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Abstract: During the last twenty-four years archaeologists have proven that we are now able to investigate a previously inaccessible part of the archaeological record: the battlefield. These fields of conflict, once inaccessible due to their nature, have become accessible to archaeologists through the use of metal detectors, the global positioning system (GPS), remote sensing, historical documents, maps, photographs (aerial and period), and the geographic information system (GIS), among the traditional methods used in archaeological research, such as surface surveys and excavation. However, battlefield archaeology’s current scope is limited to those conflicts recorded by history. Is it possible for battlefield archaeologists to cross the threshold from the historic to prehistoric period and investigate North American warfare before European American-American Indian conflicts, the arrival of the gun, or even pre-contact times? In order to determine if this is possible it is necessary to consider the characteristics of the warfare waged in North America and how it varied between regions and through time. Questions about who participated in warfare, what their motivations were for fighting, and what archaeological remains would be indicative of a conflict will need to be considered by battlefield archaeologists. Ultimately, it will be the methods battlefield archaeologists can utilize in their work that will determine just how far into the past warfare in North America can be investigated.
Introduction

Within the last decade or so, ideas about warfare in prehistoric North America have changed from the position that North America was a mostly peaceful, warless continent to a position which acknowledges the presence of warfare as practiced throughout, albeit varying in scale (Pringle 1998:2038). Evidence of North American prehistoric warfare in the archaeological record has not been acknowledged to a great extent until recently because of the ambiguity associated with much of the evidence uncovered at supposed conflict sites. This evidence has been perceived by some to represent warfare while others argue the same evidence represents a different activity. For example, archaeological remains of burned houses in the Southwest region of the United States have been argued as indicative of settlements being attacked. It has also been argued that these remains represent a cultural phenomenon whereby, after an individual dies of natural causes, their residence is burned (Pringle 1998:2039). However, these studies have been confined to settlement sites, greatly skewing our understanding of the nature of prehistoric warfare, since numerous accounts from both European explorers and American Indians themselves describe battles between indigenous groups at locations away from settlements before and during the early contact period. Thirty years ago these sites would not have been sought out for archaeological investigation for a few reasons, some of which are related to the Western understanding of what qualifies as a battle and assumptions about the events which take place afterwards.

The very term ‘battlefield’ tends to conjure up visions of massed armies fighting each other in large, open spaces for a period of less than an hour to several days, months, or even years. When the fighting ends, the dead are removed and/or buried (in some instances), anything of value is gathered up by the victors, and the battlefield is abandoned. The reasons battlefields were not earnestly investigated by archaeologists until about two and a half decades ago stem from assumptions associated with the above mentioned battlefield stereotype. The sheer size of a large, open battlefield would take years to excavate, with no guarantee that anything of interest was left on the battlefield, while the event is perceived as already recorded by history, supposedly leaving little to be learned (Freeman 2001:2). In 1984, however, Dr. Douglas Scott of the National Park Service’s Midwest Archeological Center, University of Calgary graduate student Richard Fox, Jr., and a group of volunteers proved that these assumptions no longer held weight against the methods and tools they employed to
investigate the Little Bighorn National Historic Battlefield site in Montana (Barnard 1998:12-29). The metal detector, being the most invaluables of all the tools used, allowed metal artifacts to be located and collected without the need to excavate the entire battlefield.

Since then there have been many more excavations at other battle sites around the world, collectively spanning almost two thousand years. The most recent literature describing the archaeology of battlefields, a two-volume work titled, *Fields of Conflict: Battlefield Archaeology from the Roman Empire to the Korean War* (Scott et al, 2007), highlights current archaeological work being done at battlefield sites. However, all of the papers within these two volumes deal only with historic-period battlefields. There are two main reasons why battlefield archaeology has not been applied to prehistoric warfare thus far. First, battlefield archaeology was born out of historical archaeology in which historic records, photographs, maps, etc. play a crucial role in the researching and location of sites. Second, the presence of metal on the battlefield is necessary for the metal detector to be applicable and not only allow for the location of sites, but also provides an efficient means of gathering data that is potentially spread over several acres. As one looks further into the past for evidence of warfare, the ability to use both the historic record and metal detector decreases, leaving the battlefield archaeologist without these crucial tools. After all, if a battle has escaped historical documentation and did not involve the use of metallic items, such as the countless battles that took place in North America before European contact, where does one begin looking for evidence, let alone do so with the efficiency the metal detector offered? In this paper I will attempt to bridge the gap between prehistoric and historic warfare in a manner that will allow battlefield archaeology to provide the same kind of insight into prehistoric warfare as it has for historic warfare by considering its applicability to the Eastern and Great Plains regions of North America.

The Eastern and Great Plains regions of North America represent two very different environments which cover a majority of the modern day United States of America (Figure 1). The Eastern region can be further broken down into the North- and Southeastern regions and will be discussed in this paper as separate regions where differences between warfare practices are apparent. The various environments that make up these regions were important factors in the development of tactics, weapons, armor, and defenses utilized for warfare. Although it seems like a logical assumption that tools and techniques used in hunting influenced the practice of warfare, humans are worthy adversaries with reasoning skills beyond that of any deer or
bison and therefore present a challenge which requires more than just the normal tools of the trade used for hunting animals. It became necessary to employ an assortment of weapons, body armor, and/or shields to protect against attacks, and tactics for defensive and offensive maneuvers (Jones 2004; Taylor 2003). By the time Europeans arrived in the Americas, the indigenous groups were no strangers to warfare and were well aware of how to deal with hostile situations (Jones 2004). However, much of the warfare equipment of North America was made from plant and animal resources, meaning its survivability in the archaeological record is limited. The material remains that may be available to identify a battlefield potentially include worked stone, worked animal bone (including antler), shell, human remains, and possibly some hard woods. The possibility also exists that anything brought onto the battlefield made of these materials, such as decorative items or personal possessions, might also survive. Great potential exists for battlefield archaeologists to investigate prehistoric warfare in the Eastern and Great Plains regions of the United States where many of these materials may be present.

Figure 1. Regions discussed in the paper (based on Jones 2004 divisions).

Eastern Region

Covering the entire Atlantic coast and reaching west of the Mississippi to the prairie is the Eastern region. The Northeast region is
composed of the area covering the Great Lakes, New England, and the northern half of the Atlantic seaboard while extending north to the subartic forests of Canada (Jones 2004:47). The Southeast region includes the southern half of the Atlantic seaboard extending west past the confluence of the Missouri and Mississippi Rivers down into northeast Texas and along the Gulf of Mexico. The major land features of this area include the Appalachian Highlands, the Ozark-Ouachita Highlands, and the Interior Low Plateau (Jones 2004:118). Throughout the Eastern region forests, rivers, streams, and lakes cover the landscape with a tropical to temperate climate in the south and a temperate to subartic climate in the north (Jones 2004:47). The climate in the south was perfect for a lifestyle that combined hunting and gathering and horticulture so that such an ideal location promoted rather large populations, which the Europeans noted at initial contact (Jones 2004:118).

Even in such a hospitable location, the groups living in the southeast were not immune to conflict. Two arguments have been put forward to explain the causes of warfare in the Southeast region, one of which is that warfare developed out of competition for land and resources to support increasingly larger populations, which also explains the fortification of permanent villages from 700BCE onwards (Jones 2004:119). Another argument for warfare in the Southeast is that social factors drove warfare, not competition over land. It has been argued that in some groups social status was determined by closeness to the great chiefs, or leaders, by generation, so that a chief’s great grandson was equated with a commoner. In order to regain status, prestige could be earned through battle and/or ritual sacrifice (Gibson 1974:132). Warfare might also be carried out for factors such as revenge, for the defiling of a chiefs' property after a successful enemy attack, and for the capture of prisoners to be used in sacrifice, trade, or as slaves (Gibson 1974:133). Similar arguments are suggested for the Northeast where early evidence of warfare seems to correlate with the development of a horticultural lifestyle (Jones 2004:47). The complete destruction of villages or expulsion of a population from a territory allowed for prestige and territory to be acquired in some instances (Keener 1999:788). Revenge wars also occurred in the Northeast, one such example coming from the matrilineal/matrilocal Iroquois society where women initiated ‘mourning wars’ by requesting their husband attack an enemy to avenge the death of a kinsman (Jones 2004:48).

The Eastern region of North America provides a clear example of just how advanced indigenous weaponry and defense systems were when the Europeans encountered them for the first time. In the
Southeast, there are accounts describing forces divided into squadrons for complex attack and defensive maneuvers (Jones 2004:124). The movements of these squadrons were directed by flags, whistles, stylized shouts, and drums. Also, fire was often used to create smoke screens which could be used in conjunction with an attack or retreat, but also to destroy enemy structures and palisades. During early conflicts between the Spanish and American Indian groups, some American Indian groups allied to confront the Spanish, and used tactics to draw the Spanish toward them so that groups in reserve could attack the Spanish from the rear (Jones 2004:125).

In the Northeast, battlefield tactics were equally advanced and groups often used the ‘line battle’ technique. For example, the Mohawks and Iroquois would form a single line when meeting their enemy, who would also be standing in a line (Jones 2004:49). The opposing forces would taunt and coerce each other to battle, followed by an exchange of arrow fire and then hand-to-hand combat. Other tactics were used besides the battle line, usually involving the exploitation of cover. In such instances where formal battle was not taking place, groups tended to fire arrows on the enemy while moving from cover to cover, presenting their enemy with multiple moving targets. Such maneuvers allowed them to outflank their enemies and envelope them in a horseshoe formation. It is believed that this type of tactic was used to push the enemy to withdraw and hopefully prevent high-casualty rates as a result of forcing the enemy into a fight to the death (Jones 2004:49). When groups were ambushed away from fortified settlement sites, they would sometimes erect hastily-built defenses known as breastworks or entrench themselves in rapidly excavated foxholes in an attempt to defend themselves (Jones 2004:56-7).

Great Plains Region

The Great Plains region of North America covers some one million square miles in area from Canada to Texas, west to the Rocky Mountains and east to the eastern edges of Nebraska, Kansas, North and South Dakota, and part of Oklahoma (Taylor 2003:62). This large area offers a diverse climate with unpredictable and unexpected changes in the weather (Taylor 2003:63). At times, the weather on the Plains can be very harsh, so it comes as no surprise that arguments for warfare on the Plains have focused on environmental factors and their potential impact on resources such as food and water. For example, Douglas Bamforth (2006) points to a shift in climatic conditions in
which a warm and wet ‘Atlantic interval’ between 900CE and 1250CE was replaced by a cooler and drier ‘Pacific interval’ from 1250CE to 1450CE which may have caused food shortages among horticulturalists living in the Middle Missouri region of the northern Great Plains. Also at this time, competition for these resources from other groups who were migrating north from the Central Plains is evidenced by the Crow Creek massacre site in central South Dakota, indicating this was not a peaceful period (Bamforth 2006:67). There seems to be some connection between weather patterns and periods of increased warfare which might be useful for determining when in the archaeological record battlefields might be more prevalent.

When considering warfare on the Great Plains in more recent times, it is important to keep in mind that the nineteenth century Great Plains were inhabited by some American Indian groups not originally from this region. These groups found their way onto the Plains as a result of westward expansion by European Americans and conflict with other American Indian groups (Bamforth 1994; Taylor 2003). These migrations need to be considered because of the implications they have for the way these non-indigenous groups engaged in warfare. For instance, tactics and weapons associated with groups occupying forested areas were different from those one would expect to see being used by traditional Plains groups. This process of native groups being evicted and forced to migrate into territories claimed by other groups most likely increased the amount of conflict over resources and territorial size occurring during this time (Bamforth 1994). It can be speculated then, that as populations on the Plains increased, the opportunities for conflict between groups in the region would have increased, and by association, the archaeological evidence of battles should also have increased.

During the post-contact period, the Great Plains region was defined by change, including changes in technology that were introduced by the Europeans. The Plains were undergoing drastic changes during this time as a result of the influx of new cultures, weapons, changing tactics, and increased competition for the same resources. This technological transition on the Plains began at opposite ends of the Plains and can be broken down into four periods: pre-horse, pre-gun; post-horse, pre-gun; pre-horse, post-gun; and post-horse, post-gun (Secoy 1992). These phases will be examined briefly, but as a side note, any conflict involving firearms or metal projectile points and resulting in the deposition of these metal projectiles into the ground, is accessible with the metal detector and within reach of current battlefield archaeological practice. All that is required in such
instances is a good idea of where to search and the ability to interpret the archaeological signature of the site as conflict or non-conflict related. The most pertinent phase with regard to this paper is the pre-horse/pre-gun phase, which will be discussed in detail last.

The first transitional phase, the post-horse, pre-gun phase, is seen on the Southern Plains. The horse was first introduced to the Plains from the south by the Spanish and not from the north by the French or English, partly because of the environments of these two areas, the Southern Plains having better grasses and also offering a much better breeding ground for horses (Secoy 1992:2-3). The main reason the gun was not also first introduced to the Plains from the south is because although the Spanish had firearms with them, they did not intend to provide the indigenous groups with technology which could be turned against the Spanish forces who planned to conquer and subjugate their native hosts. Therefore, in this case, firearms were not voluntarily distributed among native groups (Secoy 1992:3). According to early historical accounts, the Apache of the Southern Plains appear to have been the first Plains group to acquire and use horses (Secoy 1992:6). The Northern Shoshone and the Comanche were two other groups who acquired the horse early on (Biolisi 1984:143). Around 1630CE, the horse frontier consisted of a relatively small region in central present-day New Mexico, but by 1710CE the horse could be found at the present-day border between Canada and the United States along the Rocky Mountains, the Great Basin, the Southern Plains, the western half of the Central Plains, and the westernmost portion of the Northern Plains (Secoy 1992:104-5).

Opposite the second phase was the third phase of post-gun, pre-horse on the Northern Plains. As a direct result of the fur trade in the Great Lakes region with the French and English, American Indian groups were able to acquire guns in mass quantities. The European parties involved were only concerned with collecting furs and pelts to be exported back to Europe and, lacking direct ties to the governments of their respective countries, cared little about preventing native groups from obtaining firearms (Secoy 1992:3). In 1675CE, the gun frontier was centered on the Great Lakes and the Northeast and did not extend past present-day Illinois. By 1710CE, the gun was just outside the Great Plains (Secoy 1992:104-5).

One account of a battle which took place between an American Indian group with guns and one without is found in the Cheyenne’s account of their first battle on the Plains. In the account, the Cheyenne went out to hunt bison and met a group of Assiniboines who were also after the same herd, which started a dispute. During the
spread themselves into a single line facing each other, just within arrow range. After much exchange of arrow fire, the fighting ended with nightfall, and the battle was deemed a draw with no one killed and only a few wounded. No attempt was made by either group to move closer to their enemy during the battle since the forces were almost equal and any approach would have presumably been countered by a rain of arrows (Taylor 2003:66).

Another account of a battle which took place on the Southern Plains before the horse and gun comes from the members of the Spanish Oñate expedition in the early 1600s CE (Taylor 2003:67). In this battle, an Apache force of around fifteen hundred warriors attacked a much smaller force of presumably Wichita. Similar to the tactics used on the Northern Plains, the Apache spread into a single line, but the size of their force allowed for a concaving maneuver of the line so that the smaller Wichita force became surrounded and was showered by Apache arrows. The battle ended with an Apache victory and no Wichita survivors (Taylor 2003:67). No account is provided concerning how the Wichita force tried to defend themselves against the Apaches, but accounts of defensive maneuvers on the Plains during similar situations are known.

Accounts are also known of forest tactics being employed on the Plains by groups originally from the Mississippi area, east of the Plains. The Cheyenne and Teton Sioux were two such groups who were more accustomed to employing tactics of scattering upon confrontation with an enemy, individually finding cover, and supporting each other by fire. One account refers to a battle along these lines between a Cree war-party, adapted to Plains warfare, and a Teton Sioux war-party, recently removed from the eastern forested areas (Taylor 2003:71). The Sioux made an attack on the rear of the Cree war-party and soon found themselves overwhelmed and retreated to an isolated wood where their forest tactics allowed them to hold off the Cree attackers until nightfall (Taylor 2003:71-3).

Similar to the northeast region, in instances where a Plains group was outnumbered and exposed, they would excavate foxholes about a meter deep with the hope that such a position could offer defense and also be easily defended. An account referring to the use of this tactic describes a group of Blackfeet raiders who were being pursued by a superior enemy, and finding nowhere to escape to, would dig holes, and if stones were available, erect a small stone fort around their hole and defend the position until their ammunition ran out. A similar tactic was to excavate the floor of a tipi to create a shallow trench, push the loose soil to the edges of the tipi, and create a
protective earthen bench. The individual inside the tipi could see the enemy under the tipi’s edges and shoot under and through the tipi at the enemy, using the tipi as a visual blind against the attackers (Jones 2004:33).

*Indicators of Prehistoric Warfare*

Locating a battlefield not associated with any kind of settlement proves to be a difficult task at present, and although technology has advanced greatly since the invention of the metal detector, we may find ourselves waiting for an invention of similar utility which can locate chipped stone tools, such as projectile points, and offer an efficient means of site identification and collection as seen in the metal detector. Unlike locating bullets with a metal detector and choosing a sample to recover and study, locating projectile points and other remains from a prehistoric battle will require the excavation of test units, presuming one has a promising starting point. I argue here that if this starting point can be found, it is in fact possible, albeit slightly more expensive, to study a prehistoric battlefield archaeologically.

While scanning the archaeological record for evidence of conflict, there are several “indicators” which can denote a conflict and that one might expect to find no matter where or when that conflict took place. These indicators can be inferred from conflict simply because of the nature of warfare. Conflicts tend to result in injury and death, they occur between groups (with at least one side attacking), they typically involve the use of weapons and sometimes defensive equipment, and will leave some kind of signature in the archaeological record, however slight. The indicators to be discussed, therefore, are the presence of human remains showing signs of death by traumatic event, evidence of weapons or defensive equipment, and spatial patterning indicative of a battle.

The first indicator is perhaps the most relevant from an anthropological perspective, the human presence. The human skeleton can provide information related to a person’s life story and, if well-preserved, can highlight important aspects of that individual’s life including activities they were involved in, whether they suffered from any illnesses or diseases, if they were well-fed or starved, if they recovered from injuries or surgeries (sometimes the cause of their death), and in some cases whether the individual may have died in a traumatic event, such as a battle.
When considering the likelihood of locating bodies on a battlefield it is necessary to take into account burial practices of the participants, whether or not there was any removal of the dead after a battle for burial, or as in the case of the Middle Missouri Tradition, placed on scaffolding and allowed to decompose instead of interring the remains (Bamforth 2006:76). It is important to keep in mind that different kinds of mortuary practices occurred in the event that the archaeological evidence suggests a battle occurred at a site but no human remains are to be found. In the northeast, the Iroquois did not bury those killed in conflict or otherwise violent deaths with the rest of their dead in the village cemetery since they believed the spirits of the slain spend eternity seeking vengeance and their anger might disturb the peace of the other spirits (Jones 2004:63). Unfortunately, no statistics exist which might indicate the likelihood that human remains will be recovered from a prehistoric battlefield. It is probably safe to assume, however, the victors had time to take care of their dead, while the defeated may have had to wait an unspecified amount of time before they could deal with their own dead. In the event a defeated group was slaughtered with no survivors or could not return to the battle site, one would expect any casualties of the defeated group to still be present on the battlefield, assuming they were not carried off by scavenging animals or desecrated by victors.

If human remains are recovered from a site which may potentially be a battlefield, it would be beneficial to have an understanding of what certain kinds of trauma look like on human remains. In a recently published article, George Milner (2005) considered the potential for understanding prehistoric warfare by examining nineteenth-century arrow wounds. Although projectile point design changed over time and varied by region and/or group, the characteristics associated with wounds created by arrows would not have changed greatly. Milner holds this factor as a constant throughout the changing face of warfare on the Plains and comes to some interesting conclusions after studying the bones of victims and survivors of arrow wounds and taking into account more recent warfare in Papua New Guinea. One conclusion Milner was able to make from his study is that a majority of the people from his mid- to late nineteenth century Indian Wars sample survived the wounds they received from arrows (Milner 2005:146). He suggests that of the evidence for projectile injuries from 500BCE onward, almost all injuries were caused by arrows and not spears (Milner 2005:148). Milner believes that survival rates of arrow wounds in prehistoric times were probably similar to those seen during the Indian Wars and that
evidence of these wounds on the bones of survivors might not be visible if allowed to heal properly (Milner 2005:148-152). Although this information is helpful in understanding the potential numbers of individuals directly affected by warfare, if one is able to locate bodies on a battlefield, wounds received during the battle should be visible granted that environmental factors have not erased this evidence from the bones. Also, skulls sometimes show signs of scalping, a process in which a chunk of the scalp is cut from the skull and taken as a trophy (Taylor 2003:64). In some instances, the bodies of the slain were mutilated in other ways including cutting off the head, hands, and feet or smashing the face in with a club (Bamforth 1994:101).

When examining a battlefield in which bodies are found it is important to consider the possibility that not all individuals who participated were male. It is known historically that on the Great Plains females were sometimes active participants in battles and on occasion led war parties of males (Taylor 2003; Bruhns and Stothert 1999). At times, females joined war parties seeking revenge for the death of a husband or male kinsman (Bruhns and Stothert 1999:249). Based on ethnographic accounts, however, it does not appear that females of Plains groups were involved in the assault portion of warfare until the appearance of the horse freed them of much of their duty as burden carriers (Taylor 2003). Before females were actively participating in war parties, historic accounts tell of the females in the group being responsible for erecting earthworks with their digging tools, since they were the ones who worked with the soil as farmers and had the most experience moving dirt. A French trader named Tabeau related such an account in the eighteenth century of Arikara and Pawnee women being responsible for the digging of defensive embankments around their settlements in the Middle Missouri region (Jones 2004:7). Not as much is known about female participation in warfare in the Eastern region, but some early historic accounts refer to females firing arrows over the shoulders of male individuals who protected them with leather shields, this practice coming from the vicinity of modern-day North Carolina (Jones 2004:136).

Archaeologically, at least in the Great Plains, this would suggest female skeletons would most likely be absent at pre-horse battle sites that were not focused on settlements. Such evidence would typically be found within or nearby a settlement that was attacked. Thereafter females may be found at battle sites away from settlements, but no accounts of a female dying in a battle during this period are currently known. Whether any females in the Eastern region were killed in battle and left on the battlefield also remains to be seen.
Although human remains may be able to tell us a lot about conflict in the past, their availability for study will ultimately depend on the Native American Graves Protection and Repatriation Act. Pending whether cultural affiliation of the remains can be determined, and what American Indian groups will be involved, recovered human remains may not be accessible for study. In such cases where remains may not be available for study, context alone may provide enough evidence for conflict given the site is not a settlement. This evidence will be strengthened through the presence of other conflict-related artifacts to be discussed below.

The presence of weaponry is another important indicator, since it is a critical component of conflict. Throughout humankind’s existence, tools have played an important role in human adaptation to an environment. Some of these tools are designed with intent to harm or kill, while other tools are designed for a different function but employed for similar purposes out of necessity. This means that potentially any object which can be swung or thrown might be used as a weapon no matter the time period. Weapons can be ambiguous because of their nature. For example, something as simple as a rock, picked up during a battle, might be employed with intent to harm, becoming a weapon in the process and an indicator of the conflict. However, such a weapon will probably pass unnoticed since it will not offer any indication of having served such a purpose, except in the most obvious cases. For the purposes of this paper, however, only those tools whose primary function was to harm or kill people in a conflict setting will be considered. Lawrence Keeley (1996) breaks down weapons into three types: fire (missile), shock, and chemical. The fire, or projectile, system includes such weapons as arrows, darts, pellets, stones, and javelins. The shock, or contact, system includes such weapons as swords, axes, lances, and clubs. The chemical weapon system, generally rare, utilized certain substances which could cause burning or direct poisoning (Keeley 1996:49). For the most part, only the first two systems will be of any interest archaeologically, as finding evidence of chemical usage will be difficult without some guidance as to what to look for.

In the Eastern region, as throughout most of North America, the bow and arrow was used in hunting and warfare (Jones 2004; Taylor 2003). The size, shape, and manufacture of bows varied between regions and groups within regions so that an understanding of the types of bows used in the area being investigated would be helpful in determining and identifying the material remains, if any, found on the battlefield. The Spaniards who traveled through the Southeast
region found that the bow and arrow there had deadly accuracy up to 200 paces (Jones 2004:121). The metal armor worn by the Spaniards often failed against the bows and antler tipped arrows of Southeast groups (Jones 2004:141). As a side note, measurements of weapon range may be utilized in locating positions taken up by participants since it can be assumed participants using bows and arrows would try to keep their target just within arrow range while hoping they themselves were out of range. The material that tipped prehistoric arrows in the Eastern region varied. In the Northeast, copper was available in large quantities and was sometimes used to make projectile points even before European contact (Jones 2004:48), which offers great potential for metal detector application at a prehistoric battlefield, but the extent or commonality of copper arrowheads is not known. Antler tipped arrows were much more commonly used than flint because stone points tend to shatter or stick into armor rather than pierce through it (Jones 2004:142). Sometimes these arrows were made more deadly by applying poison to the projectile point tips, a practice known in the Northeast but not the Southeast. Fire arrows were used throughout the Eastern region, especially against fortified settlements (Jones 2004).

Other weapons used in conflict have been documented or found in the Eastern region. The Susquehanna Indians of the Southeast are known to have used war clubs with a deer antler stuck through one end, resembling a pick axe (Jones 2004:121). A Spanish account from 1540CE describes warrior statues outside a temple in a village in modern-day Georgia. These statues held various weapons including maces, wooden broadswords, battle axes, pikes with copper points, bows and arrows, and two-part clubs connected with a swivel (Jones 2004:120). Father Joseph François Lafitau described Northeastern weapons as including: bows and arrows, war clubs, and thrusting spears (Jones 2004:48). Knives of stone, bone, or cane, along with atlatls, which are sticks used in launching darts and spears, have been found at archaeological sites in Florida, Tennessee, and Arkansas, although they are not very common. Slings have also been documented in the Southeast (Jones 2004:122). There are even accounts of the Timucuan warriors of Florida filing down their fingernails and toenails to points which were used to cut and scrape the enemy’s face so that blood would pour into their eyes and blind them (Jones 2004:123). Of course, this particular weapon will not survive long in the archaeological record, but it is interesting to note.

The bow and arrow have already been discussed above as a key component to Plains warfare both in historic and prehistoric times.
Little more needs to be said here except that certain bows offered a weapon advantage of distance over those of other groups. Other weapons taken into combat on the pre-gun Plains include clubs, lances, spears, knives, ropes, and sometimes slings (Taylor 2003; Jones 2004) Most of these weapons were made of organic material, meaning the remains of bows, arrow shafts, clubs, lances, ropes, and slings will most likely be absent from the archaeological record or highly corroded. The most survivable evidence left to us of prehistoric conflict will be lithic in nature, such as projectile points, knife blades, and the stone head of some types of clubs.

A third indicator of conflict is the presence of armor, shields, or other defensive equipment. The use of body armor is not a recent practice and may extend back as far as the earliest forms of warfare. In the Eastern region, body armor came in a few different forms. For example, some groups in the Northeast used wood or reeds woven into breastplates, thigh, and arm guards (Jones 2004:58-9). Some groups, such as the Iroquois and Lenape wore helmets with or without other body armor (Jones 2004:60). Shields were also used and vary in size, shape, and material. Some shields were made of rawhide, others of bark or wood; sometimes these were covered with animal skins (Jones 2004:57). Some groups preferred small round shields which the Europeans likened to bucklers, while other groups used long rectangular shields which could almost completely cover a person, but other sizes of shields existed as well (Jones 2004:57-8).

Southeastern defense equipment was similar to that found in the Northeast, but early historic accounts seem to indicate that body armor was not used very often, and that helmets were rare (Jones 2004:137). Shields were much more prevalent and made in similar fashion to those found in the Northeast. Often they were made of rawhide, strips of bark, or split cane, woven into a wickerwork shield (Jones 2004:135).

The use of shields on the Plains is known from historic accounts and from pictographs and petroglyphs. These early depictions portray pedestrian warriors holding large shields, which were made of rawhide, and wearing elaborate headgear such as buffalo horns (Taylor 2003:65). Like bows, shields came in all shapes, sizes, material, and construction varying between groups, but it is probably safe to say these shields were constructed using only organic materials (Jones 2004:9-10). Early historic accounts of indigenous body armor come from Lewis and Clark who described the Shoshone, near the Missouri River, as wearing a kind of armor made from folds of dressed antelope skins which were glued together and covered in sand (Taylor 2003:65).
Other accounts describe jackets made from moosehide serving as body armor (Jones 2004:38). With the appearance of the horse, the use of body armor expanded to include protecting horses, as well as their riders, from arrows (Taylor 2003:65). Some groups, such as the Iowa, wore leather headcovers or turbans, in addition to body armor, which served as helmets to protect against blows from the war club (Jones 2004:11). Because organic material was the main component in the above mentioned defensive equipment, it is not beyond reason to consider that the archaeological remains of these materials will be found lacking. Perhaps a rare find would be the buffalo horns from a headdress, but one would expect such an item to be taken by the victors as a trophy.

One final indicator of conflict to be discussed here is the presence of defenses at a site. I argue here that settlements, and the defenses which sometimes surround them, should be considered as potential battlefields and within the realm of consideration by battlefield archaeologists. Settlements are the best place to begin searching for evidence of conflict since they are not random locations somewhere out in the forest or on the prairie like the battlefields mentioned above. Also, a settlement is much more likely to be discovered than a prehistoric battlefield site through the traditional methods of archaeology.

In the Eastern region of North America, prehistoric fortifications could be found throughout, which is not too surprising, given that the necessary building materials of earth, wood, and stone were easily attainable. In the Southeast, fortified settlements began appearing sometime during the Late Woodland period, around 600CE to 1000CE (Jones 2004:125). In the Northeast, the appearance of fortified sites began sometime between 1000CE and 1300CE (Jones 2004:50). Both the Northeast and Southeast regions had very similar fortified sites (Jones 2004:125-135). These early sites were usually placed on defendable hilltops, sometimes near a stream or river, and surrounded by earthworks and/or a wooden palisade (Jones 2004:50-1). The Iroquois in particular preferred establishing settlements at sites where streams or rivers looped, providing them with a natural moat (Jones 2004:52). How relevant this sort of information would be to the archaeologist trying to locate a site will depend on how much a river or stream has changed its course since the initial establishment of the settlement site.

Some of these fortified sites even boasted multiple palisades, bastions, and watchtowers (Jones 2004). One account of an attack on such a fort during the early historic period comes from the explorer
Samuel de Champlain, who attacked an Oneida fortified settlement with his American Indian allies, the Huron, Algonquin, and Montagnais in the summer of 1615CE (Jones 2004:50-1). The Oneida fort had four concentric palisades with ramparts, from which defenders fired arrows and threw stones, and a gutter system for extinguishing fires set to the outer palisade. When the American Indian allies' attacks failed, Champlain tried a couple European tactics: the use of mantelets and cavalier. The mantelets, or large wooden shields, allowed the attackers to get close to the walls while the cavalier, a tower constructed to be just taller than the palisades, offered a position from which the attackers could fire upon the defenders with muskets. Neither tactic worked against the Oneida and a wounded Champlain and allies retreated after their unsuccessful attack (Jones 2004:51). The most common tactics known for attacking these fortified settlements before European contact were to set fire to the palisade or try to undermine it in order to breach the defenses (Jones 2004:49).

On the Great Plains, evidence indicating settlements were attacked is not lacking and Douglas Bamforth (1994) describes two such sites in which human skeletons showing signs of mutilation and traumatic death were recovered inside the boundaries of house structures, and in association with the charred remains of those structures, indicating the houses were burned after the inhabitants were killed. Accounts from the Arikara describe some of the tactics which would explain this archaeological evidence. When their settlement's defenses were breached, the Arikara would retreat to their houses, and the most capable fighters would take up defensive positions near the doorway and try to defend the others in the house (Bamforth 1994:101).

Perhaps the best example of a battle taking place at a prehistoric settlement on the Plains is the Crow Creek site in South Dakota. Some four hundred eighty-six inhabitants of the site were killed and, after a period of exposure, their remains were dumped into a section of the outer fortification ditch (Willey 1990; Bamforth 1994). Excavations at the site indicate that at the time the settlement was originally established a ditch and palisade encircled the settlement. At some point thereafter people started building houses outside the palisade, which is believed to indicate that peace was more prevalent for a time. Hostilities must have increased, though, because a second ditch and palisade system was being constructed around the outlying houses when the site was attacked and its inhabitants killed (Willey 1990; Bamforth 1994). Settlements like the Crow Creek site were easily targeted because of their stationary nature, but this does not
mean semi-nomadic groups were immune from attack. For example, it is known that the Shoshones would travel around in large war parties searching for smaller enemy camps to attack, typically resulting in the males of the enemy camp being slain on site and the women and children being taken captive (McGinnis 1990:8).

Discussion

Context is very important to battlefield archaeologists in understanding where a battle took place and how it progressed. By marking the locations and types of bullets and other battle-related remains recovered from historic period battle sites, the archaeologist is able to discern patterns on the landscape indicating the general boundaries of the battlefield, where people were located on the battlefield, where those people were firing toward during the battle, and where the majority of the fighting took place. I believe similar patterns may be discernible at prehistoric battle sites. Consider if a settlement was attacked by people armed with bows and arrows; one would expect that a proportion of the attacking groups’ arrows would miss their intended targets and become lodged in the ground. If that settlement was abandoned thereafter, or the attacking group was successfully driven off, some of the arrowheads should remain in situ from the attack, although scavenging for reusable points may decrease the strength of the signature. By simply noting the direction an arrowhead is facing, one could visualize the direction it was headed and also the general direction from whence it came. Now consider if the individuals in the settlement were also armed with bows and arrows and returned fire, a proportion of these arrows might also be left untouched so that one can speculate the locations taken up by the attacking group. This information would allow a much better understanding of the tactics involved in attacking a settlement and perhaps even hint at the battle’s progression. One might question whether projectile points could be used to determine directionality with the effects of erosion or farming moving them around, but it is my belief that a statistically significant proportion of these projectile points will retain their original directionality as long as a site has not been heavily collected or modified. Perhaps this hypothesis will be investigated through experimental archaeology and provide evidence for the long-term effects on projectile points and the determinants for retaining original directionality.

Recalling accounts of pre-gun and pre-horse warfare above, assuming at least a proportion of the arrows fired during a battle
remained at the site, a spatial pattern should be discernible which would indicate the locations of the groups based on the arrowheads and their directionality. Figure 2 depicts how the Piegan v. Shoshone battle may appear archaeologically.

Figure 2. Proposed archaeological signature for the battle between Piegans and Shoshone, around 1725CE.

In the account of the maneuver by the Apache to surround the smaller Wichita group, one might expect a high percentage of arrows to be initially pointing toward one direction as the attacking force approached in a single line. This percentage would decrease with encirclement taking place, taking into account arrows coming from multiple directions, which should be reflected in the archaeological record (Figure 3).
In order to study these prehistoric battlefields, battlefield archaeologists will have to alter their toolkit slightly. Early historical accounts can be used initially to determine the nature of prehistoric warfare, account for what a battlefield looked like, and help the archaeologist understand what to expect in terms of archaeological evidence. Ethnography and cross-cultural studies may be employed where historic accounts are found to be lacking as one moves further back in time. Environmental conditions should also be considered for their influence on activities such as warfare. Ground penetrating radar, magnetometry, and resistivity techniques may still be potentially useful, especially if foxholes are present at a battlefield, where such techniques can be used to locate said features. Instead of maps, archaeologists will need to look to oral tradition which can offer clues as to a battlefield’s location in relation to rivers, mountains, or other features which may still be visible. Phosphate level tests have been used at sites thought to be battlefields, such as Cerro San Miguel in Mexico, with the understanding that high calcium phosphate levels indicate skeletal remains are, or once were, present at the site (Haecker
et al 2007). These tests can be applied in hopes of locating the resting places of casualties of battle. Protein residue analysis may also be used to determine whether any artifacts test positive for human protein, which might suggest they once had human blood on them, strengthening a battle site claim. The metal detector, which in many ways has become a symbol of battlefield archaeology, will have to be laid aside for any project earlier than the appearance of non-decorative, metallic weaponry on the battlefield. This modified toolkit should provide battlefield archaeologists with a good foundation from which to start searching for prehistoric battlefields.

Conclusion

In this paper, I have presented the evidence for prehistoric warfare in the Eastern and Great Plains regions of North America, while taking into consideration what remains might be left for the archaeologist to find. This was done in an attempt to determine whether battlefield archaeology currently has the tools to investigate battle sites from prehistory or those not recorded historically. The fact remains that many more conflicts have taken place in the world than we will ever be able to find evidence for historically or archaeologically. Although evidence of many conflicts has not stood the test of time, this should not deter us from searching for such evidence. The information we do have available to us in the form of early historical accounts of warfare in these regions of North America has the potential to be investigated archaeologically. Certainly any battle in which firearms were used would be easily located with the current technology. Pre-gun battle sites without any historical account, however, may prove a more substantial challenge. This task has been made more difficult knowing that weapons such as the bow and arrow were used against both human and animal, meaning a field littered with projectile points may just as easily be a hunting ground site as a human conflict site. This confusion may be cleared by analyzing projectile points, as there is evidence some projectile points were designed in such a way as to allow them to slip easily from their haft, leaving them in the victim, while projectile points used in hunting were designed to be recovered and reused (Keeley 1996:54). One would also expect that a hunting ground might present a large amount of faunal, instead of human, remains as well as a different spatial patterning of artifacts. The most promising prehistoric battlefield should be found in conjunction with a settlement. Searching the immediate vicinity of settlement sites, which are much more easily located and identified, should offer evidence of
tactics that were employed. If primary accounts of warfare from the early contact period can be used to investigate earlier traditions in warfare, then reading a prehistoric battlefield should be, in theory, within the reach of battlefield archaeology. All that is required now is a good lead.

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