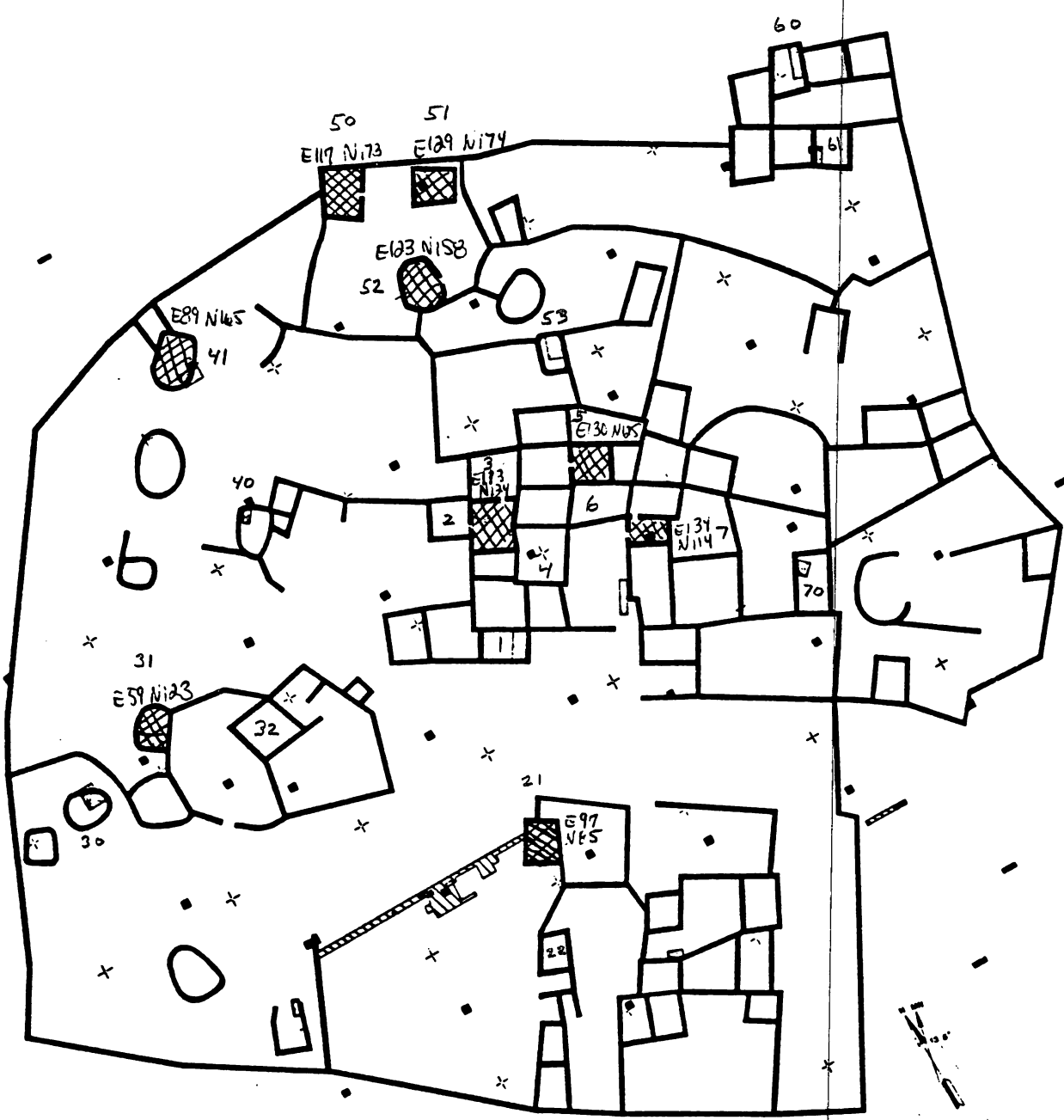


**THE STUDY OF ROOM FUNCTION
AND SHOOFLY VILLAGE RUINS**

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December 16, 1986
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SHOOFLY VILLAGE
1985
SCALE
0 10 20
 ■ STAGE 1
 □ STAGE 2
 ▨ STAGE 3

BY J. LONCHILL 1985

Sample of Nine Rooms (Completely Excavated)

INTRODUCTION

The analysis of room function is a useful method of delineating specific units of activity at archaeological sites. Each structure can be seen as representing a functioning purposeful group of individuals. Structures are often studied for the isolation of particular functions, yet they may actually reflect a number of activities. For example, a domestic structure may have served as a place for sleeping; food preparation and consumption; and some small-scale tool production. On the other hand, a storage structure may have functioned solely for that purpose.

A variety of features are often employed in determining specific room usage. Artifact associations and architectural plans and features are among these. Applying such variables requires underlying assumptions or expectations which are sometimes drawn from analogy to other archaeological sites, historical documentation, or actual ethnographic cases. It is obvious that analogy is only a guideline and cannot be relied on exclusively. Thus, it is best to use several methods in conjunction with one another. An example of this would be to first generate a series of expectations for room use based on analogy. If most storage structures in modern Hopi villages of the Southwest are significantly smaller than other structures and exhibit an array of storage-related artifacts and features (large ceramic jars, wall pegs, etc.) these attributes may be sought out during excavation as possible indicators. A next step might be

to statistically analyze variables such as room size, building type, and artifact categories to note any special frequencies or possible correlations. Relationships should then be subjected to critical statistical evaluation. For example, if large rooms seem to occur with the presence of stone-lined hearths, these variables may be tested by the chi-square statistic to determine at what level of significance the association would occur by chance alone. Another relationship might be the number of doors and windows in a structure to room floor area. Similarly, chi-square might usefully be employed to determine significance.

In addition to searching for regularities, one should always be aware of anomalies or variables which do not fit expectations. These may be keys to the determination of new or unexpected room types.

Statistics can be helpful in summarizing a large data set and making relationships more obvious. However, one should always be aware of biases or the possibility that a relationship is due to some extraneous factor. Thus, statistics should be recognized as merely supplementary tools.

In utilizing artifacts and architectural data some problems may skew results or even prevent their use. These will be presented.

As archaeologists we believe that certain artifacts reflect certain activities. We must also recognize that many artifacts reflect multiple activities or are the products of modification and reuse. In addition, primary context is often difficult to distinguish. An artifact within a structure may not be associated with its use but may actually have been deposited

within the structure as trash after abandonment (Schiffer, 1976). One way of reducing such biases is to only view artifacts in specific contexts as associated with room use. Artifacts lying on living surfaces, in storage pits or cists, and in wall niches are more reliable indicators than those associated with room fill.

Another problem with using artifacts as clues to room function is that they are not always available. As previously mentioned, items are not always left in their use-related contexts. Many of the most revealing items are curated or later scavenged from rooms after abandonment. If structures are left barren of artifactual material one must employ other variables when attempting to determine room function.

Reliance on architectural data also poses difficulties. Building plans are sometimes modified throughout their occupational histories. Entrances are sometimes filled in, original floors resurfaced, and support walls added. These changes may reflect changes in function which are not always easily recognized by the archaeologist (Sullivan, 1974).

Architecture is also subject to environmental and cultural processes such as erosion and scavenging. It may be difficult to discern the original height of walls, presence of features like niches, windows and doorways, and building materials.

As can be seen, the applicability of certain lines of evidence for room function studies will vary from site to site and room to room. A workable methodology for distinguishing room function can, thus, not be universal. Each site must be analyzed

independently and reliable variables isolated from unreliable ones. The purpose of this paper is to analyze some variables employed in room function studies and determine their applicability to analysis at Shoofly Village Ruins, a site located north of Payson, Arizona.

SHOOFLY VILLAGE RUINS

Shoofly is a prehistoric site located in the Verde Valley area, south of the Mogollon Rim. It has been the site of the A.S.U. summer field school in archaeology for the past three years under the direction of Dr. Charles L. Redman.

Shoofly is a stone masonry site which is organized with a core area of contiguous rectilinear rooms and peripheral areas of curvilinear isolated structures and groups of differently shaped rooms joined by courtyard walls. Rooms in the core area appear to have had full-height masonry walls, while those in the periphery are often 1 meter or less in height and most probably had some type of jacal superstructures. The entire site is surrounded by a fairly low compound wall.

Radiocarbon and archaeomagnetic dates are few at this point, but, coupled with ceramic evidence, suggest a range of occupation from roughly A.D. 950 through A.D. 1150 (Dr. Charles L. Redman, personal communication). A heavy concentration of plainware sherds on the surface as well as subsurface of the site reveal a dominance of Alameda Brown Wares of the Tonto/Verde red and brown series. These ceramics are associated with the "Southern Sinagua" tradition of the Verde Valley area. They are constructed of residual clays through the paddle and anvil wall-

thinning technique(Colton, 1956). Most lithics on the site are fairly unsophisticated forms and show a heavy usage of local chert as raw material. Carbonized corn and beans found at the site suggest that those crops were cultivated(Jo Anne Miller, personal communication). The prehistoric inhabitants of Shoofly are believed to be a variant of the Southern Sinagua tradition(Pilles, 1982).

Attempting to reconstruct room function at Shoofly poses several difficulties. As yet, excavation has been minimal. Only 9 rooms at Shoofly have been fully excavated at this time.

Other problems deal primarily with the recording of data in the field. Specific categories of information on architecture have not always been systematically recorded. In 1986, excavators were required to fill out forms which required the listing of specific architectural information such as wall height, building materials, floor type, and others. Rooms excavated in the 1984 and 1985 seasons must be reexamined for some of this information.

Another problematic issue is adequate chronology. These nine rooms have not been evaluated as to their contemporaneity. Very few absolute dates have been assigned to Shoofly at this point. Radiocarbon and archaeomagnetic samples most recently assessed are drawn from the 1984 and 1985 field seasons. A range of occupation from A.D. 900-1050 has been established for two excavated peripheral rooms, and A.D. 1000-1150 for two excavated core rooms. From these dates, it seems the core area may have had a later occupation than the periphery. However, an earlier date of A.D. 853-885 from another excavated core room

refutes this idea. These dates, of course, may be unreliable. Samples drawn from 1986 (dendrochronological, radiocarbon, and archaeomagnetic) have not yet yielded results.

One potential method for establishing contemporaneity would be to study the site construction sequence. This has been explored minimally; the only firm conclusion being that at least some of the peripheral rooms predated those of the core area (Hoffman, 1985).

In summary, there is a lack of some crucial information from Shoofly. But architectural data may still be gathered and successfully applied at some point in the future. Data utilized in this paper focus on the overall spatial organization of the site and information from the nine most completely excavated rooms. Variables used in previous studies of room function in the American Southwest will be compared to Shoofly and either rejected or accepted as appropriate based on generalizations made on the present data. First, some relevant room function studies on sites in the American Southwest will be discussed.

ROOM FUNCTION STUDIES IN THE SOUTHWEST

For the most part, studies of room function in the Southwest have been concentrated in the Colorado Plateau area, utilizing analogy to contemporary Western Pueblo groups (Dean, 1969; Rohn, 1971; Hill, 1970; Adams, 1983). Many Pueblo sites in this region are large and multistoried. Most rooms are considerably smaller than those at Shoofly. Religious structures are easily distinguished on the basis of shape and some internal features.

These structures, called kivas, are usually circular and subterranean and contain interior masonry benches, firepits, loom holes, ventilator shafts, smoke deflectors, and roof entrances(Hill, 1970). These structures, however, seem to occur predominately in the Colorado Plateau region. Kivas of this type are not usually found on Sinaguan sites.

As can be seen, there are significant differences in the architecture of sites in the Colorado Plateau region and the Verde Valley region. Because room function studies have most successfully been applied to the Colorado Plateau region, I will examine variables of interest which I believe can shed some light on Shoofly.

One of the most popular studies of room function, utilizing ethnographic analogy in the Southwest, is James Hill's study of Broken K Pueblo(1970). Hill's model identified 3 general room types for Western Pueblo settlements which have been applied to Broken K. These are habitation, storage, and ceremonial structures. Habitation rooms characteristically contained fire pits or hearths, mealing bins, and artifacts, and botanical and/or faunal remains associated with cooking or eating. Water storage containers were also often associated with habitation rooms. Storage rooms were found to be smaller than habitation rooms(roughly 5m² as opposed to 9-11m²), often featureless and containing artifacts of storage(such as large ceramic jars and ollas). Ceremonial rooms, in addition to features previously discussed, often contained evidence of the manufacture of hunting equipment, ceremonialism and other such male-related activities

(Hill, 1970).

Hill examined these features at Broken K and distinguished these 3 room types. As a supplementary measure, Hill collected all artifacts lying in the 'floor zone' of each room type, combined them and tested them by the chi-square statistic. Results supported initial interpretations for room function.

Another study utilizing ethnographic analogy in this region was done by Adams. He focused only on architectural patterns. Ethnographically, living rooms seemed to have different masonry styles (partial jacal construction) more doors, small entrances, and storage pits. In addition, living areas were found to be primarily located on the second story of multistoried pueblos. Most religious rooms appeared to have fireplaces, grinding bins, loom holes and wall niches. Storage rooms, of which Adams identified 2 types: religious and domestic, were found to be located primarily in lower, ground-level stories. These were said to be architecturally indistinguishable from other rooms. Adams also defined two other room types: the piki house and the granary; both functioning for very specific food processing activities.

A t-test was done on room sizes and it was found that religious rooms were larger than others. Other tests revealed that 73% of storage rooms had no more than 1 door and 54% of other room types had 2 to 4 doors. When applying these data to a historic pueblo site, Adams found that room size, story, and location and number of doors were the best indicators of room function (Adams, 1983).

Recently, a different method of analysis has been proposed

by Richard Ciolek-Torello (1985). This study rejects the ethnographic model, criticizing it for its deductive aspects. Torello stresses that Hill's method merely fits archaeological evidence into preconceived categories rather than searching for variation. Hill is also criticized for combining all artifacts from individual room types rather than testing rooms individually, and using artifacts from floor zones rather than discreet surfaces.

Broken K
At Grasshopper, a large multistoried pueblo in the Hay Hollow Valley area (east-central Arizona), analysis was focused on artifacts on individual room floors. The main problem addressed was the identification of recurrent patterns in spatial distributions of archaeological remains on room floors (1985:44). Specific tool groupings or "kits" were associated with different primary functions.

An examination of some of the variables used by Hill lead Torello to discard room size as inappropriate to Grasshopper. Rooms at Grasshopper were, on the average, nearly twice as large as those at Broken K. Moreover, room size appeared to be fairly uniform across Grasshopper.

Torello stressed the need to compare rooms in terms of a set of equivalent attributes. Differential representation of tool kits for specific activity sets was noted: ceremonial objects were usually curated and food preparation materials often consumed. Thus, an overrepresentation of manufacture-related materials would most likely characterize the archaeological record.

It was further stressed that rooms which were not contemporaneous would not make a valid sample. Rooms abandoned earlier in an occupational sequence were found to be reused as dumping areas and were, thus, distinguishable through high sherd densities. Torello took all these factors into account when constructing a methodology for Grasshopper.

Artifacts on room floors were subjected to factor analysis, producing 4 classes of use-related artifacts. These included factor 1: manufacture, 2: storage of food and non-perishables, 3: food preparation and cooking, and a fourth factor closely related to factor 1, called secondary manufacture. These will be described:

1. Manufacture: includes ceramics; lithics; ritual objects; ornaments; small tools such as manos, handstones, polishing stones, and perforators; and raw materials.
2. Storage: includes large storage jars and ollas and a variety of tool types.
3. Food Preparation and Cooking: includes mealing bins, manos, metates, hearths and fire pits.
4. Secondary Manufacture: includes raw materials and modified materials used in the construction of ornamental forms (this factor is correlated with factor 1).

Through these artifact classes, 6 room types were defined.

- 1) Limited activity rooms included ceremonial structures as well as supplementary rooms to habitation structures.
- 2) Habitation rooms reflected food preparation, minimal storage and sleeping (open space).
- 3) Domestic storage rooms contained large numbers of storage vessels and some tools and other items of manufacture. Open space is very minimal in these rooms.
- 4) Multifunction/habitation rooms reflect food preparation and other manufacturing activities.
- 5) Manufacture rooms lacked hearths or other features, had low frequencies of storage vessels

and contained the largest amounts of most tools and raw materials.
b) Storage/Manufacture rooms were the fewest in number of this type but contained the largest frequencies of most items.

Torello additionally noted spatial correlations for specific room types. Storage and manufacture areas were found predominately in the core area of the site (the older area). Domestic storage areas and habitation rooms were found to predominate in the peripheral areas. A possible explanation for this hinges on the greater antiquity of core area and the possibility that these rooms were originally used for other purposes. Keuse during the time period in question may reflect a change in function.

Torello also found that habitation rooms were almost never located on the ground floors of multistoried buildings. Similar to Adams' findings, the level of a room in a multistoried building appears to have bearing on its function.

ROOM FUNCTION AT SHOOFLY

Before trying to isolate variables of significance for room function at Shoofly, I will present data from the nine most completely excavated structures. First I will discuss rooms located in the core area which are rectilinear and have full-height masonry walls. Secondly, peripheral rooms will be discussed; varying in shape but primarily having half-height masonry walls and probably jacal superstructures. Rooms are identified by their easting and northing coordinates.

1. E130 N125

This room is located north and slightly east in the central

room block. There is evidence of severe post-occupational burning through an abundance of charred roof beams found throughout room fill. The floor area of E130 N125 is approximately 20.7m².

The floor is a prepared clay surface and floor features are minimal, including one pit and one pot rest. No formal hearth was defined in the structure but a burned area of floor may suggest the bringing in of burning embers or coal for heat and light.

One entrance was defined in E130 N125. This faces west into another unexcavated room. The walls of the structure were composed of unmodified blocks; primarily sandstone and, to a lesser degree, basalt.

In E130 N125, 19 potbusts were discovered. Preliminary analysis of these vessels reveal a predominance of large jars, although several bowls are also present. All vessels are plainwares. One of the larger jars was reconstructed by myself and Quincie Hamby during the spring semester(1986). At this time we calculated its volume through a formula developed by Steve Lang(n.d.). The vessel had a volume of 41.4 liters, a substantial amount. Its orifice(22.5cm) was less than half the width of its maximum diameter(49.3cm). This may suggest the desire to better seal off vessel contents. These factors and the fact that there is little evidence of use wear inside the vessel, lead us to interpret its function as a storage container.

Some of these vessels were apparently left sitting upright on the floor surface when the structure was abandoned. Others,

however, were found to be situated in such a way as to suggest vertical drops: at least 6 vessels were associated with charred beam fragments beneath and among them. Perhaps these vessels had been suspended from the ceiling of the structure during its use.

Aside from these vessels, some lithics and a few groundstone fragments were found on the floor surface.

The extent of fallen wall stones recovered through excavation has not been substantial enough to indicate an upper story(Lindauer, 1985; 1986).

The size and number of vessels discovered in this room is by far the strongest indicator of a storage function. Additional features such as its smaller than average size(average size of excavated room is 25.5m²) and lack of a formal hearth lend further support to such an interpretation. In and of themselves, artifacts and features are not conclusive enough to make such a generalization. It is the combination of these things with the lack of other features and artifacts associated with other functions that firms my interpretation that the structure was a storage area.

2. E134 N114

This structure lies in the east-central area of the core room block. It is the smallest room yet excavated at Shoofly, measuring approximately 16m².

The floor is an unprepared surface which is completely barren of features(no hearth was defined, nor any pits). Artifacts associated with the floor zone are similarly scanty, including a few ceramic fragments and one mano. One interesting

feature is a small niche in the north wall of the room. This was lined with a limestone slab. Unfortunately, nothing was found inside it.

Two entrances were defined. One facing north into another unexcavated room and one facing west into a small enclosed plaza area. Building materials show a predominance of sandstone in most of the walls except the east wall, where basalt blocks are nearly equal in number to sandstone. Five limestone blocks were used in wall construction, three of which occurred near features such as entrances and the niche mentioned above.

The possibility that an upper story existed above this room remains as unresolved. However, some interesting roof fall assemblages may be informative of an upper story or possible activity on the roof of the structure. These assemblages include several metates (one quite large), manos, ornamental objects, and raw materials such as argillite which may be associated with ornament production (Eshbaugh, 1985).

Several metate fragments recovered during wall clearing indicates their secondary function as wall stones and may suggest that the room was built later in the site occupational sequence.

The small size of this room in relation to others excavated and the lack of floor features suggest that the room may also have been used for storage. Unfortunately, artifactual material is so sparse that it can neither support nor refute such an interpretation. In addition, it is puzzling that a storage room should have two entrances. It is actually the only excavated room with two entrances. Perhaps a different room type is in order. The structure may represent a manufacturing area or other

type of limited activity room. At present, ideas about upper stories, roof activity areas(for food preparation and ornament production), and ultimately the function of the room itself can only be offered as possibilities.

3. E113 N124

This room is located in the west-central portion of the core room block. It is one of the largest rooms yet excavated(approximately 30.4m²).

Six partial potbusts were recovered from an unprepared floor surface. Additional floor-associated artifacts include some scattered sherds and a large burned animal bone fragment. A hearth and a pit were defined as floor features.

The walls of the structure are constructed of sandstone and basalt; sandstone being the dominant form. Wall features include an entrance which faces west into an adjoining room and a possible window in the north wall which also faces into another room.

An abundance of charred macrobotanical remains(including a corn cob) were found associated with a potbust. This may suggest the suspension of these materials within the pot from the ceiling.

Unfortunately, ceramics from this room have not been analyzed as to their possible functions. They do not appear to have been as sizable as those from E130 N125. There was no evidence that this structure supported an upper story.

The larger size of this room, its associated artifacts and features, and the presence of a window seem to suggest that habitation and food preparation may have been its function(Henss,

1985).

4. E123 N158

This curvilinear-shaped structure is actually a pithouse and is located in the northern periphery of the site. It measures approximately 29.4m². The surrounding basal stones of the structure are abutted in two places: on the south side by a south-running wing wall and on the southeast side by an east-running wing wall. These walls join into a courtyard wall, which encloses three structures. The room contains one entry way which faces east into a portion of the courtyard area. This entry way resembles those of other pithouses. It measures approximately 1.1m². Basalt and sandstone are the materials of wall construction. Although sandstone is the dominant form, basalt is much more abundant than in previously mentioned rooms.

Two prepared floor surfaces have been defined in this structure, perhaps corresponding to two separate occupations. Two hearths were found to correspond to these surfaces. Artifacts found on the upper surface include a metate fragment, 2 manos, animal bone fragments, some ceramic sherds, a quartz crystal, a schist tabular knife, and a possible grinding surface. The lower floor contained a pottery anvil, 2 polishing stones, 3 subsurface pits, and two manos (Lindauer, 1985).

Evidence presented points toward multiple activities: possibly food processing, cooking, and the manufacture of some utilitarian products. Such activities can be seen as daily tasks. During both its occupations, this pithouse was probably used as a habitation room.

5. E117 N173

This rectilinear-shaped structure is located in the far northern periphery of the site. It lies directly against the site compound wall, which in fact, makes up the structure's northern wall and a portion of its western wall. The structure is approximately 28.5m².

At the southwest corner of the room, an additional wall extends from E117 N173, enclosing it in the same courtyard area as E123 N158 and the soon to be discussed structure, E129 N174. A doorway on the east wall faces into the courtyard area. Sandstone and basalt are the materials of wall construction; sandstone predominating. No hearth or pits were found in this room.

The floor of E117 N173 is an unprepared surface containing flat-lying artifacts at varying depths. A fairly thick floor zone is suggested, possibly representing resurfacing or multiple occupation levels. Floor surface artifacts include 3 schist tabular knives, 4 manos, a hammerstone, sherds, an argillite pendant blank and several polishing stones.

The occupational history of this structure remains puzzling. It may have been built prior to the construction of the compound wall. An earlier floor surface may correspond to this occupation. Unfortunately, these floor surfaces have not been well-defined. Additional excavation may prove useful in defining the full extent of this floor zone and perhaps a formal hearth(Eshbaugh, 1985).

On the basis of artifacts and room size, use of the

structure as a work and/or habitation area might be inferred. The possibly separate occupations have seen differential emphasis on activities.

6. E129 N174

This structure is located in the far northern periphery of the site, roughly 2 meters from the site compound wall. It is a rectilinear-shaped medium-sized room(25.5m²) which is enclosed in the same courtyard area as E117 N173 and E123 N158. Of all the rooms excavated, this one is the most unusual.

No hearth or pits were defined in this room, nor was any entrance. The structure may have been entered through an opening in the roof. Wall stones are almost entirely sandstone, although a small amount of basalt was present.

The floor of this room was prepared with a number of limestone slabs. These do not cover the entire surface. Some may have been scavenged after abandonment for other building purposes. Artifacts associated with this surface are similarly unusual. They include: a 3/4 grooved-axe; a fully-grooved maul; a fully-grooved adze made of red sandstone and a lump of worked red sandstone; 3 rubbing stones; several mano fragments, and a grinding feature.

Tools such as the axe, maul and adze have a very low frequency of occurrence at Shoofly. I would hesitate to attribute ritual significance to such objects, yet they do seem to hint at what has traditionally been defined as male-related activities(Hill, 1970).

On the basis of unusual features and artifacts, I would tend

toward a special-purpose interpretation for this room; possibly ceremonial. Another factor of interest is the location of E129 N174 in a possible "courtyard group". Excavation of the other rooms in this group have suggested habitation and work activities. This room may have functioned as a ceremonial structure or a storage area for ritual objects for the other structures in this enclosure. The functions of these three structures with relation to one another is an issue which may prove enlightening to understanding the total site composition.

7. E89 N165*

This structure is the largest yet excavated at Shoofly, measuring approximately 33m². It is sub-rectangular or d-shaped and is located in the northwest periphery of the site.

A hearth, and one pit were found in the structure. No entrance was ^{convincingly} defined. Perhaps this room, too, was entered via the roof. Provenience notes, however, state that excavation ended abruptly with the end of the field school. As this structure's walls vary in shape and lack in any formal construction techniques, wall clearing may have been difficult and, as yet, incomplete. The structure is composed almost entirely of sandstone blocks, although there are some basalt blocks as well.

The floor of E89 N165 is an unprepared surface. Associated with it were a series of postholes, manos, decorated black-on-white sherds, a mealing bin and a huge metate blank (Gregory,

*Subsequent wall clearing of E89 N165 reveals the two wing walls depicted in the 1985 site map to be only wall fall.

1986).

Artifacts and features similarly suggest domestic use. I cannot venture a guess as to what meaning this isolated structure has to the site as a whole. It would be something worth exploring through the excavation of some test units nearby the structure (to define possible activity areas) and the excavation of other isolated rooms.

8. E59 N123

This fairly small (20.3m²), d-shaped room is located in the west-central portion of the site's periphery. The structure is abutted by a courtyard wall at its southeast and northeast corners, joining it to an enclosed area which encompasses three other structures (unexcavated). The entrance to the structure faces east into a courtyard area. Sandstone predominates as a building material; again, some basalt was also used.

The floor of E59 N123 is a prepared clay surface which appears to have undergone resurfacing. Floor-associated artifacts were quite rare and lay at varying levels. A hearth, pit and pot rest were defined as floor features.

A low frequency of artifacts on the floor as well as in room fill and a similar lack of roofing material in fill may be indicative of post-occupational scavenging (Bradley, 1986);

Overall, E59 N123, appears to have functioned as a habitation room which may have been part of some type of courtyard group.

9. E97 N85

E97 N85 is a medium-sized (26.2m²) rectilinear-shaped room.

It is located in the south periphery of the site. A possible courtyard wall joins the structure at the north wall and southeast corner. This wall links the room to an enclosed area, apparently encompassing only E97 N85. An entrance in the east wall faces into this area.

To the west, a plaza area was defined, revealing multiple activity areas, middens, and a number of burials.

Other architectural features of interest include a double wall on the east side of the room, and a staggered alignment of stones in the west wall suggesting possible wall modification. The second wall on the east runs from the south end to the northeast corner. Wall fall pulled from between these walls reveals approximately 50cm of open space. This area was not probed, as time constraints of the field season would have it. Perhaps post holes might be found indicating that the second wall was used for additional support. The jagged alignment of wall stones on the west might indicate the sealing-off of a previous entrance.

Basalt was the primary building material of this structure. Sandstone and a very small amount of limestone were also used.

An unprepared clay floor surface contained a variety of features and artifacts. Features included a stone-lined rectangular hearth, two shallow pits, a large possible roasting pit and a huge sandstone slab with a series of circular indentations. A severely burned post is among the evidence that the structure experienced a catastrophic fire.

The fire pit is a deep feature (70-75cm) which was found to

be filled with fire-cracked rocks and burned earth. It lies against and partially beneath the north wall of the structure. This feature might have been associated with the plaza area to the west, prior to the construction of the room. Because the entrance is located on the east, there would not have been much ventilation for such a feature.

One of the pits was fairly shallow and contained 2 broken bowls, a few rubbing stones, a polishing stone, a fully-grooved axe, a concentration of unfired residual clay and a few charred corn kernels.

Artifacts associated with the floor surface include several large sherds, polishing stones, manos, a double-ended pestle and a tabular tool.

Some roof fall assemblages may be worth mentioning. These include: a tiny jar surrounded by a broken bowl; a potbust with several stones in its center and a polished anvil and several manos scattered around it; a potbust associated with a burned beam fragment and some small groundstone items; and a concentration of carbonized corn kernels. While some of these items may have been thrown in after the room was abandoned, some might have been suspended from the ceiling. The corn may have been contained in a basket or cloth bag and hung from roof beams. Other materials may represent activity on the roof.

Associated evidence seems to indicate that this structure was the site of a variety of activities: storage, tool manufacture, pottery construction (the anvil, polishing stones, and clay), and food preparation. A multifunction/habitation room might best describe E97 N85.

VARIABLES, PROBLEMS, AND RECOMMENDATIONS FOR SHOOFLY

SPATIAL LOCATION AND ROOM SHAPE

The core area of the site can be seen as the area with the most dense concentration of rooms. As mentioned previously, these rooms are contiguous and rectilinear with full-height masonry walls. The site periphery is much more complex in appearance. There are curvilinear isolated structures, groupings of rectilinear and curvilinear structures with courtyard walls, and a second room block in the far northeast.

Room shape, wall-height and spatial location may be considered variables of potential significance. However, wall height seems to be a variable of spatial location rather than room use. Furthermore, the location of a structure on the entire site may be unrelated to room use. Perhaps location in the core as opposed to the periphery actually represents domestic or lineage subdivisions, while the more specific location of a structure within the core or periphery may have functional implications(i.e.: within some of the "courtyard groups").

Spatial location and room shape are variables which bring in a number of questions which cannot be adequately assessed through the present data base. These include: Do the "courtyard groups" represent domestic or lineage groups? What is the meaning of isolated structures? Does room shape relate to function or some social factor? and, What is the relationship between the core rooms and the peripheral rooms?

Only additional excavation can possibly attempt to answer

such questions.

ROOM SIZE

The small, judgemental sample of excavated rooms comprise the entire data set for accurately exploring this variable. However, rough estimates of room size can be calculated using the 1985 site map; the only site map available at this time.

Room size averages based on the 1985 site map

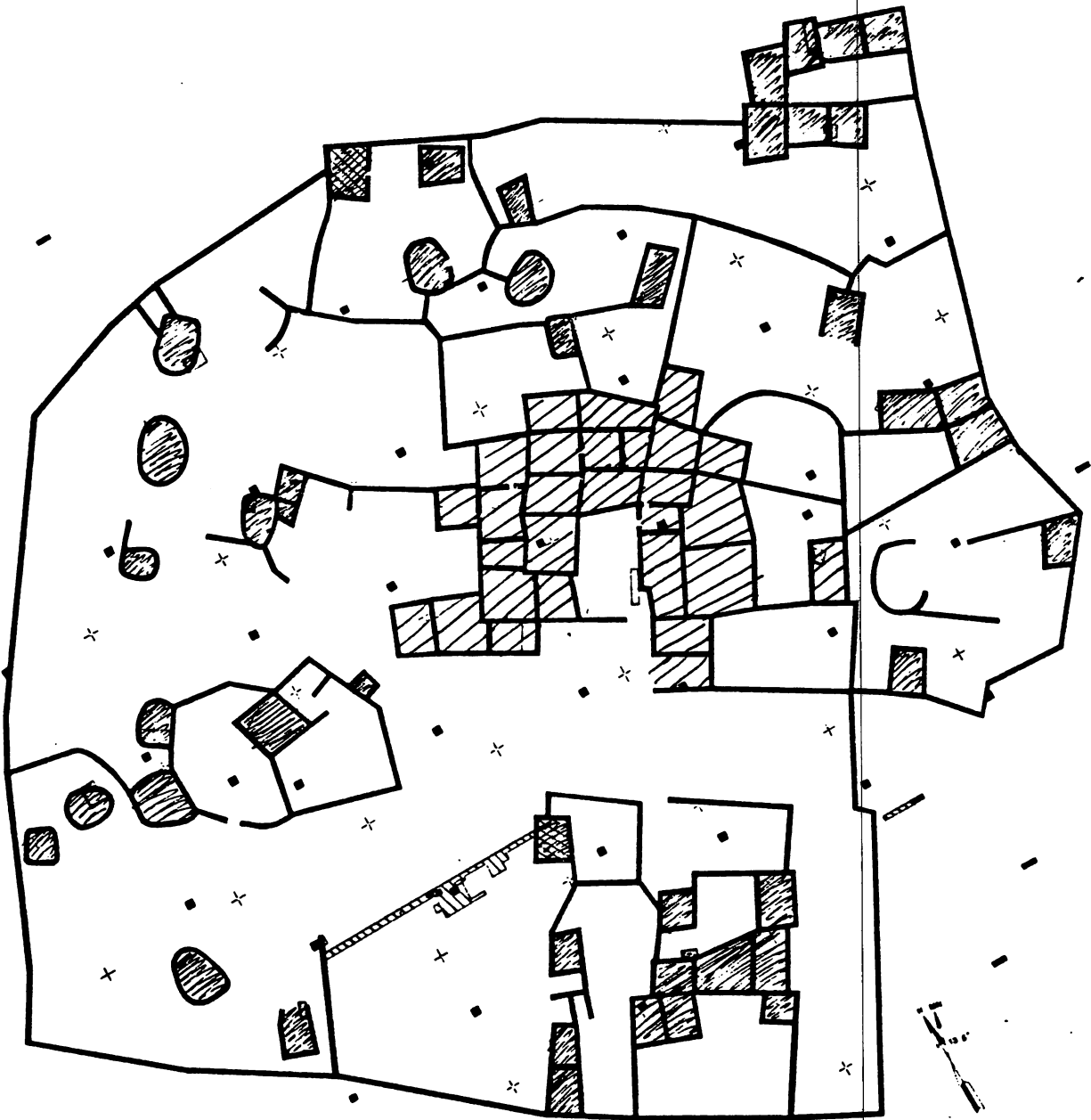
Location	Number of Rooms	Average Area(m ²)
Core	28	30.9
Periphery	46	23.6
Total	74	26.4

Room size averages based on sample of excavated rooms

Location	Number of Rooms	Average Area(m ²)
Core	3	22.3
Periphery	6	27.2
Total	9	25.6

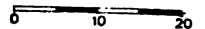
While measurements based on the site map reveal a great deal of variability in room sizes, none represent fully excavated rooms and, thus, cannot be considered accurate. It must also be recognized that some of the "rooms" I have measured, especially the larger ones, may be found to be courtyard areas or wall fall alignments upon further excavation. The higher average area for core rooms may be a result of a sample skewed by these large structures. Note the discrepancy between the average size of core rooms based on the site map to that based on the excavated rooms. Perhaps a greater variety of room sizes should be excavated within both the core and periphery.

1985



SHOOFLY VILLAGE
1985

SCALE



- STAGE 1
- ▨ STAGE 2
- ▩ STAGE 3

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▨ Rooms included in core measurements

▩ Rooms included in peripheral measurements total 74 rooms

In addition, calculations of peripheral as opposed to core room sizes are based on a separation between core and periphery which I have made judgementally. This separation may be further refined upon more examination.

On the basis of the sample of excavated rooms, variation is evident. The sample size, however, is not balanced, objective, or substantial enough.

Room size at Shoofly most certainly cannot compare to Hill's findings at Broken K, since what appears to be a storage room is actually larger than one habitation room and one limited activity room. This variable may prove useful after a greater number of rooms, varying more substantially in size, are excavated and incorporated into the database for room function.

PRESENCE OF A HEARTH

The presence or absence of a hearth poses a problem at Shoofly. Several possible habitation rooms do not have hearths. Furthermore, the only 'ceremonial' room has no hearth. Perhaps excavators were not able to scrape surfaces thoroughly enough or perhaps the presence of a hearth is not an appropriate variable.

The way I see it, this dilemma may relate to seasonality, a question which remains unanswered at Shoofly. If the site was seasonally occupied (perhaps in the warmer months), or if some individual structures were seasonally occupied, formal hearths may have been unnecessary. Hearths may have been merely ephemeral features inside structures, represented only by patchy gray areas in the archaeological record. In addition, formal hearths may actually be located in activity areas outside

structures. Test excavations outside structures could be informative; as in the case of structure E59 N123, where a hearth-like feature was found just outside of the room (Bradley, 1986).

In view of the current data base for Shoofly, I believe that the presence or absence of a hearth should be regarded as only secondary or supplementary evidence for room function.

THE NUMBER AND LOCATION OF ENTRANCES

It seems logical that a habitation structure would be expected to have more entrances than a storage structure, as more activity would be expected to occur there. In other words, there might be less of a need for frequent access to a storage structure than a habitation structure. This has been found to be true ethnographically (Adams, 1983). In addition, entrances to kivas have been found to occur most often in roof tops (Adams, 1983; Hill, 1970). Thus, no evidence of an entrance in an archaeological structure might be suggestive of a roof top opening and a ritual function.

It would be nice to think that structure E129 N174, the possible ceremonial room, was entered through a roof opening, as were kivas. Perhaps this is the case. It is unfortunate that the only other structure without an entrance looks more like a habitation room (E89 N165). This still may be an important variable. More cases are needed to assess the significance of wall entrances.

Only one structure excavated was found to have more than one entrance (E134 N114). This is also the smallest room

excavated. Thus, the number of entrances does not appear to be significant in the sample as an indicator of room function.

It is curious that in all peripheral rooms found to have entrances, the entrances face to the east, while all core rooms excavated have entrances facing west (and north: E134 N114). A larger sample would be needed to assess the extent of this correlation. Similarly, to determine if entrances in habitation rooms face into courtyard or open areas more commonly and entrances in storage rooms face into habitation rooms more commonly, a larger data set is needed.

In short: based on the data, neither the number and location of entrances nor the presence or absence of them is indicative of room function.

FLOORS AND ARTIFACTS

Floor surfaces at Shoofly are by no means elaborate. They are one of the most obscure attributes of structures. In many cases, it is only through the definition of horizontally-situated artifacts and floor features, that a cultural surface can be defined. Prepared floors are, in general, just a leveling off of the local clay substrate. The limestone floor of E129 N174 is an obvious exception. The extra effort expended in this feature may indicate a special purpose (perhaps ritual) for the structure.

Artifacts are a very important variable for Shoofly or any other site. In general, heterogeneous assemblages may result from multiple activities while homogeneous assemblages may be due to more specific room use.

There is always the problem of underrepresentation of

artifacts in structures. Previously mentioned problems of cultural and environmental formation processes are often insurmountable. It is important to limit analysis to only those artifacts found in reliable proveniences. Hence, it is necessary to know the depositional history of a site. At Shoofly, post-occupational dumping in structures was substantial. Artifact categories are best limited to floor surfaces, pits, niches and other such proveniences. In addition to these contexts, roof fall assemblages may also be reliable. Associated items which were possibly suspended from room ceilings have been easily recognized (E97 N85, E130 N125, E113 N124) and suggestive of specific functions. When artifacts can be contextually isolated, they should be analyzed and point-provenienced.

Analysis on basic attributes and the use-wear patterns of artifacts can suggest various activities. Ceramic analysis should proceed in calculating rim diameters, volumes, defining temper types and other attributes. For example, vessels should be analyzed for use-related attributes such as surface abrasion and oxidation discoloration. These attributes may reveal cooking or serving functions (Hally, 1983; Linton, 1944). In contrast, vessels exhibiting little use wear, narrow necks or rims, and large volumes might have been used for water or food storage (Braun, 1974). Ethnographically, temper types have been related to vessel function. The Papago use of schist temper for water ollas, has been related to the benefits of porosity for cooling vessel contents through capillary action (Fontana, et. al., 1962).

Analysis of the use-wear on stone tools might reveal that some were not used for expected purposes at all. Perhaps the unusual tools of E129 N174 were never used for chopping or pounding, but, instead, some ritualistic activity. A lack of use-wear on these items would be interesting to know about.

Faunal remains should be analyzed for the slightest evidence of modification. In this way, one could separate food preparation assemblages from tool manufacturing assemblages.

After analysis, artifacts should be quantitatively classified. A good example of this is Ciolek-Torello's factor analysis on Grasshopper artifacts. It may be interesting to see how these factors compare to assemblages at Shoofly.

1. E130 N125: Artifact classes correspond primarily to factor 2 and to some degree, factor 1 (mano fragment, polishing stone, and core). Although there are a few bowls in the collection, large jars appear to be the dominant form. The possibility of a storage function for the structure is supported.

2. E134 N114: Artifact classes are scanty, including only one mano and several sherds. These could be classified under factor 3 (food preparation) or factor 1 (manufacturing). Obviously, there are not enough to make any generalization. These few artifacts could represent a number of activities.

3. E113 N124: Artifact classes correspond most closely to factor 3. Habitation is, again, suggested.

4. E123 N158: Artifact classes correspond closely to factors 1 and 3, suggesting manufacturing as well as food processing

activities(multipurpose/habitation).

5. E117 N173: Artifact classes correspond closely to factors 1 and 3, suggesting manufacturing as well as food processing activities. As in E123 N158, a multipurpose/habitation function is suggested.

6. E129 N174: Artifact classes correspond most closely to factors 1 and 4. Manufacturing activities may have been carried out here, but the tools produced have a limited occurrence on the site. The manufacture of special-purpose items is suggested.

7. E89 N165: Artifact classes correspond most closely to factor 3(food preparation, cooking). Habitation is indicated.

8. E59 N123: Artifact classes are virtually absent from floor proveniences. The few sherds recovered are not enough to compare to Ciolek-Torello's classification.

9. E97 N85: Artifact classes correspond closely to factors 1 and 3. A multipurpose/habitation function is suggested.

It is realized that artifact data from Shoofly rooms is scanty and in need of rigorous analysis. Comparison to Ciolek-Torello's classification has been loosely applied. However, one can see that these artifact classes are not site specific to Grasshopper Pueblo, but may represent more general activity sets. A successful application of the method to Shoofly might profitably be undertaken.

Before finishing this discussion of artifact data, spatial

analysis should be touched upon. Artifacts recovered from floor surfaces, pits, niches, or other reliable contexts should be point-provenienced and mapped. One can identify activity sets through their spatial distributions. In structure E97 N85, for example, a pestle was found lying centimeters away from a grinding slab with a series of circular depressions. Mere visual inspection can isolate this association. However, recording the association is also necessary for comparisons and demonstrations. Any researcher interested in addressing room function or analysis of activity areas would find distribution maps necessary.

In some cases nearest-neighbor analysis has been performed on occupation floors to distinguish between random, clustered, and even distributions (Whallon, 1974). I cannot see the application of this to Shoofly data. Meaningful associations are either obvious or non-existent. If a series of artifacts are statistically found to be clustered, yet no meaningful relationship between them can be seen, the cluster may represent a collection of stored items. I would maintain that this clustering would be obvious to the excavator without statistics. Nearest-neighbor analysis will neither strengthen nor weaken an interpretation with any validity.

Artifact assemblages, in short, have a great deal of value for the identification of activities relating to room use.

ARCHITECTURAL DATA

Aside from data on wall height and width, the number and location of wall openings and relationships to courtyard walls, other useful architectural features have been difficult to

distinguish at Shoofly.

The determination of upper stories is one such feature. Of the three completely excavated core rooms, one is believed to have possibly had an upper story. The possibility of upper stories has, for the most part, been based on judgement on the amount of wall fall recovered. In one partially excavated structure in the core, a contiguous line of fallen wall stones was mapped and recorded. Crew members counted and measured stones, calculating an approximation of wall height(4m). It appeared that the structure most probably did have an upper story(Bradley, 1986). These calculations, of course, are not always easy to do. In instances where wall fall is more irregular, such a method would prove extremely difficult, if not impossible.

The level of a room in a multistoried structure has been found to have bearing on room function(Ciolek-Torello, 1985; Adams, 1983). At Shoofly, the possibility of upper stories is in need of further analysis.

Other architectural features of interest include building materials and techniques. Unmodified blocks of sandstone, basalt and limestone are the materials used in construction at Shoofly; limestone being rather rare and restricted. Most structures appear to be constructed primarily of sandstone. However, some rooms in the peripheral areas show a predominance of basalt. In fact, upon examination by a graduate student during the 1985 field season, a definite east-west dichotomy was found to exist on the site for basalt or sandstone as a dominant building material(respectively)(Hoffman, 1985). Exploration of the site

surroundings revealed that a natural deposit of sandstone occurred nearby to the west and one of basalt nearby to the east. Perhaps this is the cause of this dichotomy: availability of raw material. The inconsistency of these patterns in the compound wall negates the simplicity of this issue. Material differences may also relate to chronology or room function. It is difficult to determine at this point.

Building techniques vary across Shoofly. Hoffman's analysis revealed that two core rooms were constructed with basal courses of large basalt blocks while all upper courses were almost entirely composed of sandstone. In E59 N123, basal stones are vertically-oriented, while in most other rooms they are horizontal. In E89 N165, walls were only a single course wide, whereas most other rooms are two or even three courses wide. Defining wall construction sequences in core rooms may reveal temporal aspects of contiguous structures.

There is a need for the rigorous measurement and analysis of all these architectural variables. Comparisons can then be made on a site-wide basis. Cross-checking architectural variables with both other variables and the preliminary interpretations on excavated rooms might help one focus in on specific attributes of significance.

CONCLUSION

An analysis of room function has not, at this time, been attempted at Shoofly except on an individual basis. It has been shown that there is a great deal of variation among room sizes, building techniques and features. However, these variations are

not well represented in the sample of excavated rooms. It is to these variables that attention must be focused for future excavation and analysis. It is recommended that architectural data are rigorously recorded and excavation proceeds in more rooms of various sizes and architectural plans, especially those within courtyard group arrangements. Rooms in the eastern periphery and the northeast roomblock of the site are severely underrepresented in the data set. In addition, more attention should be paid to the analysis and contexts of artifacts. Room floors should be probed or trenched in some areas to determine the extent of occupation surfaces. In this way, more subfloor features may be defined.

To summarize, various sources of information should be collected during future excavation at Shoofly. A methodological analysis of room function cannot be done with the amount of data now present, but if data is collected with reference to this topic, analysis may profitably be carried out in the near future.

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