

Throughout our world's history, wars and interpersonal conflicts have been an integral part of the human evolutionary experience. There is ample evidence that such conflicts often occurred in the Old World on a large scale, and this has led to the belief that interpersonal conflict is a very human phenomenon in general. In short, where there are humans, there will be interpersonal conflicts, and populations in the New World were not immune from such conflicts that at times led to war. Indeed, there is archaeological evidence of interpersonal conflict on varying scales, including war, among the great civilizations of Central and South America (Palka 2001). Archaeological evidence of conflict is also apparent in the southwestern and eastern Woodland regions of North America (Brose and Greber 1979; Charles and Buikstra 2006; Dye 2009; LeBlanc 1999; Lee 2004; Mahon 1958; Potter 1968; Squier and Davis 1998). Logically, it would make sense to assume that there was also precontact warfare occurring on the Plains of the United States as well. There are ample tribal oral histories and anthropological reports, as well as archaeological evidence that contribute to the study of Great Plains warfare during both the precontact and postcontact periods.

My goal here is to consider what some of the specific lines of evidence that archaeologists have often used to infer war do and do not tell us about the presence of war on the Northern Plains—particularly the ditches surrounding human settlements, which are widely taken as strong evidence for war (Bamforth 1994;

Ditches or Earthworks

A Reexamination of Fortified Villages on the Upper Missouri River

ALBERT M. LeBEAU III

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Bowers 1992; Caldwell 1964; Denig 1976; Dye 2009; Ewers 1975; Winham et al. 1994; Keeley et al. 2007; Lehmer 1971; Toom 1992; Wood 2001; Zimmerman and Bradley 1993). The assumption that these ditches were solely for fortification has served as the impetus for this chapter, which addresses the following question: is the presence of ditch earthworks primary evidence of prehistoric warfare within the Middle Missouri subarea of the Great Plains?

ARCHAEOLOGICAL ASSESSMENT OF PREHISTORIC WARFARE ON THE MIDDLE MISSOURI

What constitutes archaeological evidence of war? Which artifacts and associated features are indicative of warfare? On the modern battlefield these questions are answered by identifying remnant artifacts used in battle, such as armored vehicles, military planes, and high explosives craters, to name a few. This is not the case when dealing with prehistoric warfare, due to the fact that the tools and weapons used in ancient war in virtually all cases could have served dual purposes. An example of such equifinality exists in the case of projectile points, which could have been used as readily as hunting implements or weapons during interpersonal conflict. Because none of the artifact types known archaeologically from the Great Plains can be interpreted as having an exclusive function as weapons of warfare, archaeologists have been forced to rely on other kinds of evidence. This issue compels one to consider what other elements of the archaeological record may have a similar lack of clarity in terms of purpose and function. For the purposes of this discussion I will look at three criteria for identifying prehistoric warfare:

1. Design and frequency of possibly defensive structures
2. Artifact association/distribution
3. Osteological/Ossuary evidence

Design and Frequency of Ditches

Landscape modification through construction of fortifications has been a time-honored indicator of warfare in historical and archaeological contexts from the Old World. Keeley et al. (2007) suggest that landscape modification that appears defensive in nature was intended to protect the inhabitants from attack. In addition, Dye (2009:7) lists ditches as one of the most important indirect pieces of evidence for warfare. However, ditches *by themselves* are not necessarily fortifications—in many areas, people dug ditches for practical purposes like irrigation or to mark off ceremonial areas. Defensive ditches typically have U- or V-shaped cross-sections, with the earth from the ditch piled on the

inside of the ditch and a palisade constructed along the high point formed by this earth. More complex fortifications have bastions and most fortified sites have some means of restricting access to the site's interior, often, but not always, a baffle gate. (Keeley et al. [2007] discuss all of these features of fortifications in detail.) Even when some combination of these features is present, though, we need to look to the other criteria for warfare mentioned above—fortifications tell us about the potential for violence, not about actual violence.

And even defensive fortifications might possibly reflect reasons for excluding people from a residential area other than war. This is not to say that during the contact period, when early explorers and researchers came to the area, these ditch earthworks were not being used as fortification or at least being used as barriers to mark a separation between the populations inside and outside of the village. It is well-known that trade networks existed before the first non-Native explores came to the area and long before Euroamerican settlers moved into the area. The Middle Missouri was a trade center because of the access to the river and to rare and isolated stone resources such as Knife River flint (Winham and Calabrese 1998:285). Like trade goods, ideas and pathogens may also have traveled along those routes. Depending on their nature, these new ideas or pathogens, rather than physical conflict, may have led to the development and redesign of some walled earthworks.

To explain the causes of warfare, Ember and Ember (1992) found that the fear of unpredictable future natural disasters (e.g., floods, prolonged droughts, and shortened procurement times) in association with population growth will generally lead to war. In this view, the fear of nature and the fear of "Others" play a key role in understanding the beginnings of warfare (Ember and Ember 1992:256). Along these lines, Bamforth (2006) also looks to environmental conditions as contributing factors in the development and construction of fortified villages within the Middle Missouri between AD 900 and 1700, arguing that radiocarbon dates can link the construction of fortifications to climatic conditions; his analysis suggests that walled earthworks were more prevalent in the Middle Missouri region during times of sustained drought (Bamforth 2006). Based on these results, Bamforth suggest a direct correlation between the prevailing climate and the possibility of warfare. The variations of climatic episodes on the Plains are not as dramatic as some other worldwide episodes; however, as we have recently witnessed in the Great Plains, there were drought cycles that lasted a decade (Bamforth 2006). These cycles correlate with the ebb and flow in the construction of walled earthworks.

In the American Southwest, LeBlanc (1999:55–56) attributes these changes to the possibility of warfare. Similar changes can be seen at numerous sites

along the Missouri River, more notably the Sommers site, Fire Heart Creek site, Crow Creek village, and Cattle Oiler site. These sites show evidence of possible decline in use and reoccupation from AD 900 to 1700. In addition to evidence of new earthlodges, the walled earthworks at some sites also show evidence of movement. The latter is most evident at the Double Ditch site. Through the use of geophysical techniques, two additional concentric ditches, found outside of the previously known ditches, have recently been identified. There are two possible explanations for the “quadruple ditch” features. First, the ditches may show contraction (Kvamme 2007:215–216). This does not appear to be due to warfare but was perhaps a reaction to depopulation caused by European-borne diseases, such as smallpox. Alternatively, the multiple ditches at Double Ditch may indicate repeated construction episodes linked to the growth of the village. As more people came to the village site, the old barricade had to be moved and enlarged to accommodate the new arrivals. Again, if we look to the Southwest as an example, this type of population movement may be the result of climatic change and/or conflict (LeBlanc 1999:56–68).

Keeley and his colleagues suggest that the presence of a fortification ditch with bastions is proof positive of warfare and argues further that ditches with V- or U-shaped cross-sections are very strong evidence of war (Keeley et al. 2007). Keeley’s research on Old World and New World archaeological sites has led him and his colleagues to classify certain construction characteristics as clear indicators of defensive fortification. Bastions are fairly widespread in the Dakotas (Lehmer 1971), but they are far from universal: many ditches lack them and they are often absent in postcontact sites, a period when we know that conflict was very common.

Keeley et al. also suggest that the shape of the defensive trenches is a calculated engineering choice designed to prevent penetration of the village, and that by looking to the cross-sections of these ditches, a researcher can distinguish the function as fortification. For example, Keeley suggests if a ditch’s cross-section shows a deep V-shape (> 1 m) with high-angle sidewalls it was intended for fortification, while a ditch with a shallow (< 1 m) trapezoidal profile and low-angle sidewalls is representative of a function other than fortification (Keeley et al. 2007:58). Ditch profiles can be modified by postdepositional erosion and different sediments may lend themselves more readily to a classic defensive shape, but the characteristics Keeley et al. specify are important. Within my research area, ranging from the mouth of the White River to the mouth of the Yellowstone River, the ditch cross-sections show variability between V-shaped and trapezoidal profiles (figure 6.1). Many ditches are indeed V- or U-shaped, but some vary in shape from section to section

(compare, for example, Wood's [1967] ditch profiles in Maps 16 and 17). Some profiles may be altered by erosion, but the diversity of forms nevertheless could suggest multiple reasons for digging ditches.

Heaping the earth from the interior of the ditch and building a palisade in that pile of earth is also strong evidence for a concern with defense. Artificial heaps of earth are more susceptible to erosion than the natural ground surface, and such erosion can eliminate evidence for a palisade. Seeing a palisade also requires excavation sufficiently far into the interior of the site to locate it—at Huff, for example, the palisade appears to have been set a meter or more inside the trench. At this site Wood (1967:54, 57) also documents a second row of posts around a bastion that may be defensive, but notes that neither of the two long excavations of the palisade were wide enough to see if this extended around the entire circumference of the site. With this caution in mind, it remains true that there are sites in the Middle Missouri with ditches but no remaining trace of a palisade (e.g., Fay Tolton; Wood 1976).

We can also consider the frequencies of sites with and without fortifications as evidence for warfare. If ditches are evidentiary proof of conflict, then an area that is relatively densely populated should have an abundance of fortified villages. In the Middle Missouri this is simply not the case. When one looks at the number of villages with ditched earthworks through time, it becomes apparent that there are far more villages without ditch structures. A χ^2 test and a likelihood ratio test were performed, to demonstrate this statistically. Using data that represent a long span of time, it is possible to look for correlations concerning fortification patterns over time and between different traditions and Middle Missouri variants.

The dataset was compiled from an electronic database maintained by the United States Army Corps of Engineers (USACE). The database contained all known archaeological resources within the Omaha District. The Omaha District contains the six mainstem dams that run along the Missouri River. The USACE's GIS database incorporates cultural resources management GPS data for accuracy. Included in this database are different attributes for each site. These include Cultural Affiliation (five categories), Attribute (site number), Site type (three categories), Elevation, Condition, Resource Management, Recommendations, Impact (three categories), Site Name, Project Location (lake location), Lake State, and County.

I queried the database to find all sites that had earthlodge, village, earthlodge village, fortification, fortified village, depressions, dugout, cache pits. I chose to run a query on multiple searches due to the different reporting styles archaeologists have used throughout time on the Missouri River mainstem.

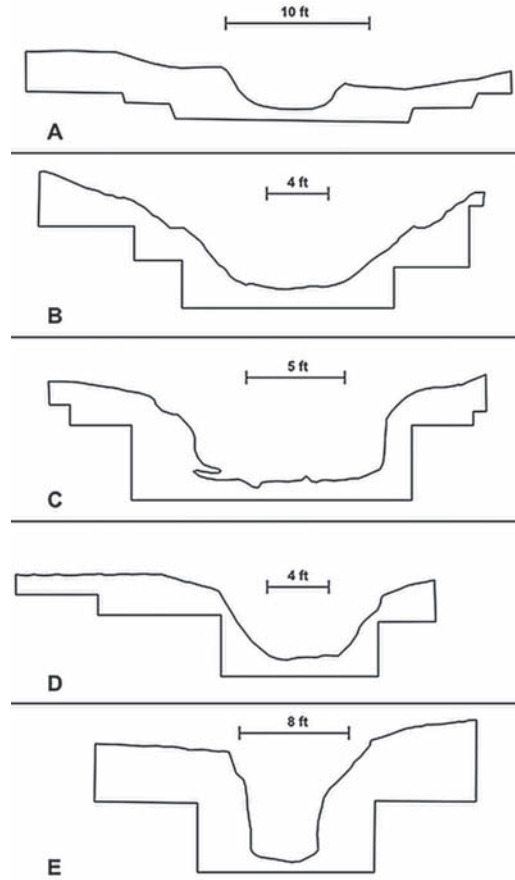


FIGURE 6.1. Profiles of five ditches from villages located along the Missouri River in North and South Dakota: (A) Huff village (after Wood 1961:Map 11); (B) Crow Creek village inner ditch (after Kivett and Jensen 1976:17); (C) Fay Tolton (after Cottier and Cottier 1976:4); (D) Crow Creek village outer ditch (after Kivett and Jensen 1976:17); and (E) Dodd site (after Lehmer 1954:7).

I tried to be all encompassing in my query in order to gain the most data. I copied the results of the query into SPSS.

The null hypothesis for this test states that there is no difference between time period and fortification patterns in the Middle Missouri region (or H_0 : $Vg = Ft$, where Vg = Village and Ft = Fortification). In order to determine what statistical test would be the most appropriate, I ran a crosstabs to check the validity of my data with a chi-square and likelihood ratio test.

With a total number of 579 cases, which were separated into nine categories, the results of the chi-square test show that with a chi-square value of 54.63, degrees of freedom of 8, and the probability value of less than 0.001 ($p < .001$), it is extremely unlikely that the differences noticed are due

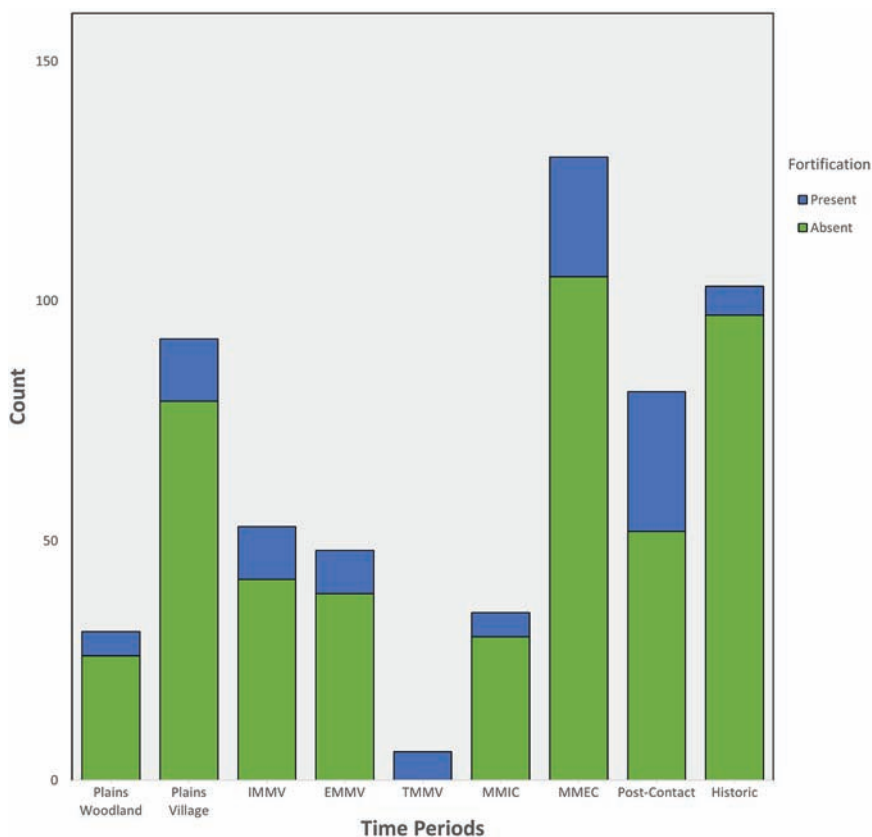


FIGURE 6.2. *Number of sites with and without fortifications by taxonomic unit. IMMV, Initial Middle Missouri Variant; EMMV, Extended Middle Missouri Variant; TMMV, Terminal Middle Missouri Variant; MMIC, Middle Missouri Coalescent; MMEC, Middle Missouri Extended Coalescent.*

the vagaries of sampling. As the graph in figure 6.2 illustrates, there is a disparity between the number of fortified and unfortified villages. When viewing these results one must keep in mind the issues with the dataset as well as the fact that more testing should be done and more analyses using data sources other than the USACE are needed to cross-check the results. But for an archaeologist on the ground, the fact of the matter is there are far more village sites without ditch structures than there are with ditches. Which leads back to the fundamental question: what is the use and function of these earthworks?

Perhaps the answer lies in oral tradition. One of the central figures in Mandan oral tradition is the Lone Man. In one of the stories, Lone Man built a corral made of cedar to protect a village from an oncoming flood. This later turned into a symbol of the village, in which a planked wall made of cottonwoods surrounded a red cedar that symbolized Lone Man (Bowers 2004:113, 161–163). It is possible that this symbol of the village also served as a fortification to protect the village from water and attackers, while symbolizing Mandan oral tradition.

ARTIFACT ASSOCIATION/DISTRIBUTION

Artifact association and distribution are obvious and important indicators of all types of behavioral patterns in the archaeological record, including patterns of conflict. Because prehistoric populations did not make weapons solely for interpersonal conflict per se, the distribution and association of common artifact types should play a relevant role in any interpretation of conflict. For example, if there are numerous projectile points on either side of a ditch, an interpretation of conflict may be warranted (see Keeley [1996:18–19] for an example of this). Conversely, if one finds an abundance of household refuse, such as broken pottery, butchered animal bones, charred seeds, and other broken utensils, this could indicate the ditch was used as a landfill for unwanted refuse.

To test for prehistoric warfare, artifact distribution research was conducted to compare the types of artifacts found within the ditch versus those located inside a house structure. The test was intended to identify a distinction between projectile-point deposition versus other types of chipped-stone artifacts, specifically end scrapers. In general, if one sees a much greater number of projectile points within and around the ditch earthworks than within the house context, one can assume that there may have been some activity requiring the use of projectile points occurring around the ditch. Such a disparity could be considered as evidence of prehistoric warfare.

The first site in this analysis is the Molstad Village (39DW234), which is located on the T2 terrace just above the floodplain of the Missouri River in north-central South Dakota. The site has been dated to AD 1400–1500 (Johnson 2007a:178–181) and is the earliest village within the northern tier of the Middle Missouri to have rectangular rather than circular earthlodges (Hoffman 1967:46). This village has a ditch structure that surrounds the entire settlement, with evidence that a palisade was erected on the village side of the ditch. This analysis focuses on four test units from the original excavations. These are XU 4, which bisects the northern portion of the ditch; XU 1, which

bisects the ditch and palisade at the southern end of the site; Feature 7, which excavated the bastion feature; and house 2, which lies near the center of the village. A comparison of artifact distribution is drawn by looking at these excavations within four key areas of the site (Hoffman 1967).

The second site analyzed is the Fay Tolton site (39ST11). Fay Tolton is located on a T2 terrace ridge overlooking the Missouri River floodplain in the central part of South Dakota. Unlike the Molstad site, the ditch structure does not encompass the entire site. This is most likely due to the location of the site on a toe ridge surrounded by deep drainages on three sides. Therefore, only a single linear ditch was constructed across the toe ridge, perpendicular to the drainages. Also unlike the Molstad site, Fay Tolton does not have a palisade. This analysis focuses on two excavation areas, including the ditch earthwork and House 2 (Wood 1976).

Table 6.1 shows the results of the testing for artifact distribution at Molstad and Fay Tolton. Based on the results of this analysis it is apparent that the ditches contained fewer artifacts, compared to the house contexts. More important, few projectile points were found within or near the ditch structures, which does not support the idea that conflict took place at these locations. Feature 7 at the Molstad site is interesting because the excavation is specifically of the bastion feature. Normally bastions are strongholds within a fortification for defenders to protect the outer side of the wall (Keeley et al. 2007). Feature 7 did have one projectile point but it also contained two end scrapers. One would expect that if the bastion were built for a defensive purpose there would be more projectile points or chipped-stone debitage recovered at the location. Though a formal analysis of debitage was not made, a preliminary look at the data showed limited amounts of chipped-stone debris.

OSTEOLOGY

Osteological and ossuary evidence present a more direct indicator of interpersonal conflict than landscape modification. If the skeletal remains show evidence of blunt-force and/or sharp-force trauma, then it could be more confidently assumed that interpersonal conflict did take place. Once again, researchers have to be cautious of wholesale assumptions relating all evidence of trauma with warfare. There are other explanations for the existence of such evidence, such as human sacrifice, cannibalism, and ancestor worship (Ewers 1975; Bowers 1992 and 2004).

Skeletal evidence of violent death is the most dramatic evidence of warfare, and it is present in the Middle Missouri. However, although it is dramatic, it

TABLE 6.1. Molstad (39DW234) and Fay Tolton (39ST11) artifacts by location

<i>Excavation</i>	<i>Projectile Points</i>	<i>End Scrapers</i>	<i>Total</i>
MOLSTAD (39DW234)			
XU 1 (Ditch)	0	0	0
XU 2 (Ditch)	6	16	22
XU 4 (Ditch)	0	0	0
Feature 7 (Ditch)	1	2	3
House 1	10	22	32
House 2	7	6	13
House 4	1	2	3
House 6	1	2	3
House 7	13	32	45
TOTAL	39	82	121
FAY TOLTON (39ST11)			
Ditch	0	0	0
House 1	6	3	9
House 2	7	4	11
TOTAL	13	7	20

is not widespread. Many communities in this region seem to have disposed of the dead in archaeologically invisible ways, making it difficult to search for osteological data. However, two sites in particular illustrate notable osteological evidence of warfare. The most famous is site 39BF11 (Crow Creek), which contained a mass burial with human remains showing evidence of sharp-force and blunt-force trauma, scalping or trophy-taking, and nutritional deficiencies (Gregg and Gregg 1987; Willey 1990). Human remains deposited within a ditch show clear osteological evidence for interpersonal conflict (Bamforth 1994; Kivett and Jensen 1976; Willey 1990; Zimmerman and Bradley 1993).

The second site is Fay Tolton (39ST11), where bodies on the floor and in open-cache pits of burned houses imply a similar successful attack (Hollimon and Owsley 1994:346–347; Wood 1976; Lehmer 1971). At Fay Tolton, evidence that has been attributed to warfare is based on the discovery of recently deceased individuals lying unburied on the floor of a burned house (one of them with a projectile point embedded in her lower leg) and an individual missing his head and several cervical vertebra who was slumped in an empty cache pit in another house. Past violence at this site is suggested by infected

scalping marks on a child and healed cranial fractures on an adult male (Hollimon and Owsley 1994).

Despite this evidence, the presence of trophy-taking at the site may be overstated. One individual (burial 3) was mostly intact, except that the skull and mandible were missing, which has traditionally been attributed to trophy-taking (Lehmer 1971:101; Butler 1976:29). However, there is an alternative explanation to warfare found in ethnographic sources that may explain the missing skull. The Mandan have clan bundles and these bundles contain fetishes that sometimes include human remains, most notably skulls (Bowers 2004, 1992). Another individual (Burial 1C), was found with both hands missing, once again with an interpretation that suggests that these were trophies. But the lack of butchering marks on the remaining extremities is inconsistent with identified hand removal from other sites. The missing appendages may be the result of postdepositional processes (Hollimon and Owsley 1994:348), although the analysts who identified this pattern think this is unlikely.

DISCUSSIONS AND CONCLUSIONS

The criteria discussed in this chapter were developed to determine what archaeological evidence for prehistoric warfare exists within the Middle Missouri region. There is no doubt that there was war in that region, but considering the multiple lines of evidence examined here shows the limitations on our ability to understand when, where, and why Middle Missouri communities fought one another. The multifunctionality of many of the artifacts that can cause blunt-force and sharp-force trauma, and therefore can be interpreted as weapons of war, precludes the simple reliance on the presence of these items as proof positive of interpersonal conflict. This is true to a lesser extent about the existence of the ditch earthworks, as well as any of the other criteria discussed above. However, when we can see multiple criteria together, it becomes far more reasonable to investigate the possibility further that prehistoric warfare did occur at a particular location. I have shown that there are very few cases where we can do this.

Despite the abundance of land on the Plains, preindustrialized farming is limited to floodplains; consequently, resource limitations and periods of reduced crop yields forced villages to relocate. But the question follows as to what happens when a new population comes into the area? Historically, conflict ensues as competition for resources escalates and this combined with a fear of “Others” can play a significant role in the development of conflict (see Ember and Ember 1992). We know that new populations have moved into the

Middle Missouri repeatedly, including farmers from the central Plains in the 1300s, hunter-gatherers from the Midwest in the 1700s, and Euroamericans from the 1600s onward. In an environment of limited resources, migrations like these can set the stage for conflict. However, we need to look closely at the evidence to see if and when conflict actually occurred, and to keep in mind other kinds of interactions and other ways of solving human problems.

The goal of this chapter is not to dispute the notion that the ditches surrounding some Great Plains villages could have been used for defensive purposes. Instead, the purpose is to assess whether or not the ditches themselves can function as stand-alone evidence to prove that prehistoric warfare took place. Generally speaking, people have always participated in some sort of interpersonal conflict and Ember and Ember (1992), along with Bamforth (2006), may be correct in that the environment often plays a major role in the development of such conflicts. Ditches encircling settled villages are the most obvious evidence that archaeologists have linked to war, but they do not by themselves tell us much about war. People dug ditches for more than one reason, and, even when they dug them for defense, ditch-and-palisade perimeters could take on meanings that went far beyond the simple prospect of violence. Building defenses in anticipation of being attacked is also very different from actually being attacked, and I have shown that there are very few sites in the Middle Missouri where we know attacks occurred. Furthermore, the majority of settled communities in the Middle Missouri do *not* show evidence of fortification, and it is just as important to understand this as to understand sites that do show this evidence.

As with many research problems, the goal is not to answer the question unequivocally but to add to the discussion of the topic. I do think that calling these ditched earthworks “fortifications” is an error in our vocabulary with associated assumptions that archaeologists need to address. Ultimately, we do not know if these ditches were used solely for fortification or if there were other uses, nor what those alternative uses may have been. Based on the study presented herein, if one looks to the artifact distribution the ditches could be interpreted as communal middens. The existing data are skewed due to archaeological techniques used during Smithsonian Institution River Basin Surveys and the fact that research questions beyond simply working out regional culture history were not well developed. At the time that many of these villages were excavated, archaeologists simply felt that there was a need to gather as much information as possible, with the hope that they would be analyzed at a later date. Unfortunately, this is still a work in progress and there are numerous collections awaiting analysis. Going forward, a primary goal needs to be

to conduct this research addressing the kinds of issues discussed in this study.

Ditches could have served a multitude of purposes and I have developed two functional categories that these ditched earthworks could possibly fit. The first is a “social” function. The category encompasses social and ceremonial activities that could be associated with the construction of a group project. We can see these types of social and ceremonial projects occurring in the Scioto River valley of Ohio with Hopewell culture and also with the platform mounds of the Mississippian culture (Neusius and Gross 2007). The second category is “functional” in the utilitarian sense. This category encompasses the practical purposes for having a ditch that surrounds the village. Examples of this could include serving as a borrow pit for earth to construct earthlodges, a drainage system to channel water and/or waste away from the village, a midden to dispose of material waste, or a constructed landscape that would promote growth of certain plants in order to promote the domestication of these types of plants (Neusius and Gross 2007; Bleed 2006).

Perhaps the answers are found in native oral tradition. The Lone Man stories point to one possibility. Of course this is speculative and, in the end, more research is needed to answer the question: What are these ditched earthworks and why did people build them?