INDIGENOUS PEOPLE, INDIGENOUS VIOLENCE: PRECONTACT WARFARE ON THE NORTH AMERICAN GREAT PLAINS

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Anthropologists have recently focused on the relation between high-casualty tribal warfare and Western contact, arguing that such contact greatly increases the scale and intensity of such warfare, and frequently citing ethnographic data from the North American Great Plains in support of this conclusion. However, archaeological data suggest that high casualty warfare was endemic in at least some parts of the Great Plains for hundreds of years prior to Western contact and indicate that this warfare developed in response to indigenous cultural-ecological processes rooted in unpredictable environmental fluctuations and a population/resource imbalance. This article summarizes the evidence supporting these conclusions and considers the implications of the Plains example for our general understanding of the conditions under which tribal warfare develops.

The past decade has seen a tremendous increase in anthropological, archaeological and historical interest in the effects of European colonization on indigenous peoples, an increase inspired partly (at least in North America) by the five hundredth anniversary of Columbus's first voyage to the Americas. A major result of this interest has been to deepen our understanding of the degree to which European contact devastated indigenous ways of life and of the rapidity with which this devastation occurred in many cases (see, for example, Rogers & Wilson 1993; Ramenovsky 1987). The implications of this deepened understanding for our ability to use post-contact information to reconstruct precontact ways of life are clear: such reconstructions must be made cautiously, taking contact period processes explicitly into account.

Warfare among tribal societies is one of the many aspects of indigenous life which anthropologists have examined in this context. Traditionally, anthropology has viewed warfare, particularly high-casualty warfare which is intended to acquire territory and/or destroy enemy populations and is often accompanied by mutilation of the bodies of the vanquished (including scalping, taking of trophy heads, and removal of other body parts), as an integral component of tribal life, with its roots generally seen as lying in ecological circumstances (see, for example, Durham 1976; Harris 1984; Shankman 1991; Vayda 1976). More recently, though, several authors (Blick 1988; Ferguson

1992; Ferguson & Whitehead 1992; Ross 1984) have shown that there are strong relations between expanding state-level societies, primarily Western state-level societies, and warfare involving the tribal groups which such societies contact.

States disrupt existing economic and political networks (often intentionally), displace local populations, recruit local peoples as scouts and mercenaries, introduce new species of plants and animals which often fundamentally change the natural environment, reduce native populations by disease, and introduce new trade items which are usually unevenly distributed in space, creating inequities in access to them among different tribal groups. Re-examinations of records of warfare in most of the classic anthropological cases of tribal war, including the Yanomamo and Jivaro of South America, the Maori of New Zealand, the Dani and other groups of New Guinea, and the Iroquois and the Plains tribes of North America, have identified one or more of these disruptions at work, demonstrating the importance of contact period processes in structuring post-contact tribal conflict.

These re-examinations indicate clearly that the oft-held view that Western contact in particular results in the pacification of tribal peoples is incorrect, at least for the earlier periods of contact: when pacification occurs, it usually occurs late in the contact process. More generally, though, a number of these recent studies have used their data to draw conclusions about the impacts of contact with all state societies on the overall level of violence in tribal societies. At the extreme, Blick (1988) has argued that tribal warfare, and particularly what he calls 'genocidal warfare', was at least rare, if not absent, prior to contact with state-level societies, especially expanding European societies. In this view, tribal peoples may have exhibited one form or another of low-casualty, largely ritualized, intergroup conflict, but lacked systematic aggression intended to capture land or destroy enemy populations. Blick sees the development of this latter kind of warfare (which this article will refer to as 'high casualty warfare') after contact mainly as the result of a bellicose personality pattern and a desire for Western goods.

Arguing along similar but less radical lines, Ferguson (1992; also see Ferguson 1990*a*; Ferguson & Whitehead 1992) also asserts that contact with expanding state societies dramatically increases the levels of violence in tribal societies over precontact levels. Although Ferguson (1992: 113) acknowledges that 'even in the absence of any state, archaeology provides unmistakable evidence of war among sedentary village peoples', he goes on to assert that 'the wild violence noted by Hobbes was not an expression of "man in the state of nature" but a reflection of contact with Hobbes's Leviathan – the states of western Europe. To take the [post-contact period] carnage as revealing the fundamental nature of human existence is to pass through the looking glass'. Although there is thus a range of opinion among these recent revisionist scholars, there is a clear consensus that contact increases the frequency of conflict involving tribal peoples and a somewhat less

clear consensus that it also increases the level of violence involved in such conflict.

This article emphasizes two aspects of these recent debates. First, I hope to correct several misconceptions about post-contact tribal warfare on the North American Great Plains which are especially evident in Blick's (1988: 666-8) discussion. Second, I attempt to clarify the role which archaeological data ought to play in examining how contact processes altered existing ways of life, and to use such data from the Great Plains to illustrate this role. This latter goal is particularly important. Ferguson (1992: 113) suggests that it is possible that 'the destabilizing, violence-provoking impact of European contact in the New World began as early as 1493', a view which is quite similar to the argument that newly-introduced epidemic diseases ravaged Native American populations well before most Native American groups actually met any Europeans (see especially Dobyns 1983). If views like these are correct (and many doubt that they are: see Dobyns 1989; Henige 1986; 1989; Snow & Lanpheare 1988; 1989), then even very early ethnohistoric documentation of warfare tells us little about precontact circumstances, leaving archaeological data central to any understanding of post-contact changes in these circumstances. In addition, the Plains evidence helps us to begin to understand the conditions under which human beings resort to high-casualty warfare.

Archaeological data and tribal warfare

Despite the potential importance of archaeological evidence in any analysis of the nature of post-contact changes in indigenous warfare patterns, practical problems limit our ability to use such evidence. Such problems often arise from the incompleteness of the archaeological record: for example, tropical forest groups such as the Yanomamo or the Jivaro, which play such a central role in anthropological research on warfare, leave little archaeological material behind, and even less that is likely to be preserved in a tropical environment; their precontact history and ways of life are therefore difficult to study. The archaeological record is also incomplete in the sense that not all potentially informative sites have been either located or excavated. Furthermore, archaeological sites generally represent the cumulative results of extended periods of occupation and, lacking written records, unravelling the detailed history of such occupations is often difficult: in general, archaeological data tell us more about overall patterns of adaptation than about specific year-to-year events.

Shankman (1992: 401), however, draws a distinction between the *scale* and the *intensity* of warfare which helps to illuminate how archaeological data can contribute to our understanding of war. In Shankman's terms, scale refers to 'the size of the armed combat units, the sizes and types of combat formation, and the number of casualties' and intensity refers to 'the number of wars during a particular time and the severity of the casualties' (1992: 401). Although, as defined, these are not completely independent concepts, they

usefully distinguish between what happens when people go to war (scale) and how often they go to war (intensity). Archaeologically, as I will demonstrate below, it is often possible to document rather clearly what happens, or, at least, what can happen, when people go to war and to identify some of the effects of warfare: for example, casualties can be identified through the analysis of human skeletal remains and defensive works can be identified through excavation. However, it is exceedingly difficult to determine archaeologically how often people went to war: as I note above, specific events or sets of events, such as the number of attacks in a region over a period of time, are rarely discernible. In general, then, the scale of warfare is more susceptible to archaeological study than is its intensity.

Finally, archaeologists have recognized that there is often more than one possible interpretation for a given archaeological pattern, and it is therefore important to understand concretely how a specific aspect of human behaviour is reflected in the archaeological record. In the case of warfare, this problem is well known: for example, simply identifying the victims of violence osteologically does not automatically tell us about the nature of that violence, and indirect lines of evidence, such as the discovery of residential sites in physically inaccessible locations which may have had defensive advantages, are uncertain. Haas's (1990) attempt to document warfare in northeastern Arizona during the thirteenth century based on patterns of site locations exemplifies these kinds of problems: his conclusions ultimately are based on plausible argumentation rather than empirical demonstration.

Archaeology often addresses problems like these by examining the material signature of a given pattern of activity in a context where that activity can be documented ethnographically or in historical records. Because the archaeological record for the Great Plains documents both the pre- and the post-contact ways of life in the region, it is possible to do this here, and thus to make a direct comparison between similar kinds of data pertaining to both of these periods of time. The remainder of this article, therefore, discusses ethnohistoric and archaeological data pertaining to post-contact warfare on the Plains, and then assesses the archaeological evidence for warfare prior to contact in one part of the Plains.

Post-contact warfare on the Plains: ethnohistoric data

Citing Lowie (1983 [1935]), Blick (1988: 666) asserts that 'precontact intertribal warfare on the Plains was heavily interrelated with notions of prestige and honour. Among the Crow, it was "meritorious to kill an enemy, but the lightest tap with a coup-stick was reckoned higher. Obviously, the idea was not primarily to reduce a hostile force, but to execute a 'stunt'" (Lowie 1983: 228)'. However, ethnohistoric analyses by Secoy (1952) and Lewis (1942) indicate that this mode of warfare was a result of access to European goods, particularly horses, and that early post-contact, and, probably, precontact, warfare was rather different. In his classic study, Secoy (1952) points out that the earliest records of warfare between hunter-gatherer groups on the

Northwestern Plains – records pertaining to a period after European contact but before these groups had access to horses and guns, the European goods which transformed aboriginal ways of life on the Plains – indicate the existence of two forms of organized conflict. These were described in 1787 by a Cree named Saukamapee who had lived most of his adult life among the Piegan tribe of the Blackfoot. Saukamapee described warfare during his youth (in the 1720s) as follows:

> A war chief was elected by the chiefs, and we got ready to march. Our spies had been sent out and had seen a large camp of the Snake [Shoshone] Indians on the Plains of the Eagle Hill, and we had to cross the river in canoes, and on rafts, which we carefully secured for our retreat. When we had crossed and numbered our men, we were about 350 warriors ... they had their scouts out, and came out to meet us. Both parties made a great show of their numbers, and I thought that they were more numerous than ourselves. After some singing and dancing, they sat down on the ground, and placed their large shields before them, which covered them. We did the same, but our shields were not so many, and some of our shields had to shelter two men. Theirs were all placed touching one another; their bows were not so long as ours, but of better wood, and the back covered with the sinews of the bisons which made them very elastic, and their arrows went a long way and whizzed about us as balls do from guns. They were all headed with a sharp, smooth, black stone which broke when it struck anything. Our iron-headed arrows did not go through their shields, but stuck in them. On both sides, several were wounded, but none lay on the ground; and night put an end to the battle, without a scalp being taken on either side, and in those days such was the result, unless one party was more numerous than the other. The great mischief of war then, was as now, by attacking and destroying small camps of 10 to 30 tents, which are obliged to separate for hunting (Tyrell 1916: 328-30).

Saukamapee thus documents two distinct modes of warfare, one involving massed shield lines and producing few casualties and the other involving the systematic destruction of small communities, both existing during a period when European contact was almost non-existent. Far from creating these kinds of conflict, more extensive access to European goods eliminated the large-group confrontations between shield lines. Initially, a few tribes, notably the Shoshone, obtained horses from the Spanish in New Mexico. Although these were first used only for hunting, as their numbers increased the Shoshone used them in what had previously been the lower casualty mode of battle to break the opposing shield line. However, the advantage this gave the Shoshone was negated when their adversaries (the Blackfoot, Crow, Assiniboine, etc.) obtained guns from the English and French in Canada. Access to firearms turned the tide of battle again, and these tribes drove the Shoshone into the Rocky Mountains. It is not clear whether the Shoshone expanded onto the Northern Plains before or after contact (compare Bamforth 1988; Magne & Klassen 1991), and therefore whether or not they were fighting with neighbouring tribes prior to contact, but the existence of both relatively harmless and very destructive classes of warfare on the Plains prior to the time when the native Plains tribes had extensive access to European goods is difficult to reconcile with Blick's arguments regarding the factors required for the development of such behaviour. In fact, the pattern described by Lowie (1935) for the Crow, and attributed by Blick to the

precontact period on the Plains, appears instead to represent a pattern of conflict which developed among the Plains tribes in response to the availability of horses during the mid to late 1700s (Lewis 1942: 46-59).

However, there was another sphere of post-contact combat on the Plains which provides an introduction to the archaeological data to be discussed later. While most popular views of the native peoples of the Plains focus on the romantic vision of the mounted, nomadic, bison-hunting tribes of the western Plains, and while virtually all the well-known discussions of Plains warfare refer primarily or exclusively to conflict among these tribes (see, for example, Biolsi 1984; Newcomb 1950; Secoy 1952), the eastern Plains were occupied for hundreds of years prior to European contact by sedentary farmers (Lehmer 1971; Wedel 1986). The post-contact hunting tribes interacted with these farmers in two ways. First, there appears to have been an important economic relation between the two groups of tribes, with farmers trading surplus agricultural products to the nomadic tribes in return for surplus products of the hunt (Ford 1972; Jablow 1951; Spielmann 1983), an exchange which was probably essential to maintaining the subsistence base of both groups. Secondly, however, armed conflict was often intense between these groups, particularly between the farming groups along the Missouri River in North and South Dakota (the Arikara, Mandan and Hidatsa) and nearby hunting tribes, particularly the Lakota.

The Lakota migrated to the Plains in the post-contact period, having been displaced from their traditional homelands in the northern Midwest by European expansion. Moving west, they found their path onto the Plains blocked by substantial populations of farmers along the Missouri River, and conflict between these groups developed rapidly; alliances between the Lakota and the farming tribes shifted over time, with these shifts often being caused by attempts to control access to European trade goods (Hyde [1937] and McKeel [1943] discuss relations between the Lakota and the Arikara in some detail). The level of conflict attained during this time is indicated by the observation, in 1779, of nearly 2000 Lakota and Arikara warriors assaulting a Mandan town, which was saved only by the timely arrival of its Hidatsa allies (Thwaites 1906: 230). The long-term consequence of this conflict in combination with the introduction of European diseases was the decimation of the farming populations.

Although the Arikara and the Lakota were allies for at least that one attack, Arikara towns were just as often targets of Lakota attacks during the eighteenth and nineteenth centuries, at least one of which is documented archaeologically. This documented attack thus offers the opportunity to see how post-contact Plains warfare is reflected in archaeological data and thus to define an archaeological baseline for comparison with precontact sites.

Post-contact warfare on the Plains: archaeological data

The Larson site (Owsley *et al.* 1977) is a large, post-contact period Arikara community, occupied between 1750 and 1785. Excavations at the Larson site

uncovered clear evidence of fortifications in the form of two ditches backed by wooden palisades. These defensive works encircled a town of at least twenty-nine houses, three of which were excavated.

Although the Arikara, including those residing at the Larson site, interred their dead in formal cemeteries outside the main settlement (see, for example, Bass *et al.* 1971), excavations in the Larson site residential areas revealed the remains of seventy-one individuals, sixty-one on the floors of the houses and ten scattered just outside. Historic documents pertaining to the period during which the site was occupied indicate that many of the Missouri River villages experienced severe smallpox epidemics, during which the populations died faster than they could be buried, and the archaeologists working at the site initially thought that the remains were the result of such an epidemic (Owsley *et al.* 1977: 120). However, the discovery of musket balls and metal arrowheads within and among the skeletons suggested that this was not the case.

Arikara traditions tell us that, when their defences were breached, the Missouri River farmers often retreated into their houses, where the battle-worthy members of the household guarded the doorways in occasionally successful attempts to protect their weaker or defenceless family members (Dorsey 1940: 165). If this is what happened at the Larson site, as seems likely, the skeletal material recovered there can perhaps tell us something about the passion and desperation of such defences (the following data are summarized from Owsley *et al.* [1977] and Willey [1990]).

The bodies on the floors of the houses at the Larson site range in age from less than 4 years to nearly 50 and include males and females of all ages (although women age 20 to 29 are slightly underrepresented in the sample, possibly because they were taken as prisoners rather than killed). None of the skeletons is complete, for two reasons. The first, indicated by obvious cut and blow marks on the bones, is that the victorious attackers of the town systematically mutilated the bodies of their victims, with these mutilations including scalping, decapitation, crushing of the skull and face, removal of hands and feet, and disembowelment. Mutilations were carried out without regard to sex or age: scalping victims range in age from adult to less than nine years old and one female, between 16 and 20 years old, had been scalped, had lost her right hand and bears knife marks on five of her right ribs, her right clavicle and her right scapula; cut marks on both of her femurs suggest attempts to remove her legs. Secondly, many skulls are missing not because they were removed by the attackers but because they exploded in fires which were apparently set after the attack was complete; the destruction of the skulls in this manner suggests that the town was burned very soon after its occupants were killed. The archaeological data thus indicate that the Larson site was attacked, its defences failed, and its inhabitants retreated to their homes in an unsuccessful attempt to save themselves.

The Larson site provides a particularly graphic example of the kind of 'wild violence' (Ferguson 1992: 113) with which scholars like Blick and

Ferguson are concerned, and there is no doubt that the events which occurred at the site were closely linked to the westward expansion of the American frontier: the probable victors at the village, the Lakota, were driven onto the Plains by the westward movement of White settlement and Western weapons were clearly used in the assault. The age profile of the victims and the clear evidence of mutilation are also characteristic of the kind of warfare which Blick refers to as 'genocidal'.

The patterns in the Larson site data also tell us how such warfare can be recognized archaeologically. The site was defended, indicating that its occupants were aware of the danger of attack in the region. The human skeletons recovered from the site were found in contexts which differ from standard Arikara burial practices and which are consistent with violent death. Osteological data indicate that most of the community was killed during the attack and that the victorious attackers mutilated the victims' bodies; historical data (summarized by Willey 1990) indicate that body parts similar to those taken from the Larson site (particularly scalps, hands and feet) were often taken by post-contact Plains raiders. Finally, the destruction of the site by fire after the attack is clearly evident in the burning of the houses and the condition of the skeletons and is, again, behaviour which is recorded historically for the region. The Larson site thus shows a complex of distinct lines of evidence which, taken together, allow us to recognize violence of the kind at issue here in the archaeological record. If such violence is a purely post-contact phenomenon, such evidence should be absent in precontact archaeological sites. However, the archaeological evidence for precontact warfare along the Missouri River is, if anything, more graphic than that just summarized. I turn now to consider this evidence.

Precontact warfare in the Missouri Trench

It is possible that the temporary alliances during the eighteenth and early nineteenth centuries between the Lakota and the Arikaras against the Mandan and/or the Hidatsa may have grown, in part, out of longstanding animosities between the Arikaras and the other two farming tribes. The evidence for the existence of these animosities derives largely from archaeological research in the Central and Northern Great Plains, and particularly from excavations along the Missouri River in North and South Dakota (the 'Missouri Trench', so named because the Missouri River in this region has cut a deep, narrow valley into the surrounding landscape). To understand the nature of this evidence, it is necessary to sketch the precontact history of native farming populations in this region. Evidence for the existence of fully horticultural, reasonably sedentary societies on the Plains appears at approximately AD 900 on the Central Plains and AD 1000 in the Dakotas, at which time we can identify two distinct horticultural groups which are relevant to this discussion.

In the north, AD 1000 marks the earliest appearance of farming populations along the Missouri Trench in North and South Dakota (Lehmer 1971;

Toom 1992*a*, 1992*b*; 1992*c*). This group, referred to by archaeologists as the Middle Missouri Tradition, almost certainly represents a migration out of northern Iowa and southern Minnesota: the sudden increase in the number and size of sites and abrupt discontinuities in material culture, subsistence patterns and mortuary practices between Middle Missouri and earlier populations in the region are difficult, if not impossible, to reconcile with an *in situ* process of cultural development (Toom 1992*a*; 1992*c*). These villages clearly represent the precontact ancestors of the Mandan and, probably, the Hidatsa (Lehmer 1971; Wood 1967). Middle Missouri Tradition towns are identifiable by a number of characteristics, the most distinctive of which are house form and community layout. Middle Missouri houses are earthlodges which average 25 feet wide by 35 feet long and are excavated two to three feet into the earth. The interior of these lodges was often partially or completely surrounded by a bench dug into the earth; the superstructure of the lodge was supported by central posts and a ridge pole running along the long axis of the structure, and the roofs were covered with earth (Lehmer *et al.* 1973). Generally, these lodges were arranged in fairly orderly rows, sometimes with a central plaza; typical community sizes ranged from a dozen to as many as thirty lodges, although towns including as many as ninety houses or more are known, particularly from later periods.

At approximately the same time that the Middle Missouri Tradition appeared in the Dakotas, a different pattern emerged on the Central Plains of Nebraska and Kansas. Termed the Central Plains Tradition (Blakeslee 1978; Wedel 1986), this pattern also appears to represent a movement of people from the eastern Plains margins. Analysis of the geographic distribution of radiocarbon dates (Roper 1968) indicates that Central Plains Tradition groups moved onto the Plains from the Kansas City area and expanded north and west in two arms, one moving directly north along the Missouri River and the other moving west into central and western Kansas and then north from one river valley to the next into western and central Nebraska. Although some of the links between these populations and specific post-contact Plains tribes are obscure, it seems likely that the Central Plains Tradition villagers were the ancestors of such Caddoan-speaking farming groups as the Wichita, Arikara and the Pawnee (Lehmer 1971; Spaulding 1956; Wedel 1986).

Central Plains Tradition sites are identified by a number of characteristics, but are most readily distinguished by architecture and community layout. In contrast to the rectangular earthlodges found to the north, Central Plains Tradition houses are square with rounded corners, averaging 25 to 30 feet on each side. Along the Missouri River, these are excavated into the ground, but in the west they are built simply on a 'sod-stripped' surface; that is, a surface from which the prairie sod has been cut but which has not been dug down further. Whether excavated into the earth or not, Central Plains Tradition houses were supported by four central posts, with walls constructed of wattle and daub. The communities in which these houses are found are generally

small, with the largest containing twenty-four structures and most containing five or fewer. Within these communities, houses are widely and variably spaced, often being strung out along a ridge overlooking arable land.

Both the Middle Missouri and Central Plains Tradition expansions occurred during a climatic period known as the Atlantic, during which warmer, wetter summers dramatically improved conditions for corn horticulture (Baerreis & Bryson 1965; Bryson *et al.* 1970; Toom 1992*a*). However, this period of ameliorated conditions ended between AD 1200 and 1250 with the development of a second period (referred to as the Pacific) characterized by lower temperatures and reduced precipitation. This change was felt particularly on the West Central Plains, where Central Plains Tradition villages were abandoned and subsequently covered with a thick mantle of wind-blown dust (Wedel 1941). These western populations apparently moved back towards the northeast, joining their relatives along the Missouri River in northeastern Nebraska. At this point, in the late 1200s or early 1300s, these groups moved north into the Missouri Trench in South Dakota.

Archaeologists working in the Missouri Trench refer to these southern migrants as the Coalescent Tradition, but it is clear that they represent the immediate descendants of the Central Plains populations and the immediate ancestors of the Arikara (Lehmer 1971). Although Coalescent material culture shows some acceptance of artefact styles from indigenous Middle Missouri groups, house form and most aspects of community layout retain a typically Central Plains Tradition character. The major changes in site layout which appear at this time are a substantial increase in community size and the construction of ditch and palisade defensive works around all or parts of towns and the frequent location of these towns on inaccessible, extremely steep-sided ridges overlooking the Missouri River floodplain. These fortifications include ditches up to 10 feet deep and 20 feet across, backed by a continuous wooden palisade. Bastions, providing an opportunity for defending groups to set up a cross-fire on attackers, are relatively common features of these defences. At the Arzberger site (Spaulding 1956), a bastioned defensive wall ran around the entire circumference of the town, a distance of approximately 1.5 miles.

Essentially identical fortifications have been found in Middle Missouri communities (see, for example, Wood 1967). Traditionally, archaeologists have inferred that the initial construction of defensive works predated the Coalescent incursion into the region, and was a response to conflict among Middle Missouri groups (Lehmer 1971). However, a recent re-evaluation of the Middle Missouri radiocarbon chronology (Toom 1992*b*) indicates that this is incorrect, and that Middle Missouri fortifications were first constructed after the arrival of Coalescent groups in the late 1200s or early 1300s. Whether this re-evaluation is correct or not, radiocarbon dates make it clear that such fortifications were built after this arrival. Early Coalescent populations pushed north as far as the vicinity of the modern city of Pierre

in central South Dakota, and, interestingly, the greatest number of fortified sites of both Coalescent and Middle Missouri affiliation is in this area.

Furthermore, radiocarbon dates indicate that Coalescent and Middle Missouri territories shifted back and forth somewhat between AD 1300 and 1500, and archaeological research has identified at least two sites which appear to represent unsuccessful attempts by Middle Missouri groups to extend their range to the south. In both of these sites, excavation has revealed that Middle Missouri groups moved south into territory occupied by Coalescent populations and began construction of a community which was abandoned before it was finished. The general sequence of construction of these sites is identical: the first facility to be built was the defensive perimeter, including a ditch and palisade, with work starting on residential structures only after the fortifications were complete. At the Hickey Brothers site, construction was abandoned before any houses were built, and the only residential features evident were the remains of temporary structures (Caldwell *et al.* 1964; Lehmer 1971: 125-6). At the Pitlick site, at least some house pits were excavated, but these pits lack postholes, indicating that the superstructure for the houses was never completed (Lehmer 1971: 126). Extremely low densities of artefacts at both of these sites also indicate that occupation was short-lived.

These data indicate that something in the cultural context of the Missouri Trench after AD 1300 led native tribal groups to invest substantial amounts of effort in the construction of extensive defensive works. In the case of the Coalescent groups, such efforts were unprecedented in their history, although similar efforts may not have been new for the Middle Missouri villagers. However, the presence of these features does not by itself necessarily provide evidence for warfare like that documented at the Larson site discussed above: it is conceivable that features which archaeologists interpret as fortifications could have primarily symbolic or ceremonial significance, for example, or that such fortifications could have served simply as warnings which by themselves dissuaded rival groups from resorting to all-out war. However, excavations at the Crow Creek site, a Coalescent town in south-central South Dakota, demonstrate that the late precontact occupants of the Missouri Trench had good reasons for defending themselves from one another.

Crow Creek is located on a narrow, steep-sided spit of land above the Missouri River floodplain. Initial reconnaissance and excavation in the 1950s revealed the surface remains of a minimum of fifty houses, along with two fortification ditches which cut across the ridge on which the town was built (Lehmer 1971; Kivett & Jensen 1976). The majority of the houses were within the inner of these two ditches, but a few houses were between the inner and outer ditches. Excavations exposed sections of both of these ditches and uncovered five of the houses. Material culture, house construction and community layout indicate that the major occupation at the site was by a Coalescent group and that this was the group who built the houses and

defences, although there are traces of an earlier Middle Missouri occupation on the site as well. The total absence of European trade goods and precontact radiocarbon dates imply that the site pre-dates the European presence in the region, and the most reliable dates indicate that it was built about AD 1325, towards the beginning of the Coalescent incursion into the Missouri Trench (Kivett & Jensen 1976; Zimmerman *et al.* 1981).

The excavation data show several important differences between the inner and outer fortifications. The inner, and apparently older, of these encloses the majority of the houses. This ditch was 20 feet wide and 6 feet deep, and was backed by a wooden palisade. However, substantial amounts of refuse had accumulated in the ditch, suggesting that the site's residents at one point no longer felt the need to maintain their defensive perimeter. This possibility is also suggested by the fact that several houses were built outside the palisade. Interestingly, although it is clear that the defensive ditch was backed by a wooden palisade at one time, part of the excavated section of this palisade had been removed, and the holes left by the removal of the posts produced small amounts of garbage, including human skull fragments. Where the remains of posts were evident, they were burned off at ground level. The outer ditch had been dug to enclose the houses built beyond the older defences, but had apparently never been finished: the ditch was 12 feet wide and 6 feet deep and was marked by twelve bastions, but there were no traces of a palisade along the excavated portions of its inner edge. The five houses excavated at the site were constructed in typical Coalescent style and produced a standard range of precontact habitation debris. All five had been burned.

In 1978, erosion exposed a small amount of human bone in one end of the outer fortification ditch. Salvage excavations to recover this material opened a trench within the ditch 6 metres long and 7 metres wide which contained the remains of a minimum of 486 people; the excavators estimate that an additional fifty or more skeletons remain in place (Willey 1990; Zimmerman *et al.* 1981). These individuals were apparently deliberately interred, as they tend to be oriented along a northeast-southwest axis within the trench and the bonebed is capped with sediments which could not have been deposited naturally. Analysis of the skeletal material by several scholars (Gregg & Zimmerman 1986; Willey 1990) provides telling insights into both the lives and the deaths of the individuals interred at Crow Creek.

The bones of the Crow Creek townspeople were marked by a variety of evidence indicating that they had often been malnourished over the course of their lives and that many of them were actively malnourished at the time of their death. Seventy five per cent. of the tibiae, and 90 per cent. of the humeri which could be examined showed at least one transverse line (also called growth arrest or Harris lines), indicating that malnutrition had been severe enough during childhood or adolescence to halt bone growth temporarily; the maximum number of such lines found on any single bone was fourteen. Disturbances of the formation of the long bones, including

expansion of the medullary spaces, indicating repeated malnutrition or iron-deficiency anaemia, were present on 91 per cent. of the humeri and 53 per cent. of the femora; cortical bone thinning, probably the result of osteoporosis induced by metabolic disturbances, was evident on 54 per cent. of the humeri and 39 per cent. of the femora. Sixteen per cent. of the tibiae, 10 per cent. of the fibulae and lower percentages of other bones also showed lesions, both healed and active, resulting from subperiostial haematomas. At least twenty-eight individuals showed lesions in their skulls (cribra orbitalia), approximately half of which were active at the time of death. All these lesions probably resulted from iron deficiency anaemia. These various traces on the bones indicate that the Crow Creek population probably experienced protein shortages, resulting in growth arrests and anaemia, and ascorbic acid deficiency (scurvy), resulting in subperiostial haematomas.

The deliberate burial of the bodies at Crow Creek means that they were not associated with the actual weapons which were probably used to kill them, as were the victims whose bodies were found at the Larson site. However, the bone bed at Crow Creek apparently resulted from a massacre. Approximately 40 per cent. of the intact skulls had one or more depressed fractures, the result of sharp blows to the head; some skulls had up to five such fractures. In addition, nearly a quarter of the skulls showed breakage of the teeth at the gum line, probably the result of sharp blows to the mouth. Ninety per cent. of the skulls also showed evidence of scalping in the form of cut marks circling the skull, with scalping victims ranging in age from less than a year to nearly sixty. Other cut marks and an underrepresentation of certain skeletal elements indicate the removal of the hands and feet, decapitation, slitting of the nose, and removal of the tongue by pulling it out through a cut in the throat (Willey 1990: 93-131). The demographic profile of the remains recovered from Crow Creek is consistent with that expected for the slaughter of an entire village, with the exceptions of an underrepresentation of young women (as was the case at the Larson site) and of old men (Willey 1990: 37-63). Since there is abundant evidence that carnivores fed on the bodies of the dead prior to burial, the bodies appear to have lain out on the surface for some time before they were buried.

The archaeological data from the Crow Creek site suggest the following sequence of events. The community was established during the early 1300s, at a time when the site's occupants found it necessary to choose an easily defended location for their home. During the initial construction, a defensive perimeter was established across the town's most vulnerable approach. Some time after this, the perception of danger decreased to the point that the defensive ditch was used as a dump and houses were built beyond the defences. This sense of safety apparently later dissipated, and a new ditch was dug to enclose these outer houses. Before the outer defences were complete, some of the posts from the existing palisade were removed, perhaps to build the new palisade. However, after the inner defences were partially dismantled, but before the outer defences were completed, the town was attacked

and overwhelmed. The attackers killed virtually the entire population of the community (probably excepting some young women), partially dismembered the bodies, and burned the houses and palisade. The bodies lay exposed on the surface for an indeterminate amount of time, after which a friendly group gathered the victims' remains together and interred them in the fortification ditch. The victims were poorly nourished when they were killed, and had been poorly nourished at other times during their lives. The geographic distribution of defended communities in the Missouri Trench, particularly the concentration of defences in the area of overlap between Middle Missouri and Coalescent territories, suggests strongly that the attackers of the Crow Creek community were the ancestors of the Mandan and, possibly, the Hidatsa.

This interpretation of the sequence of events at Crow Creek is strengthened particularly by the similarity of the overall patterning at the site to that at the post-contact Larson site discussed earlier. Both sites were defended, both sites were burned, and both sites produced extensive samples of human skeletal material recovered in contexts which differ from the standard burial contexts of the people who occupied the sites. Furthermore, both sites also show osteological evidence for violent death and post-mortem assaults on the bodies of the dead, along with a representation of sexes and ages in the skeletal populations which mirrors that expected for the population as a whole, with the exception of an underrepresentation of young women. The primary difference between the two sites is that the Larson site victims were apparently never intentionally buried, while the Crow Creek victims clearly were. The similarity of the archaeological patterning at the two sites fairly clearly indicates that the same kinds of activities occurred at both sites.

Beyond refutation: why warfare?

The Missouri River data, and particularly the evidence from Crow Creek, would seem to refute Blick's (1988) assertion that tribal warfare is a post-contact phenomenon on the Plains and, by extension, elsewhere: tribal peoples were clearly capable of engaging in extreme violence without access to European weapons and without the processes of cultural change such access brings with it. This unsurprising conclusion, however, is less interesting than the question it forces us to confront: if we cannot reduce the reality of tribal warfare to a simple response to contact with complex, usually Western, societies, how can we account for its existence?

One possible explanation is that precontact warfare along the Missouri River resulted from the influence of expanding Native American societies to the east. The Mississippian cultures of the American Midwest, and particularly the great Mississippian centre of Cahokia at the confluence of the Missouri and Mississippi Rivers, probably played a role in the expansion of farming communities across the Plains after AD 900: for example, there is reasonably clear evidence for the physical expansion of the Cahokian population, in the form of pioneering communities apparently sent out from the

centre (i.e., the site of Aztalan in Wisconsin [Barrett 1933]). Although Ferguson (1992) clearly attributes tribal warfare primarily to European contact, he notes that expanding non-Western societies probably had similar effects on tribal groups in contact with them. Unfortunately for this argument, the period of Cahokian expansion corresponds to the period of initial colonization of the Missouri Trench, at which time conditions were probably peaceful. It is only after the fall of Cahokia and subsequent disruption of its sphere of influence that evidence of warfare appears in the Dakotas and adjacent areas (Anderson 1987).

The data presented here suggest that precontact tribal warfare on the northern Great Plains resulted from indigenous cultural-ecological processes rather than from external influences. Specifically, it seems likely that periodic, unpredictable and severe food shortages were characteristic of the region, at least after AD 1250, and that such shortages triggered intertribal violence (Zimmerman & Bradley 1988). Two lines of evidence support this hypothesis. First, as I discuss above, the evidence for the sequence of house and defensive construction at Crow Creek suggests that the intensity of hostilities varied considerably, presumably as the impetus for these hostilities varied as well. Secondly, the osteological data from the Crow Creek victims indicate that the human population of the region was highly stressed, but that this stress was episodic rather than continuous. The fact that the town's inhabitants were malnourished at the time of the attack ties these two observations together, implying that violence and subsistence stress were very likely to be closely related.

The Missouri Trench lies at the northwestern limit of native horticulture in North America. Richtsmeier (1980) has shown that average modern climatic conditions in the region are marginal for corn production and that they improve from north to south along the Missouri River. However, on the Plains, average conditions tell only part of the story. Annual and decadal variation in temperature and precipitation are well documented in written records and in tree ring sequences dating back as far as AD 1210 (Wedel 1986). This implies that farmers in the region must have experienced periods when precipitation was insufficient to grow their crops and survival depended on stored food and wild resources. However, drought also reduces the productivity of wild plant foods and disperses and/or drives away the herds of bison which provided the overwhelmingly most important source of meat for the Missouri River towns. Furthermore, snowfall in the region is equally unpredictable, and extremely heavy snows can make winter hunting difficult; when heavy snows followed a dry year, food must have been in extremely short supply.

The early colonization of the Missouri Trench by sedentary farmers occurred during a climatic interval when warmer, moister conditions almost certainly mitigated the problems such variability must have created, but the advent of cooler, drier conditions after AD 1250 must have exacerbated them. At the same time, and probably in response to the onset of these

cooler, drier conditions, the region experienced a substantial influx of alien population. This dramatic increase in regional population, coupled with deteriorating conditions for subsistence, appears to have set the stage for violence, as the data discussed above attest. Some of the osteological evidence for stress at Crow Creek (particularly the evidence for scurvy and protein malnutrition) strongly suggests that wild resources, including meat, were sometimes in short supply, and warfare among the post-contact nomadic Plains tribes has often been attributed to competition for such resources (i.e., Newcomb 1950). However, two pieces of evidence indicate that access to arable land may have been a more important source of conflict in the Missouri Trench.

The first of these is that bone chemistry analyses (Bumsted 1985: 542-3) show that corn comprised from 78 to 90 per cent. of the total diet of the bodies found at Crow Creek, implying that horticulture was essential to their survival. The second is the fact that evidence from sites like Pitlick and Hickey Brothers indicates that Middle Missouri populations unsuccessfully attempted to expand to the south, into areas which, as just discussed, are more favourable for farming than is the Middle Missouri Tradition heartland in North Dakota. Taken together, these observations suggest that the Missouri Trench case may represent a classic example of tribal warfare over farm land.

However, it is obvious that no aspect of human affairs as complex, as costly, or as integrated with other aspects of society as warfare can be expected to have a single, simple 'cause', as others have already pointed out (i.e., Ferguson 1990*b*; Robarchek 1990): in addition to the ecological basis for conflict in the Missouri Trench, the overall pattern of conflict in the region probably reflects other factors as well. In particular, the geographic distribution of fortified sites implies that conflict was between Middle Missouri and Coalescent groups, rather than within either of these groups. Kinship ties, language barriers and other social relations thus probably helped to determine who was perceived as friend and who as foe. Blick (1988) has emphasized the importance of factors like these as part of the process by which the enemy is defined as the other and 'dehumanized', and the Middle Missouri data are consistent with this aspect of his discussion. Other cultural factors which have been linked to warfare, such as socialization patterns and personality structure (Blick 1988; Ember & Ember 1992; Ferguson 1990*a*), were also presumably important, but are rarely evident in archaeological data.

Conclusion

It is useful at this point to return to the distinction between the scale and the intensity of warfare which I noted earlier. The Missouri River data, and particularly the close identity between the archaeological remains at the pre-contact Crow Creek site and post-contact Larson site, indicate that a comparable *scale* of violence existed in the region for hundreds of years prior to European contact. This violence resulted in the construction of extensive

and elaborate defences at many sites, defences which were presumably intended to prevent events like the one documented at Crow Creek. Such construction represents an enormous effort for relatively small human populations, particularly if those populations were biologically as stressed as that at Crow Creek. The construction of fortifications at the Pitlick and Hickey Brothers sites prior to the construction of houses further underlines both the significance of these features and the severity of the danger which made them necessary.

However, as is typical for archaeological data, it is more difficult to reconstruct the *intensity* of warfare along the Missouri River: we simply cannot tell, for example, how many attacks were made on Crow Creek before it fell, or whether Arzberger was attacked at all. However, Lehmer's (1971) summary of archaeological research along the Missouri River suggests that fortified sites were more common during post-contact than precontact times, and this may reflect more frequent attacks following the Western intrusion into the region. Although the available archaeological data thus indicate that the scale of warfare along the Missouri changed little as a result of contact, they suggest that the intensity of this conflict may have increased. The less extreme revisionist view of tribal warfare thus finds some support in these data, albeit tentative support.

The value of the less extreme revisions lies in their emphasis on 'a more historically sensitive understanding of indigenous, colonial, and post-colonial patterns of warfare' (Knauft 1992: 400), an emphasis which provides an important complement to the more traditional focus on ecological context and internal cultural factors. For revisionist scholars, though, 'history' refers in practice primarily to events and processes documented by Europeans or literate members of other expanding state-level societies. However, history and ecology interact to shape human adaptation whether a literate society is present or not: non-literate societies experienced and responded to both long-term historical changes, such as intrinsic population growth, and short-term events, such as technical innovation or large-scale population movement and replacement, all of which helped to structure human lifeways. This being so, a general understanding of war requires that we search for similar patterns in the historical and ecological contexts of pre- and post-contact conflict.

Contact with expanding Western societies virtually always created the kinds of disruptive conditions which are likely to have triggered episodic crises within contacted indigenous societies, as a result of disease-induced depopulation, environmental degradation, altered economic relations, intentional disruption of indigenous political relations, forced relocation of tribal groups, and other factors. It is not hard to imagine that the effects of these problems are likely to have been quite similar to those of the environmental problems which appear to be linked to precontact warfare in the Missouri Trench. In its most basic terms, it is possible to argue that one factor involved in the development of tribal warfare is the presence, or, at least, the prospect,

of external material conditions so bleak that extreme violence becomes justifiable, at least to the victors.

The active role played by indigenous societies in shaping the pattern of cultural change during the contact period is essential in this context. The expansion of a complex society, particularly a complex Western society, into previously uncontacted areas not only precipitates the destructive processes so clearly evident in every case for which information is available, but, at least in the short term, also opens up political, economic and, often, subsistence opportunities which had not existed previously. Initially, expanding complex societies offer new resources which can be integrated into existing political and economic arrangements, and indigenous peoples have clearly recognized and taken advantage of this (see, for example, Coombs & Plog [1977] on the relation between short-term environmental variation and religious conversion among the Chumash of coastal California, and Kavanagh [1986] on the political manipulation of trade with the Spanish in Santa Fe by Comanche leaders on the Southern High Plains). However, incorporation of these resources into indigenous ways of life permanently alters cultural-ecological relations, implying that fluctuations in the availability of these resources become as important as fluctuations in the availability of indigenous ones. In some cases, high dependence on Europeans for food and other necessities coupled with shortfalls in these materials may have set the stage for warfare where none existed before. In other cases, where warfare was already an integral component of the existing way of life, violence may simply have erupted in response to the same processes that operated in precontact times, but these processes may have been triggered by access to Western rather than indigenous resources. Viewed only through the eyes of ethnographic or ethnohistoric data, this latter situation could obviously contribute to the illusion that high-casualty tribal warfare is a purely post-contact phenomenon.

Unpredictable fluctuations in the food supply thus help to account for important aspects of warfare among tribal societies in at least some cases, and it seems reasonable to argue that such fluctuations may derive either from the character of the natural environments inhabited by those societies or from cultural change and disruption in the contact period. This conclusion fits well with the findings of Ember and Ember (1992), whose cross-cultural analysis of 186 mainly pre-industrial societies revealed a strong correlation between warfare and a history of unpredictable natural disasters which produced severe shortfalls in food and other essential resources.

This is hardly a surprising conclusion. Cultural-ecological research in anthropology makes it clear that humans rarely engage in extremely expensive patterns of behaviour without very good reason, and warfare like that documented in the Missouri Trench must have been extremely expensive in labour for defensive construction, not to mention its cost in human lives when one group was able to defeat another. There is no doubt that contact period processes had profoundly negative effects on indigenous peoples and that an examination of those effects is necessary to any attempt to use

post-contact information to illuminate precontact ways of life. However, such an examination must rely on a clear and accurate understanding of the available information or it will inevitably produce misleading results.

NOTE

Larry Keeley and Paul Shankman aroused my interest in this topic and contributed considerably to my thinking about it. Comments from the editor and my reviewers also considerably strengthened and clarified my arguments.

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Aux peuples amérindiens, violence amérindienne: les guerres des grandes plaines du Nord américain pendant l'ère pré-coloniale

Résumé

Certains anthropologues se sont récemment penchés sur la corrélation entre la recrudescence meurtrière des guerres tribales et le contact des populations indigènes avec les blancs. Ils se sont appuyés sur l'ethnographie des grandes plaines du Nord américain pour montrer que c'est le contact avec les Européens qui causa l'intensification et la généralisation de la violence guerrière inter-tribale. Mais une telle conclusion n'est pas corroborée par les faits archéologiques, qui, au contraire, suggèrent que les guerres inter-tribales meurtrières étaient déjà endémiques dans certaines régions des grandes plaines des siècles avant l'arrivée des Européens. Ces données indiquent, d'autre part, que la guerre tribale est une réponse indigène à des processus culturo-écologiques liés à des fluctuations imprévisibles dans l'environnement, ainsi qu'à des déséquilibres entre les ratios population-ressources. Après avoir résumé les faits supportant cette conclusion, l'auteur examine la portée de cet exemple américain qui, généralisé, permet de comprendre les conditions favorisant le développement de la guerre tribale.

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