Amphibians

Five elements, three right tibiofibulae and two left tibiofibulae, were identified as toad/frog. The elements represent a minimum of three individuals. An incomplete comparative collection did not allow further identification.

All the elements were recovered from Unit 15. Four were from Fill Zone A and the fifth was recovered from Fill Zone B. The elements may represent individuals living in the structure or may have been introduced with fill from other areas on the grounds.

Avifauna

Seventy-seven elements were identified as bird specimens. At least two species were identified--the rock dove and house sparrow. Both of these species were introduced from Europe during the nineteenth century.

Columbiadae (Pigeons and Doves)

One element, an unsided first phalanx of a rock dove (*Columba livia*), was recovered during the 1989 excavations. The rock dove is not native to North America but was introduced from the Old World during the mid-nineteenth century. Rock doves have been domesticated worldwide but can sustain themselves in the wild. Nesting of the rock dove is usually on buildings in cities and on farms (Peterson 1961:114).

The presence of the rock dove in the HS-4 assemblage is probably the result of nesting in the structure and natural death. The rock dove probably does not represent a food item.

Passeriformes (Perching Birds)

Forty-eight elements were identified as belonging to the group of birds known as perching birds or passerines. A minimum of three individuals is represented by the assemblage. All the elements belong to small passerines about sparrow size but could not be identified due to an incomplete comparative collection. Many passerine species nest in barns on farms so it should not be unusual for them to be part of this assemblage. However, the large number of elements recovered from a concentrated area (Unit 15, Fill Zone A) may suggest they were the result of predation, possibly from an owl or rat.

Ploceidae (Weaver Finches)

Twenty-seven elements representing three individuals were identified as House or English Sparrow (*Passer domesticus*) an introduced species from the Old World. House sparrows are common species in North America today nesting in cavities of buildings or in the building itself (Peterson 1961:212). Elements of this species were recovered from a single excavation unit (Unit 15, Fill Zone A) along with the other passerine remains. This deposit may be the result of predation, possibly by an owl or rat living in the structure.

Mammals

At least five mammalian species are represented in this assemblage. At least four of these species represent domestic livestock that were utilized for food or as draft animals.

Equidae (Horses)

Three Equidae elements, representing a minimum of one individual, are present in the Fort Larned assemblage. The horse (*Equus caballus*) elements include one right mandible, the fifth cervical vertebra, and a non-specific cervical vertebra. The large size of the mandible indicates it may have been a draft horse.

Suidae (Pigs)

Three elements were identified as domestic hog (*Sus scrufa*) which represent at least two individuals. These elements include the enamel portion of the upper first premolar and the crown portion of the upper first molar. The third element is the alveolar portion and gonial angle, including the third premolar and canine, of a left mandible. This mandible is that of a very

young individual and compares well in size and development to a six-week-old specimen in the Midwest Archeological Center's (MWAC) vertebrate comparative collection.

Bovidae (Cattle)

Cattle (*Bos taurus*) are represented by four elements and a minimum of one individual. These elements include one lower second premolar, one non-specific thoracic vertebra, the proximal diaphysis and tibial crest of a left tibia, and one right calcaneus.

Three elements have modifications. Score marks on the spinous process of the thoracic vertebra are probably the result of canid gnawing. Canid gnaw marks are also present on the proximal portion of the calcaneus. Several large hack marks produced by a large knife or cleaver are present on the posterior surface of the diaphysis of the left tibia. This element has also been sawn distally across the shaft. Some canid gnawing is also evident on the proximal end. The tibia is part of the round cut in cattle butchering. Sawing at the distal end probably represents a primary butchering cut for this section of beef.

Ovis Aries

One left mandible, complete except for the incisors and second premolar, was identified as domestic sheep (*Ovis aries*). A large number of sheep elements was identified from other areas of the fort by Scott (1977). Domestic sheep were probably a common food item.

Murinae (Old World Rats and Mice)

Two innominates from two different individuals were identified as Old World rats (*Rattus* sp.). One complete right innominate and the acetabular branch and pubis of a second right innominate were recovered.

The small comparative collection at the MWAC did not allow the species to be identified. Two species of rats, the Norway rat (*Rattus norvegicus*) and the Black rat (*Rattus rattus*), were introduced into the Americas from the Old World. Both are widely distributed in North America, but *Rattus rattus* has not been reported from the northern Great Plains (Jones et al. 1983:345). This information would provide tacit evidence that the elements represent *Rattus norvegicus*, the Norway rat.

In rural environments, Norway rats tend to inhabit areas under farm outbuildings, grain bins, and stock feeding platforms.

These two elements probably represent the remains of rats living in or around this structure.

Non-specific Mammals

Twenty-one elements were variously identified as non-specific mammals and classified into size categories.

The largest majority, 13 elements, was classified only as non-specific mammal bone fragments. These elements tended to be small, weighing less than one gram.

One left rib was identified as belonging to a small mammal. Comparison with species in the MWAC comparative collection indicates a rat-sized mammal.

Elements identified as non-specific medium-sized mammals include three cranium fragments and three diaphysis fragments of non-specific long bones.

One bone fragment, tentatively identified as a diaphysis fragment of a right tibia, was classified as a non-specific large mammal. Comparison with specimens from the MWAC comparative collection indicates it may be from a cow or other large ungulate.

SUMMARY

One hundred and sixteen vertebrate faunal specimens were recovered from the 1989 excavations at Historic Structure 4, Fort Larned, Kansas. These remains represent at least eight species of vertebrates and a minimum of 16 individuals. Species present include non-specific toads or frogs, rock dove, house sparrow, horse, cattle, swine, and Old World rats.

It is possible that the large ranching operation maintained indoor butchering facilities in HS-4 and that the bones in the sample of domestic species such as swine, cattle, and sheep were discarded in the building after the animals were butchered there. However, it is more likely that these bones were introduced into HS-4 along with the fill. If this is the case, it is not clear whether they represent individuals that died or were butchered during the military period or during the ranch period. Other species probably represent inhabitants of the structure or their prey.

Table 3. Vertebrate faunal remains recovered from HS-4.

SPECIES	ELEMENT
AMPHIBIANS	
Anura (frog/toad)	3 right tibiofibulae 2 left tibiofibulae
AVIFAUNA	
<i>Columba livia</i> (rock dove or domestic pigeon)	1 unsided first phalanx
Passeriformes (cf. sparrow)	1 right mastoid 1 occipital 1 left orbital and temporal fragment 1 left frontal 1 unsided frontal 1 left orbital 1 right orbital 9 unsided temporal fragments 2 beaks 1 anterior portion of sternum 2 unsided basipterygoid processes 2 unsided clavicles 12 unsided ribs 3 left scapulae 1 right scapula 2 left ulnae 1 right ulna 1 atlas 1 axis 4 thoracic vertebrae
<i>Passer domesticus</i> (house sparrow)	1 pelvis 1 sternum 1 skull--frontal and beak 3 mandibles 1 beak 2 occipitals 1 left tibiotarsus 2 right tibiotarsus 2 left coracoid 3 left coracoid 2 left humeri (1 distal portion only) 3 right humeri

Table 3. Continued.

SPECIES	ELEMENT
<i>Passer domesticus</i> (house sparrow)	1 left femur 3 right femora 1 right tarsometatarsus
Non-id small bird	1 non-id long bone fragment
MAMMALS	
<i>Equus caballus</i> (horse)	1 right mandible, coronoid process and anterior portion of horizontal ramus missing 1 fifth cervical vertebra with broken spinous process 1 non-specific cervical vertebrate, dorsal portion of body
<i>Sus scrofa</i> domestic hog)	1 left P ¹ , enamel portion 1 left mandible, alveolar portion, including P ₃ and canine, and gonial angle 1 left M ¹ , crown portion
<i>Bos taurus</i> (cattle)	1 left P ₂ 1 non-specific thoracic vertebrate, spinous process broken 1 left tibia, proximal diaphysis and portion of tibial crest 1 right calcaneus
<i>Ovis aries</i> (Domestic sheep)	1 left mandible, incisors and P ₂ missing
<i>Rattus</i> sp. (Old World rat)	1 right pelvis 1 right pelvis, acetabular branch and pubis
Non-id small mammal	1 left rib
Non-id medium mammal	3 cranium fragments 3 diaphysis fragments of non- specific long bones

Table 3. Concluded.

SPECIES	ELEMENT
Non-id large mammal	1 cf. diaphysis fragment of right tibia
Non-id mammal	13 non-id fragments

Table 4. Summary of vertebrate faunal remains recovered from HS-4.

TAXONOMIC CLASSIFICATION (Common name)	NISP	PERCENT OF IDENTIFIED SPECIMENS	MNI	PERCENT OF SAMPLE
AMPHIBIANS				
Anura (frog/toad)	5	0.043	3	0.18
AVIFAUNA				
<i>Columba livia</i> (rock dove)	1	0.009	1	0.06
Passeriformes (cf. sparrow)	48	0.410	3	0.19
<i>Passer domesticus</i> (house sparrow)	27	0.230	3	0.19
Non-id small bird	1	0.009		
MAMMALS				
<i>Equus caballus</i> (horse)	3	0.030	1	0.06
<i>Sus scrofa</i> (domestic hog)	3	0.030	1	0.06
<i>Bos taurus</i> (cattle)	4	0.040	1	0.06
<i>Ovis aries</i> (domestic sheep)	1	0.009	1	0.06
<i>Rattus</i> (Old World rat)	2	0.017	2	0.13
Non-id small mammal	1	0.009		
Non-id medium mammal	6	0.050		
Non-id large mammal	1	0.009		
Non-id mammal	13	0.110		
TOTAL	116	1.003	16	0.9

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REPORT CERTIFICATION

I certify that "Excavations Inside Historic Structure 4, The New Commissary, at Fort Larned National Historic Site, Kansas", by Kristin L. Griffin

has been reviewed against the criteria contained in 43 CFR Part 7(a)(1) and upon recommendation of the Regional Archeologist has been classified as available.


Regional Director

4 / 15 / 91
Date

Classification Key Words:

"Available"--Making the report available to the public meets the criteria of 43 CFR 7.18(a)(1).

"Available (deletions)"--Making the report available with selected information on site locations and/or site characteristics deleted meets the criteria of 43 CFR 7.18 (a)(1). A list of pages, maps, paragraphs, etc. that must be deleted for each report in this category is attached.

"Not Available"--Making the report available does not meet the criteria of 43 CFR (a)(1).

