

***Connecting Artifacts and Behaviors: Period Photos
and the "Tin War" Site in Northwestern Utah***

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(Reading Copy)

A rather amazing event happened in this now-quiet valley just over one hundred years ago. For one of the first times in its history, the U.S. Army was on maneuvers! Over 700 soldiers from all branches of the military came to Strawberry Valley from Forts Douglas and Duchesne in Utah and Fort Bridger in Wyoming. The spectacle of billowing artillery and massed infantry also attracted Salt Lake City photographer Charles W. Carter, whose record of this four-week long event has given us a rare opportunity to correlate known activities with artifacts. We consider ourselves to be in an ideal position to explore some of the basic questions archaeologists ask about the connection between behaviors and their resulting archaeological patterns. After all, not only can we see many of the original behaviors in the photos, but we are dealing with one of the all-time most patterned social institutions in America, the U.S. Army, during one of the most patterned social eras in American history, the Victorian Age. This is also one of the most romantically imbued eras of the U.S. Army, and this project is a magnet for involving both volunteers and visitors in the process of interpreting and appreciating patterns of even the most humble artifacts.

So far we have seven spatially discreet artifact patterns at the Tin War (or mock war) Camp Site (42WA2) on the Uinta National Forest. They were found by using the historic photos to relocate original tent positions, and then recovered through intensive surface collection of all visible artifacts and shallow, subsurface recovery of metal artifacts using detectors. This work has been done during the last two summers, on week long *PIT* projects.

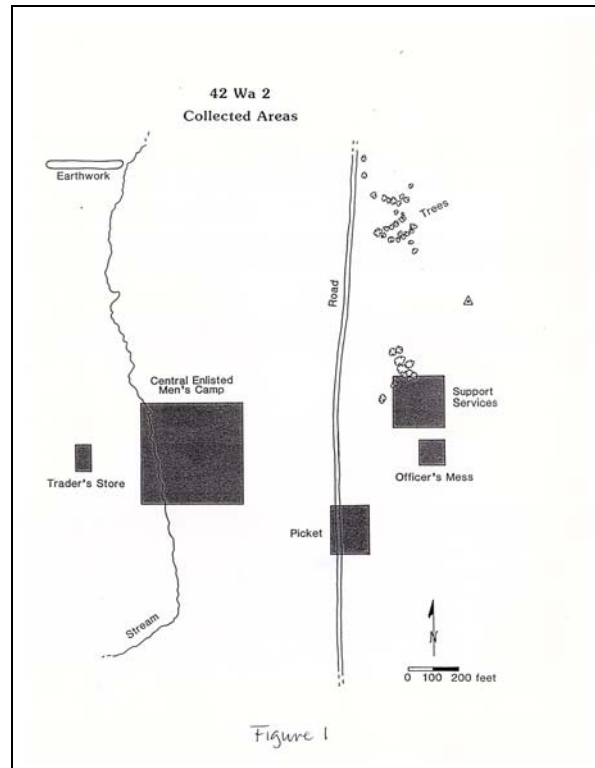
These seven activity areas are varied in their size, location, and function. This overlapping set of photos, which face west and southwest (respectively), show all these features. The photo below shows the main body of the camp, with the trader's tent isolated beyond the other tents above photo center, the block of enlisted men's tents at center, and the narrow parade ground just below these tents (with three wagons passing through it). The parade ground (also visible for its lack of vegetation) marks a kind of buffer zone, as well, between the enlisted men's and officers' tent areas. Below the parade ground are officer's tents. The group of three tents at lower right belong to the post commander, his adjutant, and quartermaster. The group of tents in the trees at lower left are part of the group of tents probably used by wheelwrights, wagoners, and/or blacksmiths and are referred to as the support services tent area.



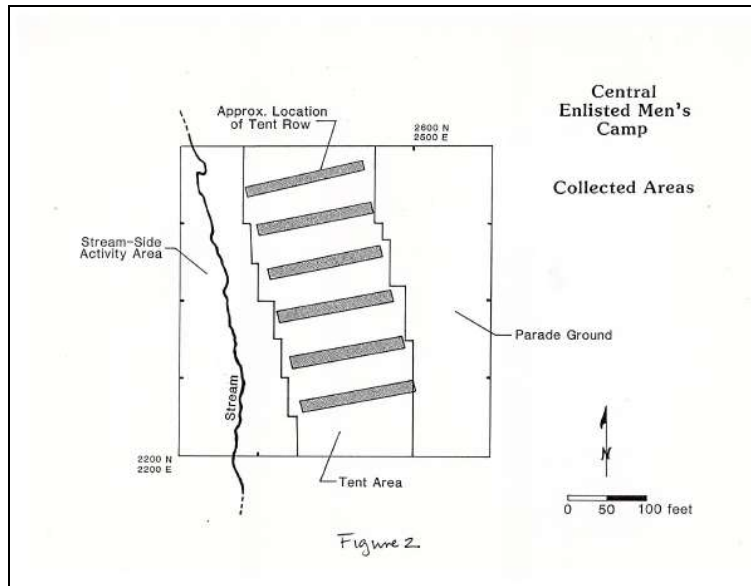
The rest of the group of support services tents are visible in the trees in the lower right hand side of the next photo. The cavalry and artillery pickets are visible as neat lines of horses just above the end of the trees. The officer's mess is the isolated, large rectangular tent with an attached round tent on its left that is visible just below photo center.



The relative size of these activity areas, and the limits of our collections over and around them, is shown here (Figure 1).



Our total of seven activity areas was achieved by dividing the central enlisted men's tent area into three zones, on the basis of activity differences visible in the photos (Figure 2). The stream-side activity area appears to have been an area of more specialized activities, such as communal cooking by companies of men (who were tented together in rows), laundry, and socializing. The parade ground was an open area used for mainly infantry drills.



It was our hope that working in such apparently different activity areas would allow us, even at a preliminary level, to begin answering some basic questions about the artifact assemblages and the behaviors that produced them. This paper's purpose is to answer two of those questions, and to present what we are learning about the process of interpreting artifact patterns at the Tin War Camp Site.

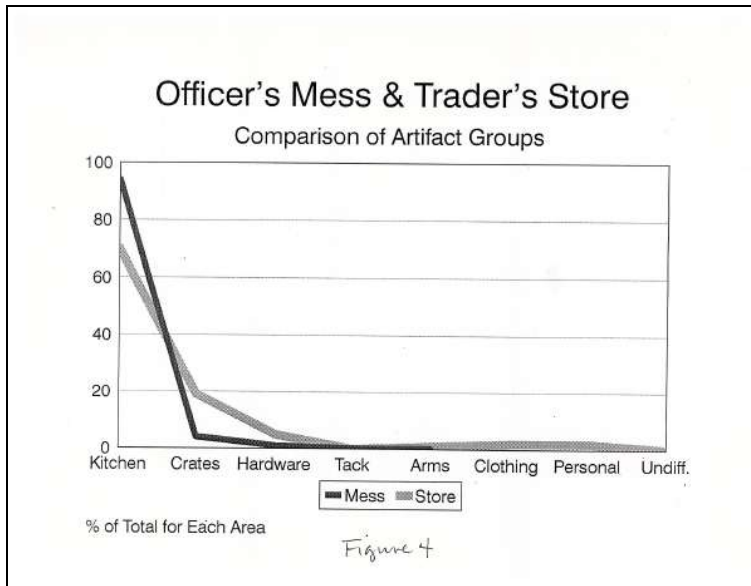
The first question is, "are there particular artifact patterns that we can associate with visible activities at the site?" The second is, "can we identify other pattern formation factors that may have affected the assemblages?" Both of these questions are important because one of our project goals is to develop a model that describes the kinds of artifacts which we might expect to find associated with particular activities on other short-term military sites. This would, in turn, allow us to more fully understand some of the behaviors that created the archaeological record before us.

In order to answer the first question, we did a basic analysis of the all artifacts from the seven areas that was patterned after South's (1977) artifact groups and classes, or types (Figure 3). This was primarily done, in *PIT* tradition, by an excellent group of volunteers. These classes are easy to understand and so this kind of analysis works well with volunteers who have varying degrees of experience with archaeology.

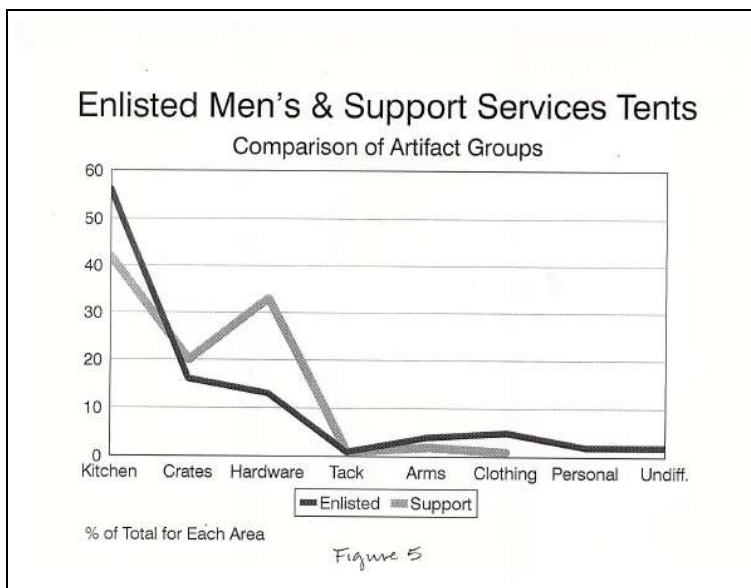


We found that very few types of artifacts were exclusive to any particular activity area. These included harmonica parts, tent slaps and tent stakes, all of which were found only around enlisted men's tents. Most other artifact groups occurred generally across the site, even in activity areas that appear in the photos to be very different in function. As a result, there is no neat, direct correlation between particular types of artifacts and particular types of activities. Our analysis showed that it was the relative frequency of artifact groups that varied between activity areas.

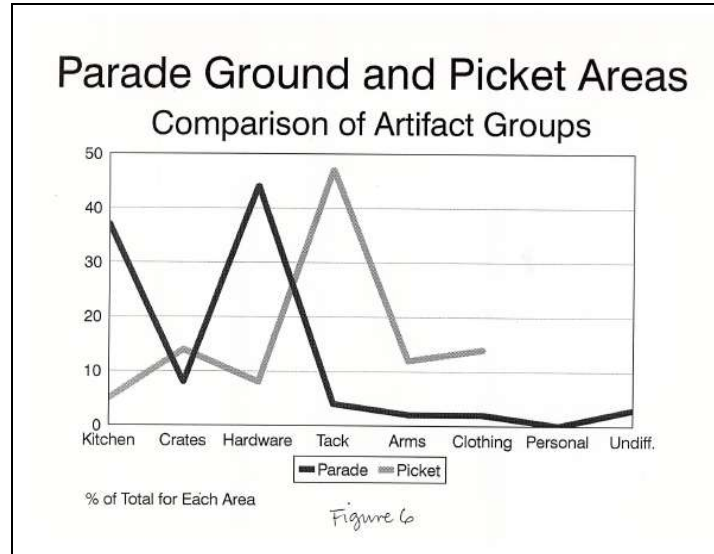
For example, when comparing the officer's mess and trader's store, the former was dominated by broken glass and tin can fragments, while the trader's store was dominated by clothing and personal items (Figure 4). This suggests that the trader's store was a livelier activity area, where soldiers drank and swapped tall tales, while the officer's mess primarily involved the consumption of food that was disposed of outside the tent itself by folks other than the officer's themselves.



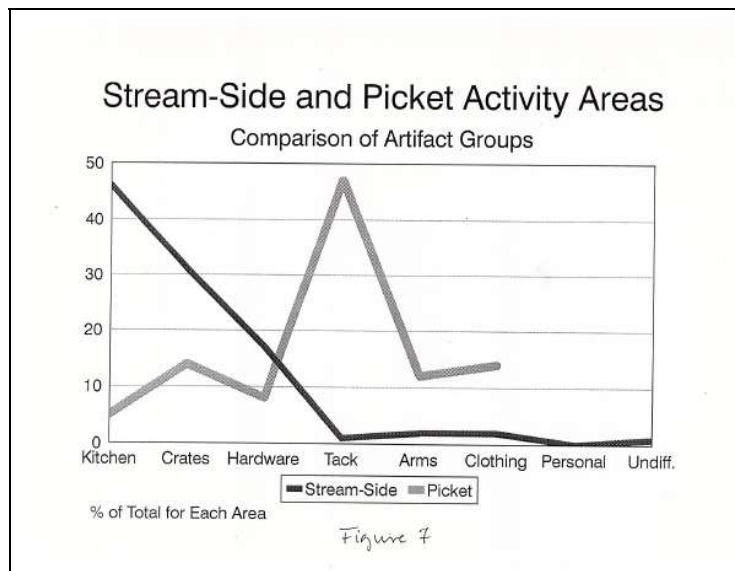
When comparing two apparent living areas, the enlisted men's and support services tents (Figure 5), differences in key artifact group frequencies emerge. The enlisted men's tent pattern contained larger quantities of artifacts from the Arms, Clothing, and Personal groups, suggesting that not only did they have more of those kinds of materials with them, but had a greater predilection for losing them. The support services men do appear in the photos to have more heavy equipment, and this is borne out by the presence of more hardware in their area.



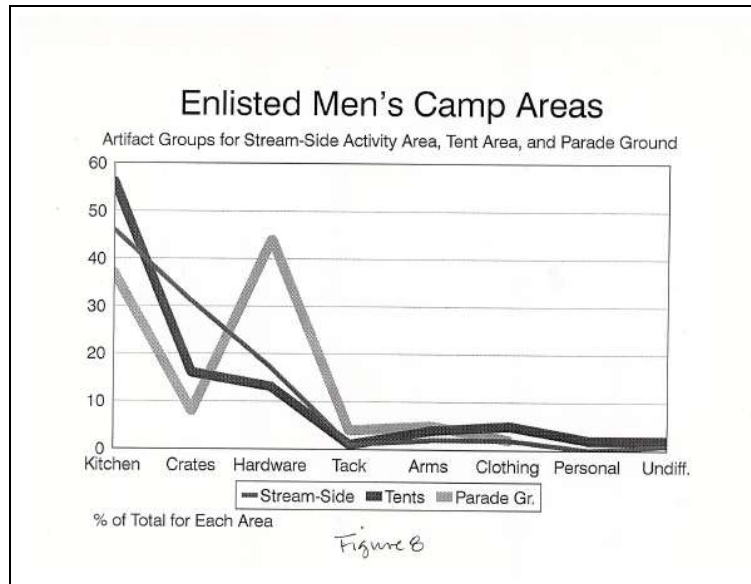
Activity areas that appear to involve more specialized activities also had fairly distinct artifact group frequencies. The parade ground contained artifacts from all groups, but was dominated by kitchen debris and hardware (Figure 6). This suggests that it was the recipient of trash from adjacent tents, and from wagons passing through. This is very different from the picket, which was dominated by horse-related artifacts, and horses are what we mainly see in the photos.



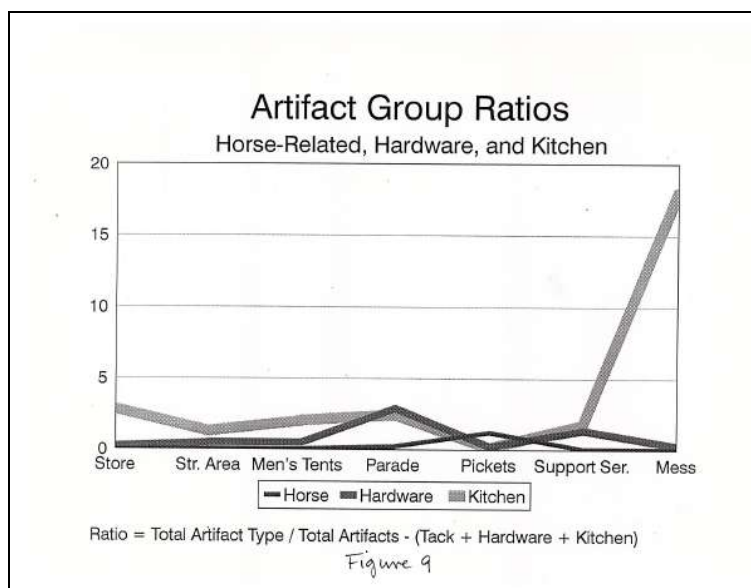
The stream-side activity area was also dissimilar to either of these activity areas (Figure 7). It was dominated by quantities of kitchen debris and the bands, nails, and screws of crates.



It varied from the adjacent enlisted men's tent assemblage (Figure 8), by containing much higher quantities of crate materials



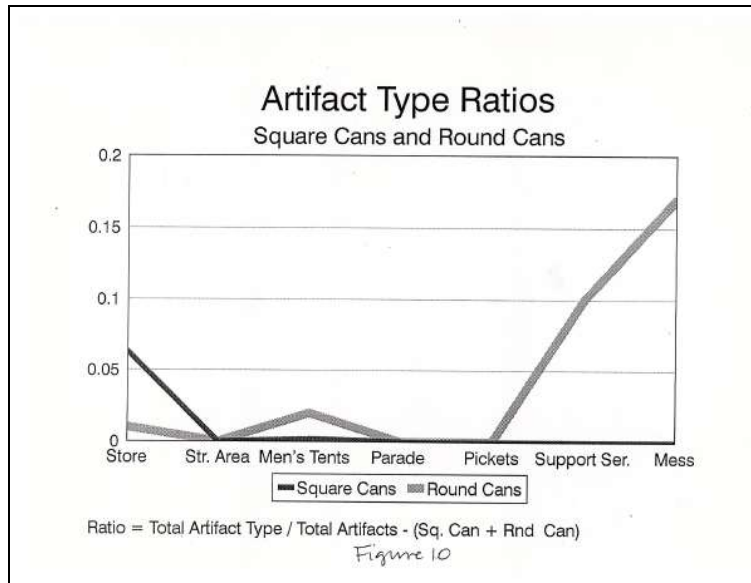
In order to fine-tune our observations about pattern differences, we used ratios between artifact groups that appeared to vary across the site. Horse-related artifacts associated pretty clearly with the picket area (Figure 9), and hardware with the parade ground and to a lesser degree to the support services area.



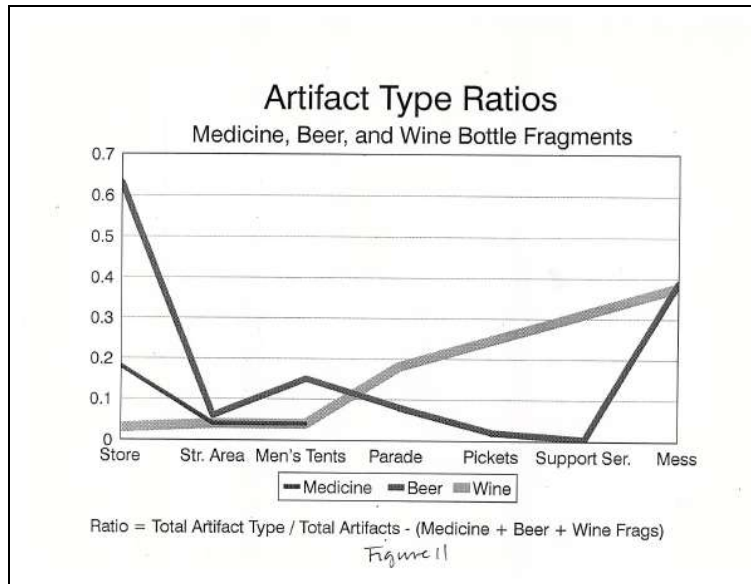
On the other hand, the relative quantity of kitchen debris is not a very useful tool in identifying types of activity areas except in the case of the trash deposited outside the officer's mess. They did, however, suggest some social differentiation.

Square fish cans associated fairly strongly with the trader's store, in enlisted men's country, and vegetable cans occur in greater quantities where officers and civilians were living or eating (Figure 9).

Pharmaceutical bottle fragments seem to be reasonably good indicators of enlisted men (Figure 10), as they occur only on the west side of the camp.



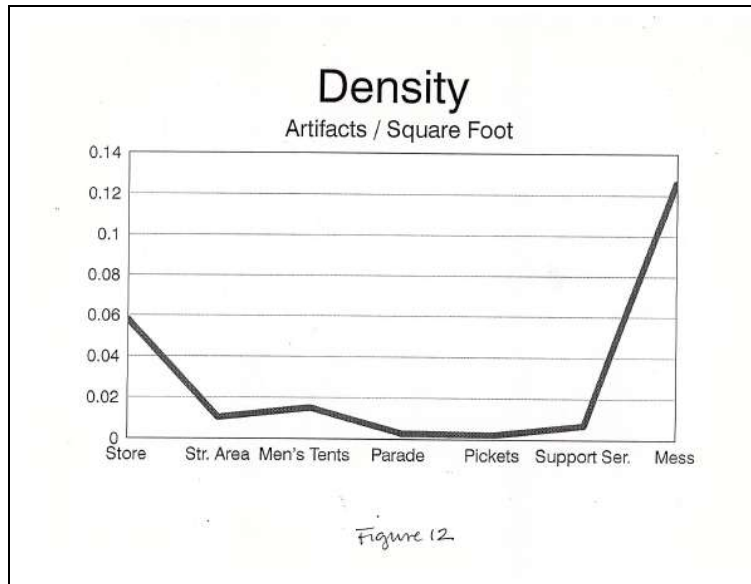
Glass from wine bottles is most common on the east side of camp, where officer's tented (Figure 11). Beer bottle glass occurs across all activity areas, but is more common at the trader's store, in the enlisted men's camp, and officer's mess.



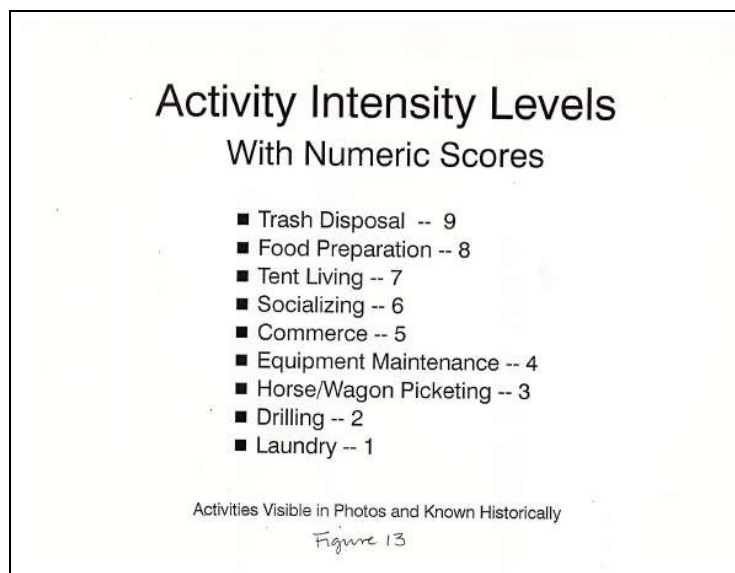
In summary, it appears that some artifact groups are useful in identifying particular activity areas or social universes, but it is not just their presence or absence that matters; instead, it is their relative frequencies.

Let us now turn to our second question, “can we identify other factors that may have affected the assemblages?” Considerable energy has been expended by other researchers on identifying factors that affect archaeological patterns (cf. Carr 1984, Kent 1987, and Kroll and Price 1991), and these include such things as the number of activities carried out in an area, the socio-political status of the participants, the frequency, duration, and refuse-producing potential of the activity, and so on. How do we identify which of these factors are central to understanding the Tin War Site assemblages? We chose to explore this question by looking at two pattern characteristics, namely density (the number of artifacts per square foot) and richness (the number of different types of artifacts represented in each assemblage).

As you can see, artifact density varied considerably across the site (Figure 12). Density can be affected by such things as the number of participants, the duration of the activity, whether or not the artifacts are in primary context, or concentrated into a secondary context (such as a trash pit), and so on.

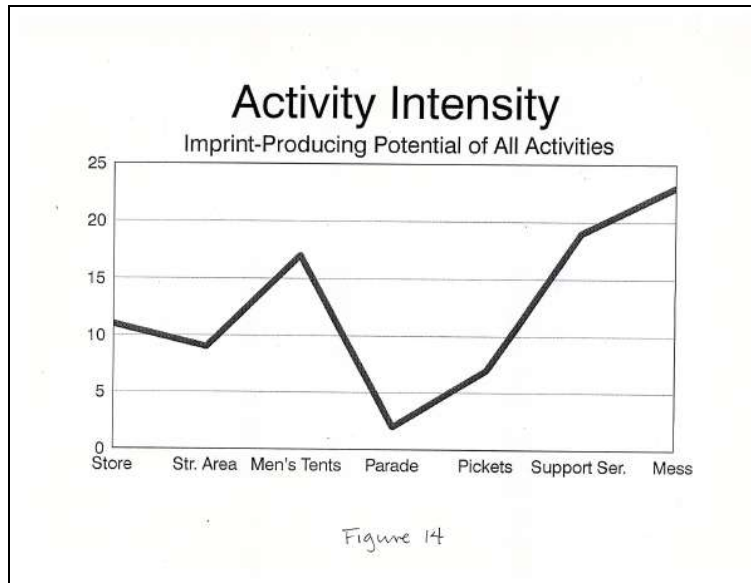


We isolated two particular factors that might have an affect on these figures. The first is activity intensity, which is defined as the relative potential of an activity to leave an imprint in the archaeological record. Our prediction is that certain activities are going to produce more artifacts than other activities. We developed a simple scale for categories of activities that we can see in the camp photos (Figure 13).



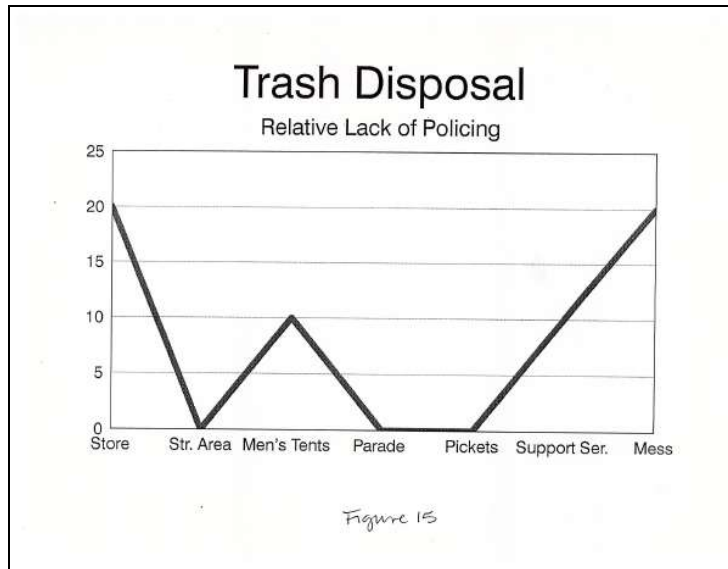
It recognizes whether or not the activity involves items that are likely to be broken and/or lost in place, or the activity involves items that are likely to be used in one place, but disposed of somewhere else.

We then identified all the visible or known activities that occurred in each of the seven activity areas and totaled their scores (Figure 14). For example, the parade ground's purpose was military drilling, which has the relative score of two. On the other hand, the enlisted men's tent area included activities such as living, socializing, and equipment maintenance, for a higher score of 17.



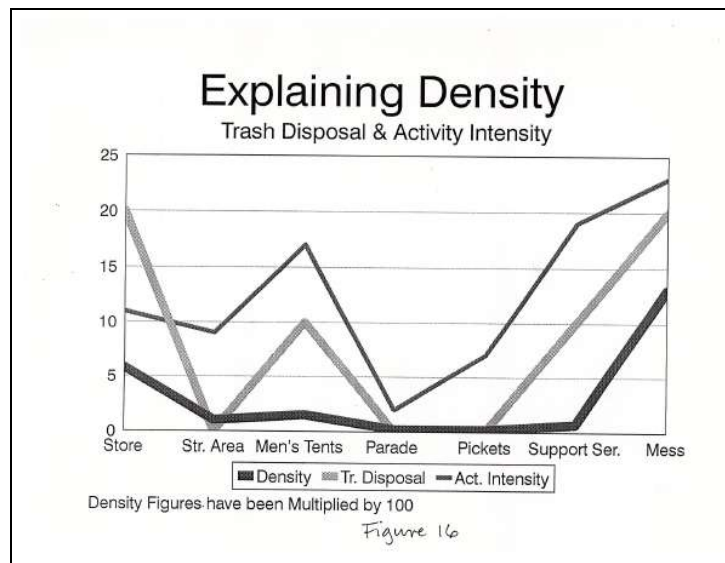
The second factor that may have strongly affected artifact density is the degree to which the various parts of camp were “policed” by the soldiers. Policing is the time-honored ritual of marching men across camp to pick up garbage. Our prediction was that different areas of the site experienced different levels of policing. For example, public areas such as the parade ground would have been more routinely and carefully policed. This would have been due in part due to military decorum, and to the fact that brush had been removed from this part of camp, making any trash in that area more visible targets for collection. This contrasts with the treatment of trash dumps and/or areas occupied by civilians beyond the main camp boundaries, which are predicted to have the least amount of policing. After all, the tidiness ethic did not necessarily extend to the non-military population of the time.

We created an arbitrary numeric scale for defining differences in levels of policing, from 20, meaning little or no trash removal, to 0 for complete policing (Figure 15).



The enlisted men's tent area was predicted to fall somewhere in between, since we felt that living areas were a place where things were likely to get lost under tents, bedrolls, and crates. The support services tent area is believed to have been occupied in part or whole by civilian contractors, who may not have been so keen about keeping their tent and equipment spaces so clean.

There also appears to be a general correlation between predicted levels of policing and actual artifact densities (Figure 16). The predicted figures appear a bit exaggerated, but this is probably more a problem with our arbitrary scale than with the relationship between policing and artifact densities.

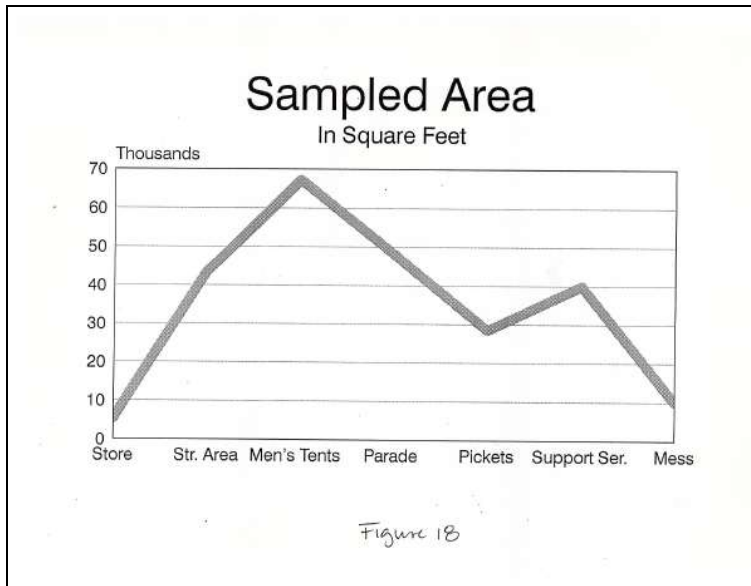


It is interesting to highlight the two cases in which we predicted a complete lack of policing, in civilian areas beyond the boundaries of the main camp, and secondary trash dumps. We have the highest artifact densities in both the trader's store and officer's mess. All other areas of the camp, which were under more watchful military control and subject to some level of policing, have relatively similar, low, artifact densities.

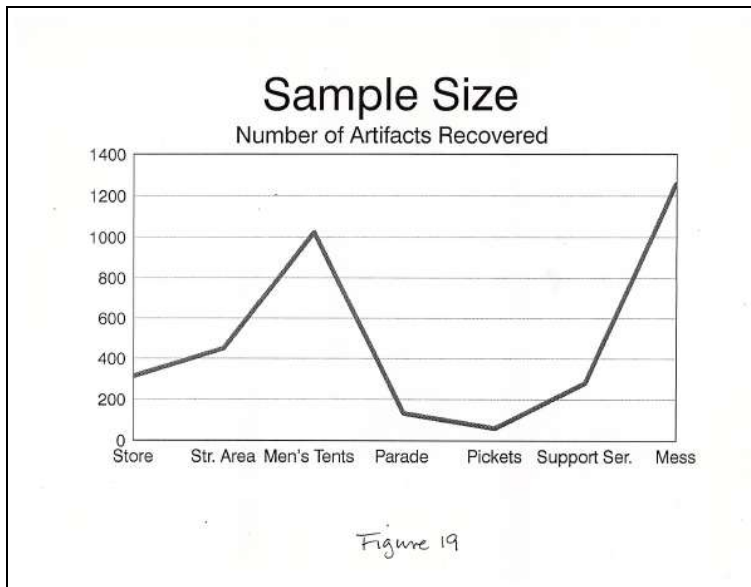
As Figure 16 shows, there is a general correlation between artifact density and predicted activity intensity. Density figures (at the bottom) were flattened a bit by the act of showing these widely divergent figures on the same graph.

The other tool that helps us identify factors important in interpreting our assemblages is "richness," which is the total number of different types of artifacts (such as nails, coins, etc.) present in any of the seven activity areas. So, what might account for diversity in artifact types? Certainly a wider range of activities, or longer periods of use, could contribute to richness. However, other researcher's work with both hunter-gatherer site collections and archaeofauna assemblages has found that sample size strongly correlates with assemblage richness. We tested this for the Tin War Camp Site, and predicted that if sample size is a factor affecting assemblage, than larger samples should also be richer in artifact types, irregardless of our measure of activity intensity discussed above.

To do so, we used two measures of sample size. The first was sampled area, defined as the number of square feet in which artifact collecting was completed. Variation in the size of each collected activity area is largely a function of the fact that the activity areas themselves varied in size (Figure 18).

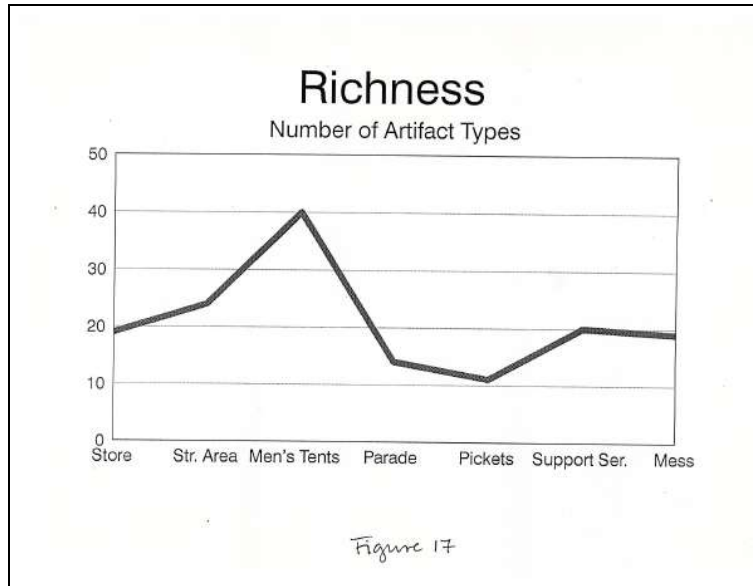


The second measure of sample size is the total number of artifacts from each activity area (Figure 19).

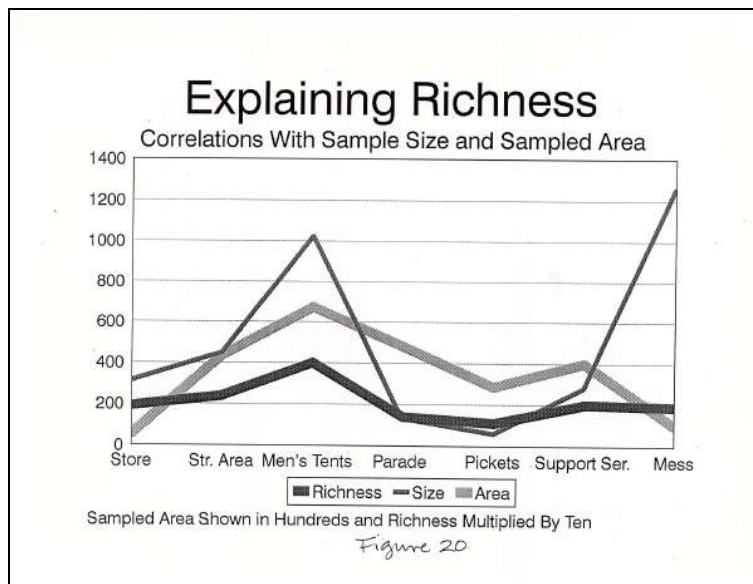


There are some general similarities, in terms of peaks and troughs, between sample sizes and richness (Figure 17), with one exception. The activity area with the greatest sample size, the officer's mess, has the largest assemblage richness. However, the rest of

the activity areas fell out pretty neatly in predicted fashion, with the second largest sample size (the enlisted men's tents) having the greatest richness, and so on to the smallest sample size (the picket) having the least richness.



It appears that sample size and assemblage richness correlate in areas with primary artifact deposits (such as the enlisted men's tents) but not in the case of secondarily deposited trash. It seems that the trash scatter from a relatively specialized activity (such as feeding officers) contains large quantities of essentially the same things.



So, what have we learned from this exercise in artifact patterns? In particular, what have the photos done for us in interpreting these patterns? In answer to the first question posed at the beginning of this paper, it does appear that differences in artifact frequency occur on the ground correspond with visible activity areas and some artifacts do associate with particular types of activities – or the social groups who did them. Among these are horse-related artifacts, hardware, square cans, round cans, pharmaceutical glass, and wine glass.

However, some of these differences are not as great as we'd expect. For example, the presence of low frequencies of champagne glass across the enlisted men's part of camp suggests that either this item is not exclusively associated with officers, or that perhaps some of the strict separation, both social and spatial, between officers and enlisted men break down even on formal field expeditions. We'll have to devise better ways of testing both of these possibilities. Our next step will be to test these artifact assemblage predictions on the activity areas we work on in the coming seasons. Our "model" of military site artifact patterns needs to be more fine-tuned.

As for our second question, the correlation between artifact densities in the seven activity areas and the presence and absence of policing is so tidy that it is tempting to simplify the matter and conclude that this is the dominant factor at play in the formation of artifact densities at this site. But to do so, would be to ignore the correlation, albeit weaker, between activity intensity and density, since there is a logical correlation between these two. Nonetheless, policing might be useful at other military sites in explaining the differences in artifact densities between civilian and military parts of camp.

Our quest to define factors affecting assemblage richness has left us to conclude that sample size is the most reliable predictor of this at present.

Overall, interpreting the connections between behavior and artifact assemblages is complicated, even with a set of photos! We need a much more precise reading of specific activities that took place in each area, and need to consider the frequency and duration of these activities, and the number of soldiers who participated in them. Fortunately, such information may be available in journals, newspaper accounts, and military records. It is reassuring that when dealing with questions relating to artifact

patterning at historic sites, some factors affecting the assemblages, such as the range and duration of activities and their social and economic context can be partly controlled for through documentary records. The U.S. military is proving to be a fascinating, and we hope productive, arena in which to devise models that predict the formation of artifact patterns.

In summary, we are pleased with the way this project is progressing. This particular study will help us fine-tune our analyses and field efforts. It will also serve to provide information this summer to our PIT volunteers and visitors, and help make the point that having all these little artifacts of the past, and knowing exactly where they came from, can lead to deeper understandings of the people who put them there.

The military is something that most people have had experience with, and the inherent excitement of the history of the military in the West has gotten a wide variety of folks interested in the process of archaeology who might not have otherwise been drawn to the field. In addition, we've been able to involve folks in archaeology who already have an interest in military history. We have a wonderful set of partners in this effort, including metal detectionists from the Trails West Artifact Society and reenactors from Utah's Army of the West. They have proven that you don't need to be an archaeologist to contribute in substantial ways to a project of this kind, and that is one of the great successes of the *Passport in Time* program.