In Troubled Times: Violence and Warfare in the Past
David W. Frayer and Debra L. Martin, eds
1997 Routledge: New York

Chapter
TWELVE

Violence and War in Prehistory

R. Brian Ferguson
Dept. of Sociology and Anthropology
Rutgers University, Newark

If there are people out there who believe that violence and war did not exist until after the advent of Western colonialism, or of the state, or of agriculture, this volume proves them wrong. Equally, if there are people who believe that all human societies have been plagued by violence and war, that they were always present in human evolutionary history, this volume proves *them* wrong.

For far too long, efforts to understand of the role of violence in our deep past has been pulled off course by the gravity of these polar ideologies – humans as angels or as devils. On one hand is the uncritical, even enthusiastic acceptance of dubious evidence of injury, as brought to a huge audience by Robert Ardrey (1961; Neuman 1987). On the other is a tendency in some archaeological

circles to disregard or minimize evidence of violence. The wars of the Maya, for instance, were long considered to be limited and "ceremonial", despite abundant evidence to the contrary (Webster 1993).

This volume looks at evidence, mostly human skeletal remains from many places and periods, and asks what we can learn about ancient violence, both individual and collective. The editors invited me to comment and extrapolate upon these findings, an invitation that is especially gracious as they know some of my views differ from theirs. The first of two sections in this chapter deals with evidence for violence in general and war in particular, asking first what sorts of evidence exist, looking next at the findings of this volume, and finally comparing them to other research and discussing some theoretical implications. The second section of the chapter focuses on early war specifically, asking what are the preconditions for war, and then outlining spatial and temporal patterns expectably involved in war's actual occurrence.

EVIDENCE AND IMPLICATIONS

Identifying Violence and War

Perhaps the most significant general finding of this volume is that violence and war leave recoverable traces. Not surprising, perhaps, but influential theories rise on the premise that "absence of evidence is not evidence of absence". While still true for particular cases, that axiom must be reconsidered as a generalization. On the other hand, where archaeological evidence of violence exists, it should not be resisted. This volume shows humans have done injury to others for a very long time. Huge ambiguities remain – whether violence is individual or collective (i.e. war), and how to explain/interpret it in either case – but identification of the existence of physical violence and violent group conflict is very possible. As this book shows, they are archaeologically visible behaviors. The following section surveys types of evidence presented in this volume and elsewhere.

To start with osteology, the main concern of this volume, the best evidence for interpersonal violence is a bone-embedded point, from a lance, dart, or arrow. The possibility of this being accidental is remote, especially when injuries appear in numbers and are patterned by age and sex. In one case noted by Lambert, over 20%

of 128 males had these wounds, and as she further notes, it may be only one in four penetrating projectiles that actually lodges in bone and remains there. Although some instances could be from internal clashes, if ethnographic analogy has any value, the presence of many projectile wounds virtually confirms war. Plausible claims for individual projectile woundings extend back as far as 50,000 B.P. (Roper 1969:439–441; Wendorf and Schild 1986:73–74). The earliest evidence (I know) of multiple projectile killings are the Natufian Jebel Sahaba skeletons, of 12,000–14,000 B.P. (Wendorf 1968:993).

Other kinds of postcranial trauma are far more ambiguous. Physical combat produces a wide range of fractures, but so do accidents and sports. The "classic" combat related injury is a parry fracture–a forearm broken as if warding off a blow – but this too could happen in many ways. A high frequency of cranial compression fractures shaped like a blunt instrument seems a solid basis for inferring interpersonal violence. Several studies in this volume discuss such injuries, many non-lethal with clear signs of healing. (They also show how much care must be taken to distinguish perimortem fractures from later breakage, care not always taken by earlier writers.) Taken independently, these fractures could be the result of spousal abuse, sports, or non-lethal conflict resolution, possibilities which Walker explores.

Scalp marks stand out as particularly clear evidence of war, (with the exception of rare pathological mimics [Hamperl 1967]). As Ostendorf Smith demonstrates, scalping was practiced in North America from ancient times, although much less extensively than after Europeans began paying bounties for them (Neumann 1940; Owsley and Berryman 1975). Absent heads or limbs, especially if accompanied by signs of violent removal, or their presence without any other remains, suggests the taking of war trophies. But these could also result from secondary burial and the vagaries of preservation on one side, or an ancestor cult on the other. Interpretation may be in the details, as in Seeman's (1988) argument that several disarticulated skulls found in Hopewell, Ohio, c. 50 B.C.–350 A.D., seem to be from younger men, and thus are more likely trophies than mementos of revered seniors.

Burial provides other clues. Casual disposal may indicate that the dead were from a different group. Multiple burials are suggestive of war killings, as Frayer notes. A relative absence of male remains, noted by Wilkinson, is consistent with warriors dying and "remaining" elsewhere. The latter is the most plausible scenario in

which war could exist but not leave traces in substantial osteological remains. But of course any of these patterns alone could have other explanations.

Cannibalism does not necessarily indicate killing. Reacting to past errors in interpretation and to a greater awareness of the ideological loading of the label "cannibal" (see Arens 1979; Whitehead 1988:172-180), high standards of evidence have been developed to distinguish it from consumption by animals and the defleshing and breakage that may accompany secondary burials. These criteria also aim to distinguish gustatory cannibalism from ritualized consumption of one's own dead. The latter is evidence of war, the former is not. Pijoan and Mansilla Lory provide specifics. Other recent work makes strong arguments for gustatory cannibalism among the Anasazi, 900 -1300 A.D. (White 1992) and in Neolithic Provence, c. 3930 B.C. (Villa et al 1986), although there are challenges to those interpretations (see Villa 1992a; 1992b).

Pijoan and Mansilla Lory also consider evidence for the overlapping practice of human sacrifice. A few "sacrificees" might be volunteers, but large numbers are most probably war captives. Human sacrifice may also overlap with executions for "crimes" – a slippery category even within criminology, but one with which the archaeology of violence must deal – and executions overlap with simple murder. European bog bodies provide rich data and soft tissues for mulling these puzzles (Brothwell 1986:24-44; and see Burkert et al 1987).

Skeletal trauma may come from sources as diverse as subsistence activities, spousal abuse, sports (see Poliakoff 1987), internal coercion, individual altercations, punishment for crimes, ritual sacrifice – and of course war. Ember and Ember suggest that multiple forms of violence in society correlate with war (and see Sipes 1973). But variations are certainly known, such as the internally pacifistic and externally bellicose Mundurucu (Murphy 1960), and the linkage or separation of these traumatic experiences to war is one of the intriguing problems highlighted in this book.

This volume focuses primarily on osteological evidence of violence, much of which may be generated within the group. Other evidence available to archaeology indicates war more specifically. Fortifications are most important, although as Keeley notes, whether a structure is defensive in purpose is often debatable (e.g. Topic and Topic 1987). No less than the original walls of Jericho, long standing as the earliest *proof* of warfare (Roper 1975:304, 322), may instead be for flood protection (Bar-Josef 1986). The presence

of true fortifications does not necessarily indicate actual warfare, as strong defenses may dissuade potential attackers, but they do mean that the war is a social reality sufficient to influence behavior. Fortifications often go along with defensible site locations, as Maschner describes.

Violent destruction and abandonment of a settlement is strong evidence of war, especially if found with unburied skeletons (e.g. Mackey and Green 1979). Aspects of settlement patterns may also reveal the influence of war. War leads to both nucleation and dispersal of populations, and empty no-man's-lands between settlements (see Ferguson 1989a). (Ember and Ember suggest settlement permeability as another possible indicator, but it is applicable mainly to developed political centers, such as Cahokia [Peregrine 1993]).

Weapons constitute another set of evidence. The presence or potential of war is obvious with the development of specialized swords and maces – though as Robb cautions, elaboration of a weapons culture may not be an accurate gauge of levels of violence. Pacific Northwest Coast archaeology recovers unusually clear war technology for a non-state society, with armor, specialized war clubs and what may be armor-piercing bone points, as Maschner describes. But few or no specialized war weapons will exist in many simpler societies, where cutting or bashing is done with the tools of everyday life – although an unusual concentration of arrowheads may reinforce other evidence of war, as Keeley argues. Hunters only have to change their targets to become warriors, so better hunting technology may mean better war technology. Maschner's argument that the introduction of the bow and arrow led to changes in warfare and settlement could be tested widely across prehistoric North America (see Blitz 1988).

A final category of evidence is art (see Feest 1980). Although it is not a major consideration in this volume, what may be depictions of interpersonal violence date back to the European Upper Paleolithic (Roper 1969:1969). Recent research in northern Australia (Tacon and Chippendale 1994), documents what appear to be both individual (earlier) and group (later) arrow duels among hunters and gatherers, the earliest dating back about 10,000 years. These graphic representations cannot be taken literally. They may portray shamanic confrontations, among other things (see Campbell 1986; and discussion in Tacon and Chippendale 1994). Whatever is represented, however, it is difficult to believe that such detailed depictions of interpersonal violence could be portrayed if the artists were not familiar with violence as practice.[1]

Obviously, the existence, intensity, and character of warfare can be better established with multiple kinds of evidence, as Maschner outstandingly demonstrates. It would be an important step toward broader comparisons if archaeologists who focus on one type of evidence routinely would summarize the status of other kinds of evidence, even if only to clarify that none is available. That would also allow exploration of Robb's point about non-congruence--that a developed military culture may not mean correspondingly high casualties.

Of course desirable information often is absent, not preserved or not recovered. Yanomami, for instance, cremate their dead and consume what is left, so no future archaeologist will find osteological evidence of their war. But where skeletal, settlement and other remains are abundant, the presence or at least possibility of war should be archaeologically visible – if archaeologists look for it. The maxim that absence of evidence is not evidence of absence remains valid for any particular dig, and for those areas with limited data. But where a cultural tradition is known from many sites and skeletons, absence of any sort of evidence suggesting war can indeed be taken as reasonable evidence of war's absence.

If violence within a society attains the level of a pattern of bone damage, it too should be detectable. A substantial problem remains in distinguishing osteological evidence of war from the physical traces of other violent practices which may exist along with or in the absence of war. Caution is needed both to avoid 'false positives' – seeing war where it is not–and because identification and understanding of internal violence is such an important, neglected topic.

Down to Cases

What evidence of violence and war appears in the situations discussed here? Taking the European cases first, the Ofnet skulls discussed by Frayer offer up a real mystery. Although other indications of homicide exist from the Mesolithic, these two caches of seven-millennium-old, heavily ochered skulls are in a class by themselves. Most of the 37 individuals are children or young people, two thirds of the adults are women, and about half the skulls have evidence of perimortem bludgeoning. Frayer concludes the Ofnet skulls are evidence of a massacre, possibly an attempt by one group to eliminate another, although he also notes that the odd demographics are unlike most massacres. Perhaps this was a local

group caught while most of the men were away. On the other hand, the highly unusual character of this find leaves open other avenues of explanation.

Ofnet is exceptional. Typically European sites lack any reported indication of violence, much less war, until well into the time of agriculture. Whittle's (1985) survey of the Neolithic contains no discussion of warfare, and investigation of the interaction of established foragers and expanding farmers has stressed cooperation and mixing (Dennell 1985). Keeley punctures the idea that this period and interaction were entirely peaceable. He identifies what appear to be four fortified agricultural villages within modern Belgium, in sites also unusual for containing a large number of arrowheads.

This conflicted western extension of the far-flung LBK cultural tradition also is exceptional, however, and as Keeley and Cahen note in another article (1989:170), the fortifications may have been maintained for as little as fifteen years, (c. 6300 B.P.). Keeley suggests that this anomalous situation may be related to the fact that both the farmers and the foragers in this particular area were unusually sedentary and intensive in local resource use, and this combination may have produced an unusually negative impact on the foragers, leading to war.

Robb takes us more than thirty-five hundred years forward, to the western coast of Italy from the 7th through 3rd centuries B.C. – long after intensive warfare developed in many parts of Europe (see Ferrill 1985; Schutz 1983). This temporal sequence shows that war changes over time. Early sites are nucleated and surrounded by what Robb interprets as defensive ditches, which are absent in more dispersed sites later. Later times in contrast have greater elaboration of weaponry, in what seems to be a militarization of culture.

Osteological evidence indicates violence throughout. The presence of traumatic lesions for men increases from 25% in the early remains to 51.9% in the later, although cranial trauma is higher per capita in the earlier sample. However, the limited number of individuals (2) in that sample suggests caution before concluding that, contrary to established opinion, war was more intense in the earlier Neolithic than later metal ages. The absence of local fortifications in later times is not unusual, expectably accompanying a shift to wars of external expansion.

Leaving Europe for Mesoamerica, Pijoan and Mansilla Lory describe evidence for cannibalism and human sacrifice from central Mexico, from 500 B.C.–at least a thousand years after the develop-

ment of serious militarism (Hassig 1992) – to the time of the conquistadors. The effort is to distinguish cannibalism, identified by six criteria, from postmortem dismemberment accompanying ritual sacrifice, lacking the signature characteristics of cannibalism. The conclusion is that both had deep histories in the area.

Turning to North America, Ostendorf Smith compares osteological remains from a number of sites from the Tennessee River Valley from 2500 to 1000/500 B.C. Ten of 439 individuals appear to have died from violent trauma, six of those from one site. Smith notes that while most of the sites with trauma are along a main river channel, the location with the six cases is up a small tributary, highlighting the spatial distribution of injury. She hypothesizes that the six were from an exposed border group during a time of increasing population density and sedentism, with constricting group ranges. In this environment, she surmises, war became an aspect of incipient social differentiation, as some men took to war as a way to advance their status. Trophies were dramatic symbols of their deeds.

On the Pacific Northwest Coast, Maschner describes evidence of interpersonal violence is absent in the earliest remains dating back to 9000 B.C. War is suggested by bones and technology--from some locations but not others--around 1500 B.C., contemporaneous with the development of large villages and reliance on marine resources. Maschner sees war intensifying between 200-500 A.D., along with village consolidation, development of defensive locations, and apparent adoption of the bow and arrow. Defensive site occupation peaked between 900 and 1200 A.D.

Maschner here discounts his earlier idea that the later peak in war is related to climatic deterioration (which he now believes as occurring too late in the process), and instead sees war itself as the force driving economic intensification. That intensification is evident in a pronounced shift to reliance on salmon c. 1150 A.D., which was followed by a population crash c. 1350. The intensive war witnessed later by European observers even with reduced populations, he argues, was merely a continuation of an established pattern, and was waged for a great variety of reasons. He takes issue with my own study of Northwest Coast warfare (Ferguson 1983; 1984a). I too see war as dating back to the second millennium B.C., but posit a major transformation and intensification in the contact period, a point to which I will return.

Further south on the Pacific coast, around the Santa Barbara channel, Lambert also finds a long history of violence among

hunter-gatherers, especially on the islands. Healed cranial injuries are found in all times periods in a sequence dating back to 3000 B.C. (Walker 1989:318). Lambert suggests this reveals non-lethal violence, perhaps club fights among men and spousal abuse to explain the less frequent injuries of women. These injuries increased in the Middle period, when projectile points begin to appear frequently in skeletal remains. Lethal violence, she argues, became relatively constant then, but small in scale.

The Middle period was a time of increasing sedentism, population growth, and intensifying use of maritime resources. These people were increasingly susceptible to climatic variations, especially those affecting the always limited availability of fresh water. This, Lambert argues, fueled low level warfare, in a competitive situation which eventually gave rise to chiefdoms. Although Lambert warns against placing too much emphasis on European contact as a generator of war in this region, "the level of intergroup conflict appears to have increased significantly... among tribes who came in contact with the early Spanish explorers" (Walker, Lambert, and De Niro 1989:359)

Wilkinson offers another study of cranial trauma, this one from Late Woodland Michigan, c. 1000–1300 A.D. While there is no direct evidence of war, there is a remarkably high level of cranial damage among females, most with signs of healing, suggesting they were assaulted with blunt weapons. There are many possible explanations for this trauma, including violence by other women. But noting that in the Crow Creek massacre site in South Dakota c. 1325 (Willey 1990) – where some 486 people were butchered in the worst pre-contact slaughter known--young females seem to be missing, Wilkinson suggests the traumatized Michigan women may have been war captives (although indications of war are absent in other nearby sites). In this case, the relative absence of male trauma may be a result of the relative absence of male skeletons, warriors who died elsewhere.

In the late prehistoric Southwest, there are many sites with signs of violence, and many without. Martin compares two places, at two times, again highlighting spatial and temporal variation. On Black Mesa 800–1150 A.D., where ecological marginality is manifest in signs of nutritional stress, she sees extensive networks of cooperation, minimal long distance trade, and few signs of interpersonal violence. Along the La Plata River from 1000 to 1300 A.D., an area rich for subsistence and central in trade, there is again healed cranial damage among women, again in the absence of

direct evidence of warfare. Other burial distinctions suggest these women formed a subordinate group, perhaps captives, perhaps migrants. Another possibility is suggested by the Yanomami. More peripheral Yanomami groups cede wives to connect with powerful trade controllers, and these political brides are commonly mistreated (Ferguson 1992:221).

Martin, Wilkinson, Lambert, and Maschner call attention to variation in a time – 500 to 1350 A.D. – when violence and war appear to be on a generally upward curve across broad swaths of the continent (see Milner et al 1991:595). It is tempting to infer that violence against women is in some way related to broader and more deadly conflicts, as both male supremacist (Divale and Harris 1976) and fraternal interest group (Otterbein 1994) theories would expect. But that is precisely the sort of question – the relationship between internal and external violence – that this volume raises for future researchers.

The two remaining papers are comparative studies, one of osteological evidence of (mostly) non-lethal injuries, the other of statistically coded ethnographic evidence of war. Violence against women is once again a topic in Walker, although in general men show more signs of trauma. His wide ranging study illustrates the need to get beyond an exclusive concern with diagnosing war, as well as the many difficulties that remain in divining behavior from bones. A major focus is boxing, and his idea that this violent sport is associated with other kinds of assault supports a point argued by Ember and Ember – that different sorts of violence go together (though not always – see Wolf 1987:129–130). A shorter discussion indicates that physical injury increased with increasing Russian penetration of Yakuts society, suggesting that state encroachment can lead to not only more war, but to other interpersonal violence as well.

Ember and Ember provide the only study dealing with war using ethnographic data. I must begin by disagreeing with their assessment of the prevalence of war. If one gets beyond the casual and often highly inaccurate characterizations of war in general ethnographies, and into historical description of actual wars, it is unusual to find any non-state local population that is involved in war on an average once every two years, and even more so to find one where war is "almost constant."[3]

Take the Yanomami. If one were to read only Chagnon (e.g. 1983), any coder would place them at the peak of warlike behavior. But if one examines the reported incidence of actual warfare

among all Yanomami over time, as well as the more frequent periods of peace, on average any Yanomami community would be involved in war less than once a decade (see Ferguson 1995)--the lowest of the Embers' categories. The great majority of war incidents can be linked to specific changes in local contact situations. More generally, the practice of reducing the warfare of a 'culture' to one frequency eliminates the temporal and spatial variation demonstrated in the studies collected here and elsewhere. History is removed from consideration.

I must also disagree with the Ember and Ember's suggestion that the ethnographic record would be even more violent if it were not for "pacification". The old imperialist rationale that state expansion stops local fighting is contradicted by a great number of detailed ethnohistoric studies (e.g. Ferguson and Whitehead 1992a; Ferguson with Farragher 1988:242–254) which document the opposite effect. Initially, state encroachment is far more likely to intensify conflict than suppress it. Pacification – if that term is intended to mean military suppression of local conflict – is usually a late development in the process, and one that can be documented if it occurred. It simply cannot be assumed that such areas are peaceable because wars were stopped by government agents – as the Embers suggest here in regard to the !Kung San.

The data assembled by Ember and Ember nevertheless are extremely significant. If war and other violence in the distant past was anything even approaching the extent and intensity they claim for their more recent sample, it should be visible in the archaeological record. The cases collected in this volume, even if read with the most sanguinary interpretation, cannot be viewed as supporting an extension of the Embers' picture into ancient times. How could such intense levels of violence exist in the great majority of cases without leaving recoverable traces? For me this contrast demonstrates quite clearly that the recent ethnographic universe is a much more violent place than the ancient world.

The main explanatory thesis in this and other recent work by Ember and Ember is that it is the threat of natural disaster that best predicts the intensity of warfare. An association between war and ecological crisis is established in ethnology (Ferguson 1990:33) and is born out by numerous archaeological investigations. I will argue below that this connection will be better understood if the whole question is put in more systemic and historical perspective.

PRESENCE AND ABSENCE

What does this evidence tell us? Paradoxically, by documenting violence and warfare and showing variations over space and time, these chapters highlight their absence in much of human prehistory. And this research is gathered together specifically to demonstrate the existence of violence. Another wide-ranging collection on "paleopathology at the dawn of agriculture" (Cohen and Armelagos 1984), is striking for the relative absence of the sort of evidence presented here. Partly, that may be neglect. But where trauma is specifically discussed, in many cases there is little or nothing to suggest any social pattern of violence. (Curiously, much of the evidence of trauma in Cohen and Armelagos comes from sites within the Mississippi drainage, also the focus of papers in this volume).

Other works similarly indicate a late emergence of violence and war. A survey of south Asian sites (Kennedy 1984:178, 183) finds limited skeletal evidence of trauma. Most of that appears in Harappan contexts, and even there earlier reports of massacres have been seriously questioned. In the Levant from the late Paleolithic well into the Neolithic, indications of violence and war are conspicuously absent from the abundant skeletal and settlement remains (Rathburn 1984; Roper 1974; Smith, Bar Yosef, and Sillen 1984).

A dedicated search for archaeological signs of war in South America (Redmond 1994) produces little that is convincing and early. On the pre-ceramic Peruvian coast, any indication of violent conflict is late and limited to a few locations (Quilter 1989:65, 78, 85), except for the highly problematic findings at Ostra (Topic 1989).[4] On the plains of western Venezuela, evidence of war only appears along with agricultural intensification and the rise of chiefdoms, post 500 A.D. (Spencer and Redmond 1992:153).

Europe in the Mesolithic and early Neolithic does produce some indications of personal violence (Meiklejohn et. al 1984; Whittle 1985), as discussed previously, but these are exceptional. The situation in China is similar: a very few signs of interpersonal violence (two skeletons with embedded points) gives way to widespread evidence of war – fortifications, specialized weapons, and multiple osteological signs – only in the final Neolithic, along with the development of economic inequality, not long before the rise of states (Underhill 1989). A similar change occurred in prehistoric Japan, where evidence of violent death goes from about .002% of approximately 5,000 skeletons from pre-agricultural Jomon times, to over

10% of all deaths in the subsequent, agricultural Yayoi epoch (Farris n.d.). In all these areas, war ultimately becomes entrenched and widespread, leaving unmistakable indicators. Again, it is difficult to understand how war could have been common earlier in each area and remain so invisible.

Homicide may be as old as Cain, even antedating our species. Certainly the Gombe chimpanzees can kill (Goodall 1988) in a manner I would call war. On the other hand, this was a situation heavily impacted by *human* encroachment (Goodall 1986:49-59; Power 1995), in a manner much like a "tribal zone" (below), and thus not representative of natural conditions. The violence of these apes suggests that our most distant ancestors were capable of killing even as groups, but not that they often did.

Roper (1969:448) calls into question some alleged instances of killing in the Palcolithic, but others remain convincing. The Australian rock art noted earlier (Tacon and Chippendale 1994) indicates an early pattern of lethal violence, individual and then collective, but it stands as an exception that highlights the rule: individual killings seem rare and organized killing nearly absent throughout most of our collective past.

This conclusion carries heavy theoretical weight. It differs from the position taken by Knauft (1987a; 1991), who accepts the relatively recent development of war, but argues that individual homicide is and has been common in the simplest societies. Based on observations of recently observed peoples, this proposition is woven through a complex and wide ranging theory. The recent findings on Australian rock art (Tacon and Chippendale 1994) clearly support his position. But osteological evidence generally does not. If our ancestors were killing each other at the posited rates, if a quarter or more of adult men were dying after being stabbed, clubbed, or shot, we would see it in their remains. Perhaps some of recently noted homicide rates in simple societies stem from disruptions attendant on Western encroachment (Marshall 1994).[5] At any rate, caution is advised before generalizing about homicide from a few modern cases.

The evident absence of *warfare* during most of our evolutionary past sinks a boat load of theories. Van der Dennen (1990:149–168, 182–186) summarizes and critiques (and see Meyer 1990) a range of approaches which assume that war has always been with us, from old racial conquest theories, 19th century evolutionism, and 20th century instinct theories, through hunting hypotheses and territorial imperatives, brain evolution, cultural pseudospeciation,

and kin selection. Recently, sociobiological theories, put forward as explaining much violence in the contemporary world, rise upon the claim that for hundreds of thousands or even millions of years, humans typically lived in tightly knit and mutually belligerent groups (Alexander 1979:222–228; Daly and Wilson 1988:221–224; Reynolds et al 1987; Shaw and Wong 1989:14–17). Alexander, who provides the theoretical foundation for other work, deals with the lack of evidence for ancient war by arguing we could not see it even if it had been present – i.e. absence of evidence is not evidence of absence.[6] After this volume, that position is very difficult to maintain.

To understand the importance of the findings of this volume, it must be clearly understood that what these widely broadcast theories *require* to be plausible, is not merely that war *sometimes* happened in humanity's distant past, but that it was ubiquitous and intensive throughout human prehistory. Seen in that light, the chapters compiled here provide a decisive falsification.

THEORIZING ANCIENT WAR

Preconditions

While the inclusive orientation of this volume highlights unasked questions about a variety of violence, the kind of violence that has acquired the most theoretical encrustation is war. This section examines a question: if it is true that we come from a sporadically violent past, why did war eventually become common? What happened?

Some think war came only with agriculture (e.g. Leakey and Lewin 1977:221-223; Carneiro 1994:12). That was when all hunters and gatherers were thought to be scattered and mobile, with the settled, complex fishers of the Pacific Northwest Coast a virtually unique exception. Now we know "complex hunter-gatherers" settled in many areas, intensively exploiting concentrated natural resources (Hayden 1992; Price and Brown 1985). What may be unique about the Northwest Coast is that the environment prevented agriculture from ever emerging. Several cases in this volume concern such non-agricultural peoples, who are shown to be quite capable of both individual and collective violence.[7] Vencl's (1984:121) assertion that warfare in Europe began during the Mesolithic rather than the Neolithic may have broader application.

Sedentism, more than agriculture, makes the difference. The emergence of war is associated with people who are notably more

settled than their predecessors. The relative peaceablility of some mobile groups, in the present and in the ancient past, has been attributed to their need to maintain wide, cooperative networks to cope with scattered and fluctuating resources (Martin this volume, Knauft 1994:460–47; Wolf 1987:132). But perhaps more important is simply their ability to move away from conflict. In Amazonia (Ferguson 1989b:195–196), semi-sedentary "hunters and gardeners" quickly move away from actual or potential enemies. Situations building toward violence are regularly resolved by exit ("almost wars"). Sedentism removes this peaceable alternative.[8]

But since archaeology provides many examples of sedentary living with no indications of war, that condition alone cannot explain the development of war. What else might? I contend (Ferguson 1984a:308–310; 1984b:37–38; 1990a:28–31; 1995:9–13) that wars occur when it is in the material self-interest of decision makers to fight.[9] This directs theoretical attention to both the possibility of interests to be gained, and to those aspects of political organization which structure public decisions.

When and how did war become gainful? What are objectives of war which might be archaeologically visible? Sedentism makes territorial gain a possible objective, especially with concentrated resources, or the investment of labor in land (see Wolf 1987:136–140). Conquest leaves traces. But conquest is always uncertain and difficult to attempt, and so would seem an unlikely goal until people already had some proficiency in war.[10]

Raiding to capture movable valuables is far less ambitious, as is punitive retaliation, and the two may precede wars over territory. Domesticated livestock, of course, can be run off. Stored food can be plundered, although that possibility may be limited with foot transportation (see Hassig 1977).[11] Capturing people may be underappreciated as a goal of war (see Starna and Watkins 1991), but it too would seem to be a relatively advanced form of predation, an option only for accomplished raiders.

Looting manufactures or precious materials takes little sophistication, although concentration of these goods was probably unusual before the rise of extensive trade. The first conclusive evidence of widespread and enduring wafare (excepting Jebel Sahaba, below) is from the mid sixth millenium Near East, in association with major trade routes (Roper 1975:317–330). In my estimate, plunder of trading parties and efforts to forcibly improve position in trading networks were probably the most common incentives for the earliest wars.

But like sedentism, concentrated material value is found without war. Still more is involved, and that more involves the political evolution of contending parties. Although Ember and Ember's statistics may not support an association, I still believe there is a relationship between increasing hierarchy and centralization and the intensification of war. (This relationship may be masked in statistics by the unappreciated 'warrification' of contact.) War is an expression of a political structure, and the characteristics of that structure shape the character of war.

In the more egalitarian societies, every man ultimately decides on war for himself.[12] The only man a Yanomami leader can order into combat is a subservient son-in-law. In the absence of political control and coercion, every death may require extensive discussion to hammer out a new consensus for action (see Morren 1984:200–201). To pursue war, interests must be very clear and general.

With developing hierarchy and centralization, dynamics of decision-making change in a way that increases the likelihood of war. Such polities become more capable of concerted action, in general. Moreover, leaders develop distinctive interests, matched by a disproportionate say in group policy (see Sillitoe 1978). In areas familiar with war, "military entrepreneurs" (Ferguson 1994:94) may arise, seeking to raise their position in society by initiating violence. That may be what Ostendorf Smith detects in ancient Tennessee. With increasing development of more complex social arrangements, and more concentrated leadership,[13] military policy increasingly tilts toward the interests of a few, and critical among those interests are external relations which support the internal structure of inequality (Ferguson 1984b:39).

Hierarchy is one thing, group boundedness another. A break or boundary may be a line of conflict. Fraternal interest groups – solidary local groups of male blood kin – are prone to various kinds of local violence. Bounding of larger tribal networks is associated with war (Ferguson n.d.b). It has long been known that conflict and boundedness are mutually reinforcing (Coser 1956; Simmel 1964). What is often at issue, as reflected here by Ember and Ember, is whether more causal weight is assigned to the underlying conflict or to the existing organizational structure. Here I go along with the Embers – the boundary is derivative and may change in short order. Yet, boundaries can be very important as visible clues to past antagonisms.

Increasing sedentism, concentration of material value, hierarchy, and boundedness, all make war an evolving possibility. Not that

war is impossible without them, but all four together set the stage, making war increasingly likely.[14] In my view (Ferguson 1994), entirely peaceful political structures may develop even up to the level of a chiefdom, but they become increasingly rare.

I do not think that any search for one or several general characteristics will answer the riddle of war's occurrence. To understand why a real war really happened, it must be situated within a pattern of conditions and relationships, as they vary over time. The analytic challenges are to bring in both system and process, and to simultaneously recognize the causal roles of localized interactions with the natural environment, and of participation in a larger and constantly changing social universe. The remaining two sections of this chapter outline some of those considerations, derived from my own theory, as they might be approached by archaeologists and paleoanthropologists.

Across Space...

War is a relationship *between* groups. If the fight is over food or resources, it will arise not in the circumstance of one group, but in the relative circumstances of different groups. There must be both a local need and a militarily achievable solution. Two groups suffering equally from drought may have no reason to fight, but give one a well... This means looking at comparative subsistence situations across a region, and *mapping* war patterns against ecologies. Which locations are the source of attacks, which are the targets?

I take issue with Maschner's assertion, that on the ancient Northwest Coast subsistence was assured by the area's over-all productivity. This de-emphasizes well-documented spatial and temporal variations in resources. Some local groups which usually had enough, sometimes had famine. Until post-contact depopulation, groups on exposed coasts, in lands without salmon streams, and up productive streams but away from the coast, raided groups with more assured resources (often near estuaries), and/or tried to drive them away and replace them (Ferguson 1983; 1984a; and see Cannon 1992).

Population characteristics should be added to ecological variables. Number of fighters is a major concern in combat. Combat manpower may be a crucial element in regional demographic systems. In prehistoric Amazonia and highland New Guinea warfare may have powered a flow of people outward from growing population centers towards peripheral demographic sinks (Ferguson 1989a:255–258). In urbanized areas of the ancient world, where

power centers were also areas of accelerated mortality (Knauft 1987b), the opposite directionality might be expected, with peripheral peoples frequently invading and taking over.

These infrastructural conditions of ecology and demography are most important, but they are still only part of the story. No local group is an island, and an "isolated tribe" is an oxymoron. Connections come in many forms. Local bands must interpenetrate to constitute a viable breeding population (Wobst 1974). At the other end of the scale, prehistoric trade can knit together entire continents (Wood 1980), though as Martin notes, different locales can be heavily involved in trade or hardly at all. Prehistoric boundaries are spanned by a wide variety of ties (Green and Perlman 1985). Ancient regions appear structurally integrated by tribal networks (Bender 1985; Braun and Plog 1982; Friedman and Rowlands 1982; Kristiansen 1982). In the many "world systems" before the current one, local social situations were strongly affected by position within the whole (Champion 1989; Peregrine 1993; Rowlands et al 1987; Schneider 1977).[15] "Tribal zones"--spaces not directly administered by a state but feeling the destabilizing effects of state proximity-- existed through much of the ancient world (Ferguson and Whitehead 1992b:4–8).[16]

One complex social universe of the 16th century was located across and beyond the Guyana region, integrated in peace and war by trade, marriage, alliance, and ritual (all of which was reshaped and then destroyed by Western intrusion) (Arvelo Jimenez and Biord 1989; Spencer and Redmond 1992; Whitehead 1995). The Yanomami, survivors of that holocaust, reveal the microsociology of this integration. Relationships between groups are complex, multidimensional, and any aspect can stand for the whole. But the key ordering principle is trade, and the value of trade can be tapped in various ways via the application of force (Ferguson 1995; and see 1984a). As noted above, development of rich trade networks, and of trade-good haves and have nots, may provide sufficient bases for early war. But answers to where? when? and who? must be sought in the structure of social relationships.

Trade, and the whole gamut of social relationships that rise upon and reinforce trade ties, can have a profound effect on the life circumstances of everyone in a local group. But their significance will be magnified for leaders, even those constrained by requirements of consensus. Leaders getting no respect at home may rise in importance as representatives in intergroup relations. Sumptuary goods are tangible symbols of those distinctive interests. Northwest Coast potlatches, for example, were linchpins of systems of

war and exchange, in which nobles often acted for themselves as well as their kin (Ferguson 1983). Thus, leaders have distinctive interests in military policy, which become more pronounced with increasing hierarchy and centralization. Pursuing these interests, they can move society toward war.

The potlatch brings up another point. I argue (1983:138) that redistributive exchange gained allies and reduced enemies, and so was selected for since war became endemic on the Northwest Coast, which following MacDonald (1979) I put before 1000 B.C. War as a mechanism of group selection is part of my general model (Ferguson 1990:28–29). Recently (1994:101–105) I suggested that war may select for itself: non-militaristic social formations might be made untenable when some competitors opt for war. There may be alternative system states and evolutionary trajectories, peaceable and warlike.

The cases in this volume and other readings, however, lead me to a qualification. Once introduced, war does not automatically become the rule. On the Northwest Coast, yes, war seems to spread widely and stay. But elsewhere war is scattered and sporadic. It came, but it went. Contra Schmookler's simplistic 'parable of the tribes' (1984:21), the appearance of one war making group does not force all others to turn to war in perpetuity. Since chronic warfare is more theoretically interesting than an occasional outburst, archaeologists should ask not just when war first appeared in an area, but when it became general and persistent.

When more people within a regional system live in conditions of sedentism, concentrated material values, pronounced political hierarchies and boundaries, sharp ecological and demographic inequalities, and developed but unequally beneficial trade networks, it is more likely that some people, especially some leaders, will find themselves in situations where it appears reasonable to be violent. The more groups use violence regularly, the more readily will others do the same, or face physical or social elimination. Thus as a systemic process, war may become an established way of dealing with problems, and an entire region restructured for war.

Summarizing spatial considerations, war is a relationship within an extensive social system, where people with varying ecologies, populations, trade positions, and political organizations are joined in multidimensional networks which have their own systemic tendencies toward war or peace. But a systemic perspective is still not enough. Anthropological theorizing about war has been distorted by the absence of historical perspective (Ferguson 1990b). Warfare

we know varies by historical circumstance. There is no reason to believe that ancient societies, in contrast to recently known ones, were static or "cold". Historical variation certainly is indicated in the studies collected in this volume. Indeed, it can be argued that regional systems of the sort just discussed experienced major intensifications of warfare (and perhaps other violence) in response to ecological and social *changes*, which are identifiable archaeologically.

...and Time

Can there be a historical perspective on prehistory? Although the detail provided by written accounts can never be matched, outlines of historical process may be developed in at least two ways. One way is to adopt a more dynamic conceptualization of human interaction with the physical world. Recent work in "historical ecology" (Balee n.d.; Crumley 1994) stresses the impact of climatic change, human modification of the landscape, demographic shifts, and the transformations brought on by external introductions.

Climatic change, for instance, affects not only the subsistence situation of every local group, but the relative position and interrelationships of different groups. As McGovern (1987) reconstructs the well-studied area of Transjordan at the end of the Bronze Age (1250–1150 B.C.), declining precipitation led to intra-regional population shifts, aggravated by the arrival of new people (including the Philistines) by sea. These changes shattered existing trade routes, upset farmer-pastoralist relations, and led to the collapse of some cities. A situation of apparent peace broke down into widespread and destructive war, creating a more insular and impoverished social world in the Iron Age.

Such detailed regional reconstructions would be beyond most present archaeological knowledge. But the conflict-generating impact of climatic deterioration does seem visible. Major benchmarks in human military-political history are linked to climatic change. What may be the earliest evidence of war anywhere in the world – projectile points associated with numerous skeletons at the Natufian Jebel Sahaba Site 117, perhaps from 10,000 B.C. – come from an exceptional fishing site in a time of ecological deterioration (Hoffman 1979: 97–99; Wendorf 1968:993). In Mesopotamia, the emergence of warring city-states c. 2,800–2,350 B.C. followed climatic changes that altered river channels, accompanied by salinization of farmlands caused by irrigation (Nissen 1988:129–135).

Weiss (1996) advances the provocative assertion that the recorded collapse of civilizations from the Indus to the Aegian was caused by a three-century drought starting around 2200 B.C. Civilizations do not die peacefully.

Deteriorating climatic conditions are strongly implicated in several studies of war in North America from about 500 to 1300 A.D. (Eddy 1974; Moss and Erlandson 1992). In parts of the southwest, Haas and Creamer (1993) discuss a long term process culminating in pervasive warfare in the dry century bracketing 1300 A.D. An even more sanguinary portrait characterizes dessicating areas of the Great Plains at about the same time (Bamforth 1994; Milner et al 1991; Willey 1990).

Current international security studies focus on decaying environments and the future of global warfare (ECSP 1995), so it is vital that archaeologists address possible connections in this area. A great start would be a survey of evidence regarding climatic change, population growth, ecological degradation, and war in North America in the millennium before Columbus. But sociopolitical transformations should also be included.

Along with attention to changes in societal infrastructures, history can be approached by looking for changes in regional sociopolitical patterns. The rise or fall of hierarchical, centralized polities will strongly affect the character of intergroup violence far beyond their borders, as appears common over time in the Mississippi drainage. Expanding states destabilize political and military relations among non-state peoples in their peripheries (Ferguson and Whitehead 1992a). Recent world events provide tragic evidence of the destabilizing impact of retracting or collapsing governments (Ferguson n.d.c).

One genera of state expansionism encompasses most of the known ethnographic universe. European colonialism since the late 15th century is more disruptive and violence-provoking than prior state-system expansions, for several reasons (Ferguson 1993). The vast geographical and social distances traversed meant that contact involved transfers of system-transforming infrastructural elements. New diseases, plants, animals, populations, and technologies, especially iron or steel tools (Ferguson n.d.d), are archaeologically visible. European contact provides dramatic examples of the historically changing character of ecological relations.

Europeans, like many earlier expansionists, used local peoples to fight each other, but Europe is in a class by itself in the immensity of its demand for land and coerced labor. All this combined to

produce massive changes in both society and warfare in the New World and elsewhere. Transformations ran far ahead of direct control by colonialists, and often far ahead of any direct contact at all. These spaces of transformation Neil Whitehead and I call "tribal zones" (Ferguson and Whitehead 1992b).

Some authors misunderstand our position, asserting we claim there was no serious war until the rise of states (Knauft 1993:1186), or until the arrival of Europeans (Marcus 1994). In a book which arrived during final revision of this chapter, Keeley (1996:20, 22) misrepresents our position, claiming we make "a Rousseauian declaration of universal prehistoric peace". Hardly. Our position, clearly stated in several publications and a fundamental premise of many others, is that European contact regularly transformed the local practice of war, frequently led to intensification of fighting, and sometimes generated war where none had been occurring. All of this had been documented by many authors before us (Ferguson with Farragher 1988:242–254).

North American archaeology already provides evidence of the transformation and intensification of war in the early phases of contact (Blakely 1988; Dye 1990:212-213; Owsley et al 1977:51; Pfeiffer and Fairgreave 1994:54; Solecki 1993; Stodder 19194:104; Turner and Morris 1970; cf. Pietrusewsky and Douglas 1994:155). Regarding the Northwest Coast, Moss and Erlandson (1992:74) make an argument similar in many ways to that of Maschner, yet acknowledge that Western contact brought changes in war similar to those I have stressed. Even Bamforth (1994:111), in a paper arguing for indigenous sources of violence in North America, acknowledges that near the Missouri indeed "fortified sites were more common during post-contact than precontact times, and this may reflect more frequent attacks following the Western intrusion". Regarding the Santa Barbara Chumash, he notes "increased conflict between Europeans and natives and among native groups themselves" (Bamforth 1993:49).

Archaeologists can provide crucial evidence on the impact of European contact (see Rogers and Wilson 1993), and would set their sights far too low if the only question asked was simply whether war existed before the arrival of new, expanding states. The issue is what happened to war in protohistoric times. How and why did it change? In what ways are war patterns of the ethnographic literature truly indigenous, and in what ways are they responses to European expansionism? What does all this tell us about causes of war in general? Archaeology can even investi-

gate war in tribal zones of ancient state systems, something which at present seems beyond the capabilities of ethnohistory.

CONCLUSION

This volume looks back to the early history of interpersonal violence and war. It represents a major advance in a topic long dominated by conjecture and projection rather than evidence. Much more work must be done before we have a firm understanding of how and why violence and war ultimately became commonplace. As archaeological research progresses, it should articulate with theory in cultural anthropology – which at present is far more developed regarding war specifically than other kinds of violence. But even that theory comes in many different constructions.

I have offered my own take on where explanations may lie, and what sort of variables should be considered. These include preconditions which make local groups candidates to develop war: degree of sedentism, concentration of material value, political centralization and hierarchy, and boundedness. They include key spatial arrangements which give structure to regional political arenas: inequality in subsistence situations and population size, trade and other social ties, the influence of nearby states on tribal peoples, and the presence of war itself. Over time, ecological crises and changes associated with state impingement, especially that of European states, are both responsible for major increases in war in such regional systems, although certainly not the only reasons why wars occur.

This is a lengthy and mixed set of factors, probably unsatisfactory to those who favor monocausal theories. I favor a more inclusive concept of explanation (Ferguson 1990a), which treats different hypotheses as potentially complementary within a larger theoretical structure. There is no reason to assume that ecological explanations of war are necessarily at variance with trade or political explanations. In my view, these and many more explanations can be combined and applied to the holistic process that is war. Nevertheless, there is uniting all these variable one central proposition, which I offer for archaeological evaluation: generally speaking, war is the outgrowth of the material self-interest of those who decide military policy.

Evaluating whether this or any other perspective holds true in prehistoric war will depend on building a robust and accessible evidentiary base. Along with basic empirical research of the sort

highlighted in this volume, archaeologists will need to generalize and compare. The identification of war and other violence is a step toward explanation. Any explanation will involve relating signs of violence to other recoverable features. Just what kind of data we really need will only become apparent as theory develops.

Situations with signs of violence should be contrasted to those without, for as the anthropology of peace has shown, peace is a positive condition, not just the absence of war (Sponsel and Gregor 1994). Patterns of violence should be mapped, both in micro and macro, and plotted over time. Studies focused on any one part of the puzzle should routinely summarize other relevant evidence regarding violence and the basic variables such as those outlined in this chapter. Comparative studies, of regions or larger areas, and of different time periods, are especially useful, making archaeological findings available to non-archaeological theorists.

This volume also has implications for cultural anthropology. It highlights the paucity of ethnographic data and theory about practices of non-lethal violence, much of which is summarized here by Walker. Demographic patterns and the physical patterning of trauma are rarely reported. Knauft (1987a; 1991) and Otterbein (1994) have begun to raise theoretical issues (and see Riches 1986), and my own work is currently examining the role of force in policing. But in general cultural anthropology has not theoretically problematized the kind of violence that archaeologists are now turning up. Until we know more about non-lethal violence in living societies, prospects for understanding its practice in ancient times will remain limited. If studies in this volume are any indication, cultural anthropology may be neglecting a very significant, if ugly, side of social life.

NOTES

[1] Redmond (1994) should be consulted for an innovative effort to identify other archaeological indicators of war. See Vencl (1984) for discussion of aspects of war that are *not* recoverable.

[2] My attempt to understand why Yanomami men of the Venezuelan Orinoco-Mavaca area (Chagnon 1983) are so unusually brutal to women, compared to other Amazonians (Ferguson 1988:148-152) and even to other Yanomami (1992:220–221; 1995:357–358), identifies several contributing factors: an unusually limited basis for female cooperation in an economy reliant on plantains rather than bitter manioc; the existence of strong fraternal interests groups; the ideological reinforce-

ment of intensive warfare; the atypical number of women from other villages married in to trade centers, living without protecting brothers; the large numbers of families shattered by disease and war, leading to more instrumental violence in establishing domestic relations; and the use of women as political pawns and symbols in larger political relationships. Only some of these are potentially applicable to cases in this volume, but the total list of variables implicated in the Yanomami case suggests how complex the question can be.

[3] One of the most influential articles in the anthropology of war is Carol Ember's expose of myths about hunter-gatherers, which provides statistics indicating a high frequency of warfare. The data utilized in that study are very difficult to check. After working through the codes in old issues of Ethnology, one is referred to general sources without specific page citations. But one group coded as having war "more than once every two years" is the Bella Coola (Ember 1978:444), whose war I have studied. To be sure, the Bella Coola lived in an area of endemic warfare, worsened with contact to an awful intensity (Ferguson 1984a:282–284). Even so, the estimate of war 'more than once every two years' seemed well beyond what I found in the ethnohistorical record. Moreover, the sole source noted in Ethnology is McIlwraith (1948). But McIlwraith's (1948 II:338) own assessment of the frequency of war is as follows: 'it appears probable that at least several villages of the Bella Coola were embroiled every few years'. The discrepancy between that assessment and the statistical coding raises questions about that data base.

[4] Lines of small piles of stones, suitable as sling stones, have been offered as the earliest (c. 5400-5200 B.P.) evidence of warfare in the New World (Topic 1989). But any number of explanations are possible–it might have been a sport–and the dating of these surface remains is conjectural.

[5] I suggest (Ferguson and Whitehead 1992b:30 n.19) that high levels of individual killings in feuds are, in part, results of changes associated with living on the fringes of state control.

[6] Alexander (1979:227) dismisses the lack of evidence for the pervasive violence he posits by raising several objections which seem rather off the point. He asks, for instance, if mass slaughters of the 20th century 'will be properly interpreted, say, a million years from now'. Leaving aside the capabilities of archaeology in 1,000,1979 A.D., modern war certainly will be identifiable for millennia (see Wood 1994). Instead of dealing with the archaeological record, Alexander advocates the 'evidence' of 'extrapolating backward in time' from recent history.

[7] It may even be that violence decreased in the earliest phases of agriculture, perhaps linked in some way to what seems to be a general though short-lived improvement in diet and health (Roosevelt 1987:576).

[8] This could be seen as an extension of Carneiro's (1970) idea of circumscription.

[9] I (Ferguson 1990:29–30; 1995:9–13) argue for pan-human interest in maintaining the material resources at one's disposal, the standards of effort needed to obtain them, and safety–but not reproductive success. These always must be conceptualized in terms appropriate to a particular culture, just as a concept must always be stated in a particular language. Moreover, material interest is regularly converted into moral terms for public discourse and even self evaluation. Needs become rights. Human diversity notwithstanding, few collectivities willingly opt to do with less of what they consume, for more effort, and at greater hazard. And while it is certainly true that individuals will kill for any number of non-materially-beneficial reasons, it is material interests that effectively structure collective decisions regarding war and peace.

[10] Early conquest would probably occur as in highland New Guinea (Sillitoe 1977): one group drives out another and then gradually absorbs their territory, rather than immediately occupying it all. But archaeologically, the two would amount to the same thing.

[11] The development of canoe and other forms of transport may be as important as bows or guns in the development of war.

[12] Gender and generational structuring aspects of military decision-making are unquestionably significant (Ferguson n.d.a), but hardly explored.

[13] This general discussion raises the broader issue of the relationship between war and political evolution. There are actually two sets of issues, one dealing with how the character of collective violence changes with increasing complexity and political centralization; the other with what role war plays in the evolution of the same. I have discussed the latter elsewhere (1994), where I conclude that war is not a prime mover, but one kind of factor in a broader field of change. War itself is a situation, one which fosters an increase in central decision making. If a state of war persists over time, this situation may allow for the development of social structures which act to reinforce this elevated influence or power. Thus proceeding in small steps, hand in glove with other changes in political economy, war acts as an evolutionary ratchet.

[14] To emphasize that exceptions are expected, here is one. In west central New York State around 2500 B.C., the Lamoka people lived alone. Hunters and fishers, they favored sites with concentrated resources, but remained mobile. Then pioneers of the spreading Laurentian tradition arrived, with similar subsistence practices, oriented to the same rich spots. Strong indications of war are found in a few sites in one area where contact was occurring, but these signs soon disappear. Later and elsewhere, everything indicates gradual amalgamation, without traces of war. It still would be a few millennia before war became endemic in this region (Ritchie 1980:43, 77–79, 104, 105, 120, 294). The arrival of strangers competing for the same crucial resources led to warfare among peoples who theoretically should be peaceful. But the shock passed, and politics returned to the norm.

[15] Lambert (this volume) raises the point that peacefulness may be related somehow to contact with states, and raises the case of the Semai. Probably so. Gibson (1990) shows that the Semai are one of several, scattered peaceful groups in similar positions in a regional system--targets of highly effective slave raiders feeding the Sulu sultanate of the Philippines.

[16] In the end, Mann's (1986:1-14) argument may prove both true and helpful: societies as discrete units are largely illusory. Social integration is a function of different kinds of networks, with distinctive qualities and differential reach.

REFERENCE

Alexander, R. (1979). *Darwinism and Human Affairs*. Seattle: University of Washington Press.

Adrey, R. (1961). *African Genesis*. New York: Dell.

Arens, W. (1979). *The Man-Eating Myth*. New York: Oxford University Press

Arvelo-Jimenez, N. and Castillo, H. B. (1989) "Introduccion." In *Exploracion Oficial*, F. Michelena y Rojas, eds. N. Arvelo- Jimenez and H.B. Castillo, pp. 11–26. Iquitos, Peru: IIAP- CETA.

Balee, W. (Ed.) n.d. *Advances in Historical Ecology*. New York: Columbia University Press, in press.

Bamforth, D. (1993) "Stone Tools, Steel Tools: Contact Period Household Technology at Helo'." In *Ethnohistory and Archaeology: Approaches to Postcontact Change in the Americas*. eds. J. Daniel Rogers and S. Wilson. pp. 49–72. New York: Plenum Press.

(1994). "Indigenous People, Indigenous Violence: Precontact Warfare on the North American Great Plains". *Man* 29:95–115.

Bar Yosef, O. (1986) "The Walls of Jericho: An Alternative Interpretation." *Current Anthropology* 27:157–162.

Bender, B. (1985). "Emergent Tribal Formations in the American Midcontinent". *American Antiquity* 50:52–62.

Blakely, R. (1988). *The King Site: Continuity and Contact in Sixteenth-Century Georgia*. Athens, GA: University of Georgia Press.

Blitz, J. (1988). "Adoption of the Bow in Prehistoric North America". *North American Archaeologist* 9(2):123–145.

Braun, D. and Plog, S. (1982) "Evolution of 'Tribal' Social Networks: Theory and Prehistoric North American Evidence." *American Antiquity* 47:504–525.

Brothwell, D. (1986) *The Bog Man and the Archaeology of People*. London: British Museum Publications.

Campbell, C. (1986) "Images of War: A Problem in San Rock Art Research." *World Archaeology* 18:255–268.

Cannon, A. (1992). "Conflict and Salmon on the Interior British Columbia." In *A Complex Culture of the British Columbia Plateau*. ed. Brian Hayden, pp. 506–524. Vancouver: University of British Columbia Press.

Carneiro, R. (1970). "A Theory of the Origin of the State." *Science* 169:733–738.

Carneiro, R. (1994). "War and Peace: Alternating Realities in Human History". In *Studying War Anthropological Perspectives* S. P. Reyna and R. E. Downs, eds. pp. 3–27. Langhorne, PA: Gordon and Breach.

Chagnon, N. (1983). Yanomamo: *The Fierce People*, 3rd ed. New York: Holt, Rinehart and Winston.

Champion, T. C. (Ed.) (1989) *Centre and Periphery: Comparative Studies in Archaeology*. London: Unwin Hyman.

Coser, L. (1956) *The Functions of Social Conflict*. New York: The Free Press.

Crumley, C. (Ed.) (1994) *Historical Ecology: Cultural Knowledge and Changing Landscapes*. Santa Fe: School of American Research Press.

Daly, M. and Wilson, M. (1988). *Homicide*. New York: Aldine de Gruyter.

Dennell, R. (1985). "The Hunter-Gatherer/Agricultural Frontier in Prehistoric Temperate Europe." In *The Archaeology of Frontiers and Boundaries*, eds. S. Green and S. Perlman, pp. 113-139. Orlando: Academic Press.

Divale, W. and Harris, M. (1976). "Population, Warfare, and the Male Supremacist Complex." *American Anthropologist* 78:521–538.

Dye, D. (1990). "Warfare in the Sixteenth-Century Southeast: The de Soto Expedition in the Interior." In *Columbian Consequences* Vol. 2: Archaeological and Historical Perspectives on the Spanish Borderlands East, ed. D. H. Thomas, pp. 211–222. Washington: Smithsonian Institution Press.

ECSP (Environmental Change and Security Project) (1995) Environment and Security Debates: An Introduction. ECSP Report 1. Washington, DC: The Woodrow Wilson Center.

Eddy, F. (1974). "Population Dislocation in the Navaho Reservoir District, New Mexico and Colorado." *American Antiquity* 39:75–84.

Ember, C. (1978). "Myths about Hunter-Gatherers." *Ethnology* 17:439–448.

Ethnology (1963). "Ethnographic Atlas." *Ethnology* (The Editors).

Farris, W. n.d. *Sacred Texts and Buried Treausres: Eassays in the Historical Archaeology of Japan*. Manuscript.

Feest, C. (1980). *The Art of War*. London: Thames and Hudson.

Ferguson, R. B. (1983). "Warfare and Redistributive Exchange on the Northwest Coast." In *The Development of Political Organizaton in Native North America: 1979 Proceedings of the American Ethnological Society*, ed. E. Tooker, pp. 133–147. Washington D.C.: American Ethnological Society.

____ (1984a). "A Re-Examination of the Causes of Northwest Coast Warfare." In *Warfare, Culture, and Environment*, ed. R. Brian Ferguson, pp. 267–328. Orlando: Academic Press.

(1984b). "Introduction: Studying War." In *Warfare, Culture, and Environment*, ed. R. Brian Ferguson, pp. 1–81. Orlando: Academic Press.

(1988). "War and the Sexes in Amazonia". In *Dialectics and Gender: Anthropological Approaches*, eds. R. Randolph, D. Schneider, and M. Diaz, pp. 136–154. Boulder: Westview Press.

(1989a). "Ecological Consequences of Amazonian Warfare." *Ethnology* 28(3):249–264.

(1989b). "Game Wars? Ecology and Conflict in Amazonia." *Journal of Anthropological Research* 45(2): 179–206.

(1990a), "Explaining War." In *The Anthropology of War*, ed. J. Haas, pp. 22–50. Santa Fe: School of American Research Press.

(1990b). "Blood of the Leviathan." *American Ethnologist* 17(2):237–257.

(1992). "A Savage Encounter: Western Contact and the Yanomami War Complex." In *War in the Tribal Zone: Expanding States and Indigenous Warfare*, eds. R. B.Ferguson and N. Whitehead, pp. 197–227. Santa Fe: School of American Research Press.

(1993). "When Worlds Collide: The Columbian Encounter in Global Perspective." *Human Peace* 10(1):8–12.

(1994). "The General Consequences of War: An Amazonian Perspective." In *Studying War*, eds. S. Reyna and R.E. Downs, pp. 85–111. New York: Gordon and Breach.

(1995a). *Yanomami Warfare: A Political History*. Santa Fe: School of American Research Press.

(1995b). "(Mis)Understanding Resource Scarcity and Cultural Difference in Contemporary Conflicts." *Anthropology Newsletter*, November, pg. 37.

(n.d.a). "Relations of Production, Politics, and War in Amazonia: Working Paper." Manuscript

(n.d.b). "Tribal Organization." In *Blackwell Dictionary of Anthropology*. Oxford: Blackwell, in press.

(n.d.c). "Dangerous Intersections: The Local and the Larger in African Violence." In *Paths of Violence: Destruction and Deconstruction in African States*. eds. G. Bond and J. Vincent. Langhorne, PA: Gordon and Breach, in press.

(n.d.d). "Whatever Happened to the Stone Age? Steel Tools and Yanomami Historical Ecology." In *Advances in Historical Ecology*, ed. W. Balee, New York: Columbia University Press, in press.

Ferguson, R. B. with Farragher, L. (1988). *The Anthropology of War: A Bibliography*. New York: Harry Frank Guggenheim Foundation.

Ferguson, R. B. and Whitehead N. (Eds.) (1992a). *War in the Tribal Zone: Expanding States and Indigenous Warfare*. Santa Fe: School of American Research Press.

(1992b). "The Violent Edge of Empire." In *War in the Tribal Zone: Expanding States and Indigenous Warfare*, eds R. B. Ferguson and N. Whitehead, pp. 1–30. Santa Fe: School of American Research Press.

Ferrill, A. (1985). *The Origins of War: From the Stone Age to Alexander the Great*. New York: Thames and Hudson.

Friedman, J. and M.J. Rowlands (1982). "Notes Towards and Epigenetic Model of the Evolution of 'Civilisation'." In *The Evolution of Social Systems*, eds. J. Friedman and M.J. Rowlands, pp. 201–276. London: Duckwater.

Gibson, T. (1990). "Raiding, Trading, and Tribal Autonomy in Insular Southeast Asia." In *The Anthropology of War*, ed. J. Haas, pp. 125–145. Santa Fe: School of American Research Press.

Goodall, J. (1986). *The Chimpanzees of Gombe: Patterns of Behavior*. Cambridge: Harvard University Press.

(1988). *In the Shadow of Man*. San Diego: San Diego State Press.

Green, S. and S. Perlmann (Eds.) (1985). *The Archaeology of Frontiers and Boundaries*. Orlando: Academic Press.

Haas, J. and Creamer, W. (1993) *Stress and Warfare among the Kayenta Anasazi of the Thirteenth Century A.D.* Fieldiana, Anthropology, new series no. 21. Chicago: Field Museum of Natural History.

Hamerton-Kelly, R. (Ed.) (1987). *Violent Origins: Ritual Killing and Cultural Formation*. Stanford: Stanford University Press.

Hamperl, H. (1967). "The Osteological Consequences of Scalping." In *Diseases in Antiquity: A Survey of the Diseases, Injuries and Surgery of Early Populations*, eds. D. Brothwell and A.T. Sandison, pp. 630–634. Springfield: Charles Thomas.

Hassig, R. (1985) *Trade, Tribute, and Transportation: The Sixteenth Century Political Economy of the Valley of Mexico*. Norman: University of Oklahoma Press.

(1992). *War and Society in Ancient Mexico*. Berkeley: University of California Press.

Hayden, B. (Ed.) (1992). *A Complex Culture of the British Columbia Plateau*. Vancouver: University of British Columbia Press.

Hoffman, M. (1979). *Egypt Before the Pharoahs: The Prehistoric Foundations of Egyptian Civilization*. New York: Alfred A. Knopf.

Keeley, L. (1996). *War Before Civilization*. New York: Oxford.

Keeley, L. and Cahen, D. (1989). "Early Neolithic Forts and Villages in NE Belgium: A Preliminary Report." *Journal of Field Archaeology* 16:157–176.

Kennedy, K. A. R. (1984). "Growth, Nutrition, and Pathology in Changing Demographic Settings in South Asia." In *Paleopathology at the Origins of Agriculture*, eds. M. N. Cohen and G. Armelagos, pp.169–192. Orlando: Academic Press.

Knauft, B. (1987a). "Reconsidering Violence in Simple Human Societies." Current Anthropology 28:457–499.

(1987b). "Divergence between Cultural Success and Reproductive Fitness in Preindustrial Cities." *Cultural Anthropology* 2:94–114.

(1991). "Violence and Sociality in Human Evolution." *Current Anthropology* 32:391–428.

(1993). "Review of War in the Tribal Zone." *Science* 260:1184–1186.

(1994). "Culture and Cooperation in Human Evolution." In *The Anthropology of Peace and Nonviolence*, eds. L. Sponsel and T. Gregor, pp. 37–67. Boulder, CO: Lynne Rienner.

Kristiansen, K. (1982). "The Formation of Tribal Systems in Later European Prehistory: Northern Europe, 4000-500 B.C." In *Theory and Explanation In Archaeology*, eds. C. Renfrew, M. Rowlands, B. A. Seagraves, pp. 241–280. New York: Academic Press.

Leakey, R. and Lewin, R. (1977). *Origins*. New York: E.P. Dutton.

MacDonald, G. (1979). *Kitwanga Fort National Historic Site, Skeena River, British Columbia: Historical Research and Analysis of Structural Remains*. Ottawa: National Museum of Man.

Mackey, J. and Green, R. C. (1979). "Largo-Gallina Towers: An Explanation." *American Antiquity* 44:144–154.

Mann, M. (1986). *The Sources of Social Power*: Vol. I: A History of Power from the Beginning to A.D. 1760. Cambridge: Cambridge University Press.

Marcus, J. (1994). "Introduction to Volume V." In *Tribal and Chiefly Warfare in South America*, ed. E. Redman, pp. v-vi. Ann Arbor: Memoirs of the Museum of Anthropology University of Michigan.

Marshall Thomas, E. (1994). "Management of Violence among the Ju/wasi of Nyae Nyae: The Old Way and a New Way." In *Studying War: Anthropological Perspectives*, eds. S.P. Reyna and R.E. Downs, pp. 69–84. Langhorne, PA: Gordon and Breach.

McGovern, P. (1987). "Central Transjordan in the Late Bronze and Early Iron Ages: An Alternative Hypothesis of Socio-Economic Transformation and Collapse." In *Studies in the History and Archaeology of Jordan III*, ed. A Hadidi, pp. 267–273. Amman, Jordan: Dept. of Antiquities.

McIlwraith, T.F. (1948). *The Bella Coola Indians*, 2 Vol. Toronto: University of Toronto Press.

Meikeljohn, C. Schentag, C. Venema, A. and Key, P. (1984) "Socioeconomic Change and Patterns of Pathology and Variation in the Mesolithic and Neolithic of Western Europe: Some Suggestions." In *Paleopathology at the Origins of Agriculture*, eds. M. N. Cohen and G. Armelagos, pp. 75–100. Orlando: Academic Press.

Meyer, P. (1990). "Human Nature and the Function of War in Social Evolution. A Critical Review of a Recent Form of the Naturalistic Fallacy." In

Sociobiology and Conflict: Evolutionary Perspectives on Competition, Cooperation, Violence and Warfare, eds. J. Van der Dennen and V. Falger, pp. 227–240. New York: Chapman and Hall.

Milner, G. Anderson, E. and Smith, V. (1991). "Warfare in Late Prehistoric West-Central Illinois." *American Antiquity* 56:581–603.

Moore, J. (1985). "Forager/Farmer Interactions: Information, Social Organization, and the Frontier. In *The Archaeology of Frontiers and Boundaries*, eds. S. Green and S. Perlman, pp. 93–112. Orlando: Academic Press.

Moss, M. and J. Erlandson (1992). "Forts, Refuge Rocks, and Defensive Sites: The Antiquity of Warfare along the North Pacific Coast of North America." *Arctic Anthropology* 29:73–90.

Neumann, G. (1940). "Evidence of the Antiquity of Scalping from Central Illinois." *American Antiquity* 4:287–289.

Neuman, G. (1987). "How We Became (In)Human." In *Origins of Human Aggression: Dynamics and Etiology*, ed. Gerard Neuman, pp. 78–104. New York: Human Sciences Press.

Otterbein, K. (1994). "A Cross-Cultural Study of Rape." In *Feuding and Warfare: Selected Works of Keith Otterbein*, pp. 119–132. Gordon and Breach:Langhorne, PA.

Owsley, D. and Berryman, H. (1975). "Ethnographic and Archaeological Evidence of Scalping in the Southeastern United States." *Tennessee Archaeologist* 31:41–60.

Peregrine, P. (1993). "An Archeological Correlate of War." *North American Archaeologist* 14:139–151.

Pfeiffer, S. and S. Fairgrieve (1994) "Evidence from Ossuaries: The Effect of Contact on the Health of Iroquoians." In *the Wake of Contact: Biological Responses to Conquest*, eds. C. Larsen and G. Milner, pp. 47–62. New York: John Wiley and Sons.

Pietrusewsky, M. and Douglas, M. (1994). "An Osteological Assessment of Health and Disease in Precontact and Historic (1778) Hawai'i." In *In the Wake of Contact: Biological Responses to Conquest*, eds. C. Larsen and G. Milner, pp. 179–195. New York: John Wiley and Sons.

Poliakoff, M. (1987). *Combat Sports in the Ancient World: Competition, Violence, and Culture*. New Haven: Yale University Press.

Power, M. (1995). "Gombe Revisited: Are Chimpanzees Violent and Hierarchical in the 'Free' State." *General Anthropology* 2(1): 5–9.

Price, T. D. and Brown J. A. (Eds.) (1985). *Prehistoric Hunter -Gatherers: The Emergence of Cultural Complexity*. Orlando: Academic Press.

Quilter, J. (1989). *Life and Death at Paloma: Society and Mortuary Practices in a Preceramic Peruvian Village*. Iowa City: University of Iowa Press.

Rathbun, T. (1984). "Sekeletal Pathology from the Paleolithic through the Metal Ages in Iran and Iraq." In *Paleopathology at the Origins of Agricul-*

ture, eds. M. N. Cohen and G. Armelagos, pp. 137–167. Orlando: Academic Press.

Redmond, E. (1994). *Tribal and Chiefly Warfare in South America*. Ann Arbor: Memoirs of the Museum of Anthropology University of Michigan.

Reynolds, V. Falger, V. and Vine, I. (Eds.) (1987). *The Sociobiology of Ethnocentrism: Evolutionary Dimensions of Xenophobia, Discrimination, Racism and Nationalism*. London: Croom Helm.

Riches, D. (Ed.) (1986). *The Anthropology of Violence*. New York: Basil Blackwell.

Ritchie, W. (1980). *The Archaeology of New York State*. Harrison, NY: Harbor Hill Books.

Rogers, J. D. and Wilson, S. (Eds.) (1993). *Ethnohistory and Archaeology: Approaches to Postcontact Change in the Americas*. New York: Plenum Press.

Roosevelt, A. (1987). "Chiefdoms in the Amazon and Orinoco." In *Chiefdoms in the Americas*. eds. R. Drennen and C. Uribe, pp. 153–184. Lanham, MD: University Press of America.

Roper, M. K. (1969). "A Survey of the Evidence for Intrahuman Killing in the Pleistocene." *Current Anthropology* 10:427–459.

_____ (1975). "Evidence of Warfare in the Near East from 10,000-4,300 B.C." In *War: Its Causes and Correlates*, eds. M. Nettleship, R. D. Givens, and A. Nettleship, pp.299–340. The Hague: Mouton.

Rowlands, M. Larsen, M. and Kristiansen, K. (1987). *Centre and Periphery in the Ancient World*. Cambridge: Cambridge University Press.

Schneider, J. (1977). "Was There a Pre-Capitalist World System?" *Peasant Studies* 6:20–29.

Schutz, H. (1983). *The Prehistory of Germanic Europe*. New Haven: Yale University Press.

Seeman, M. (1988). "Ohio Hopewell Trophy-Skull Artifacts as Evidence for Competition in Middle Woodland Societies Circa 50 B.C.–A.D. 350." *American Antiquity* 53:565–577.

Shaw, R. P. and Wong, Y. (1989). *Genetic Seeds of Warfare: Evolution, Nationalism, and Patriotism*. Boston: Unwin Hyman.

Sillitoe, P. (1977). "Land Shortage and War in New Guinea." *Ethnology* 16:71–81.

(1978). "Big Men and War in New Guinea." *Man* 13:252–271

Simmel, G. (1964). *"Conflict" and "The Web of Group-Affiliations"*. New York: The Free Press.

Sipes, R. (1973). "War, Sports, and Aggression: An Empirical Test of Two Rival Theories." *American Anthropologist* 75:64–82.

Schmookler, A. (1984). *The Parable of the Tribes: The Problem of Power in Social Evolution*. Boston: Houghton Mifflin.

Smith, P. Bar-Yosef, O. and Sillen, A. (1984). "Archaeological and Skeletal Evidence for Dietary Change during the Late Pleistocene/Early Holocene in the Levant." In *Paleopathology at the Origins of Agriculture*, eds. M. N. Cohen and G. Armelagos, pp. 101–136. Orlando: Academic Press.

Spencer, C. and Redmond, E. (1992). "Prehispanic Chiefdoms of the Western Venezuelan *Llanos*." *World Archaeology* 24:134–157.

Sponsel, L. and Gregor, T. (Eds.) (1994). *The Anthropology of Peace and Nonviolence*. Boulder, CO: Lynne Reiner.

Starna, W. and Watkins, R. (1991). "Northern Iroquoian Slavery." *Ethnohistory* 38:34 -57.

Stodder, A. (1994). "Bioarchaeological Investigations of Protohistoric Pueblo Health and Demography." In *In the Wake of Contact: Biological Responses to Conquest*, eds. C. Larsen and G. Milner, pp. 97–108. New York: John Wiley and Sons.

Tacon, P. and Chippindale, C. (1994). "Australia's Ancient Warriors: Changing Depictions of Fighting in the Rock Art of Arnhem Land, N.T." *Cambridge Archaeological Journal* 4:211- 248.

Topic, J. (1989). "The Ostra Site: The Earliest Fortified Site in the New World." In *Cultures in Conflict: Current Archaeological Perspectives*, eds. D. C. Tkaczuk and B. Vivian, pp. 215–228. Calgary: University of Calgary Archaeological Association.

Turner, C. and Morris, N. (1970). "A Massacre at Hopi." *American Antiquity* 35:320 -331.

Underhill, A. (1989). "Warfare During the Chinese Neolithic Period: A Review of the Evidence." In *Cultures in Conflict: Current Archaeological Perspectives*, eds. D. C. Tkaczuk and B. Vivian, pp. 229–240. Calgary: University of Calgary Archaeological Association.

Van der Dennen, J. M. G. (1990). "Origin and Evolution of 'Primitive' Warfare." In *Sociobiology and Conflict: Evolutionary Perspectives on Competition, Cooperation, Violence and Warfare*, eds. J. van der Denner and V. Falger, pp. 149–188. New York: Chapman and Hall.

Vencl, S. (1984). "War and Warfare in Archaeology." *Journal of Anthropological Archaeology* 3:116–132.

Villa, P. (1992a). "Cannibalism in Prehistoric Europe." *Evolutionary Anthropology: Issues, News, and Reviews* 1:93–104.

(1992b). "Light on Dark Matters." *Science* 257:1420–1421.

Villa, P. Bouville, C. Courtin, J. Helmer, D. Mahieu, E. Shipman, P. Belluomini, G. and Branca, M. (1986). "Cannibalism in the Neolithic," *Science* 233:431–437.

Walker, P. (1989). "Cranial Injuries as Evidence of Violence in Prehistoric Southern California." *American Journal of Physical Anthropology* 80:313–323.

Walker, P. Lambert, P. and DeNiro, M. (1989). "The Effects of European Contact on the Health of Alta California Indians." In *Columbian Conse-*

quences Vol. 1: Archaeological and Historical Perspectives on the Spanish Borderlands West, ed. D. Hurst Thomas, pp. 349–364. Washington: Smithsonian Institution Press.

Webster, D. (1993). "The Study of Maya Warfare: What It Tells Us about the Maya and about Maya Archaeology." In *Lowland Maya Civilization in the Eighth Century A.D.*, eds. J. Sabloff and J. Anderson, pp 415–444. Washington, DC: Dumbarton Oaks.

Wendorf, F. (1968). "Site 117: A Nubian Final Paleolithic Graveyard Near Jebel Sahaba, Sudan." In *The Prehistory of Nubia Vol. II*, ed. F. Wendorf pp. 954–995. Dallas: Fort Burgwin Research Center and Southern Methodist University Press.

Wendorf, F. and R. Schild (1986). *The Wadi Kubbaniya Skeleton: A Late Paleolithic Burial from Southern Egypt*. Dallas: Southern Methodist University Press.

White, T. (1992). *Prehistoric Cannibalism: At Mancos 5MTUMR* 2346. Princeton: Princeton University Press.

Whitehead, N. (1988). *Lords of the Tiger Spirit: A History of Caribs in Colonial Venezuela and Guyana 1498–1820*. Royal Institute of Linguistics and Anthropology, Caribbean Studies Series 10. Dordrecht/Leiden: Foris/KITLV Press.

(1995). "The Ancient Amerindian Polities of the Lower Orinoco, Amazon, and Guyana Coast. A Preliminary Analysis of the Passage from Antiquity to Extinction." In *Amazonian Indians: From Prehistory to the Present. Anthropological Perspectives*, ed. A. Roosevelt, pp. 33–54. Tucson: University of Arizona Press.

Whittle, A. (1985). *Neolithic Europe: A Survey*. Cambridge: Cambridge University Press.

Willey, P. (1990). *Prehistoric Warfare on the Great Plains: Skeletal Analysis of the Crow Creek Massacre Victims*. New York: Garland Publishing.

Wobst, H. M. (1974). "Boundary Conditions for Paleolithic Social Systems: A Simulation Approach." *American Antiquity* 39:147–178.

Wolf, E. (1987). "Cycles of Violence: The Anthropology of War and Peace." In *Waymarks: The Notre Dame Inaugural Lectures in Anthropology*, ed. K. Moore, pp. 127–150. Notre Dame, IN: University of Notre Dame Press.

Wood, W. R. (1980). "Plains Trade in Prehistoric and Protohistoric Intertribal Relations." In *Anthropology of the Great Plains*, eds. W. R. Wood and M. Liberty, pp. 98–109. Lincoln: University of Nebraska.

(1994). "The Archaeology of Recent Warfare." *The Review of Archaeology* 15(2):14–21.