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Bioarchaeology of Women and Children in Times of War

Case Studies from the Americas

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Bioarchaeology and Social Theory

Series Editor

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This volume is dedicated to all of those who seek to diminish suffering and pain in the world today.

Preface

The effects of warfare on women and children came to us while working on a new course together that we crafted called *Global Health in Times of Violence*. In teaching the course, we drew upon publications by anthropologists working in war torn areas such as Paul Farmer, Philippe Bourgois, Nancy Scheper-Hughes, Javier Auyero, Merrill Singer and Patrick Clarkin, to name just a few. These medical and social anthropologists provided broad introductions to the notion that while pundits and politicians focus on the number of war dead by counting the soldiers and combatants, there is little focus on women, children and other noncombatants who also die or become injured during times of war. This prompted us to look into the bioarchaeological literature for case studies in ancient and historic times where, in addition to discussing warriors and fighters, there were data from the burials of women and children. We could not find many and this led us to ask scholars with bioarchaeological data if they had information that could shed light on the effects of warfare on women and children. This volume of case studies from the Americas addresses this gap in the literature by framing studies in such a way as to highlight what we can know not only about warriors and warfare but also about other members of the community during war.

Bioarchaeology provides a more nuanced lens through which to examine the effects of warfare on life, morbidity, and mortality, bringing individuals not traditionally considered by studies of warfare and prolonged violence into focus. Inclusion of these groups in discussions of warfare can increase our understanding of not only the biological but also the social meaning and costs of warfare. The case studies here demonstrate that during periods of violence and warfare, many suffer beyond those individuals directly involved in battle. From pre-Hispanic Peru to the Greater Southwest to the Civil War-era United States to the present, warfare has been and is a public health disaster, particularly for women and children. Individuals and populations suffer from displacement, sometimes permanently, due to loss of food and resources and an increased risk of contracting communicable diseases, which results from the poor conditions and tight spaces present in most refugee camps, ancient and modern. These issues not only affect the immediate health of women and children; they can impact the growth and development of the current

generation of children, as well as that of future generations, their effects resonating for years. In addition, though rarely considered in studies of violence and warfare, male combatants wounded in the course of battle create new needs within their communities, which can affect overall morbidity and mortality.

This themed set of case studies highlights the value that studying the effects of warfare in many different times in places has. By investigating these different examples, it may be possible to find commonalities that can help us protect vulnerable groups, or raise awareness of the effects of warfare on noncombatants, or identify factors associated with resilience in the face of warfare. Given the state of the world today, these themes speak to everyday headlines in the newspapers and have potential to be of broad interest to both anthropologists and non-specialists.

Las Vegas, NV, USA   Debra L. Martin

Contents

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Debra L. Martin is an expert in human osteology and bioarchaeology/forensics which involves the analysis of skeletonized human remains from archaeological as well as historic and contemporary settings. She conducts research in the areas of nonlethal and lethal violence and the relationship between human violence and inequality, gender differences and disease. She is particularly interested in groups living in risky and challenging desert environments. She is the co-editor of the *International Journal of Osteoarchaeology* as well as an associate editor for the *Yearbook of Physical Anthropology*. She is founding editor for *Bioarchaeology and Social Theory* Series, Springer. Her recent publications include co-editing *Bioarchaeology of Violence* (UPF), *Bioarchaeological and Forensic Perspectives on Violence* (Cambridge) and *Commingled and Disarticulated Human Remains,* as well as co-authoring *Bioarchaeology of Climate Change and Violence* (Springer).

Caryn E. Tegtmeyer holds a B.S. degree in Anthropology and a B.A. degree in Criminal Justice from Michigan State University, an M.A. degree in Anthropology from Texas State University, and is currently working to complete her Ph.D from the University of Nevada, Las Vegas. She has co-organized symposia focusing on understanding the role of women and children in times of war at the American Anthropological Association 2014 Annual Meeting and on implications of injury recidivism in bioarchaeological and forensic contexts at the American Association of Physical Anthropologists 2016 Annual Meeting. Her research interests encompass both the subfields of bioarchaeology and forensic anthropology. She is currently conducting research on trauma and health for a prehistoric population in the American Southwest as well as collecting data on homicide patterns and violent death in Clark County, Nevada.

Chapter 1
The Bioarchaeology of Women, Children, and Other Vulnerable Groups in Times of War

Caryn E. Tegtmeyer and Debra L. Martin

Introduction

In 2017, as Syrian war refugees continue to flow into nearby countries as well as Europe and the United States, it is a stark reminder regarding who these at-risk individuals are. The U.S. State Department reports that half of the Syrian refugees coming into the USA in 2015 were children, and the rest are made up of adult females and males. However, the actual number of "single males of combat age" represents about 2 %. A senior administrator in the State Department notes that "… we set a priority of bringing the most vulnerable people, we're going to have female-headed households with a lot of children, and we're going to have extended families that are maybe missing the person who used to be the top breadwinner but have several generations—grandparents, a widowed mother, and children" (US Department of State 2015). This unfolding event underscores the urgency and concern that brought the scholars in this volume together to investigate the so-called noncombatants during times of war, and to better understand the effects of warfare on women, children, and other vulnerable individuals.

Noncombatants are rarely considered in the histories of warfare because it is the male combatants, soldiers, warriors, and fighters who are most often counted and reported on regarding the effects of war. Data are rarely reported for disabled combatants in the past, and even more rarely reported for civilians and noncombatants. For example, Steven Pinker (2011:53) used male war deaths as the foundation for a book he subtitled "why violence has declined" that attempted to understand the implications of warfare on human history. While flawed and problematic (see Ferguson 2013), this book was on the New York Times best seller list for many months, perhaps in part because of its cheery message that the number of war dead

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per 100,000 people per year appeared to him to be on the decline. What many have pointed out is that while combatant deaths may be decreasing in the modern world due to better protective gear and also due to the math regarding growing population sizes (Whitehead and Finnström 2013), the number of returning soldiers with disabilities and mental and physical health problems has increased and the number of civilian and noncombatants who sustain disabling injuries or who are killed has dramatically increased overtime as well (Sluka 2013).

As bioarchaeologists, it became clear to us that historians and others who are not anthropologists often make broad assumptions about the origin, cultural contexts, and effects of warfare on human history (see for examples Diamond 2012; Pinker 2011). In 2014 in Washington DC, we organized a session for the American Anthropological Association meetings entitled "On the Battlefield of Women and Children's Bodies: The Effects of Warfare in the Past." In the presentations and discussions that followed, it became evident that there were robust empirical data from the archaeological and historical records that bioarchaeologists typically deal with that could begin to address what can be known beyond the number of war dead about the longer history of warfare in human groups. This volume of collected studies is one of the first of its kind to take a critical and close look at what can be known about not only women and children, but also other vulnerable groups who become wounded, disabled, or killed along with the fighters. The emphasis in each of the studies is the historical and cultural context within which warfare is analyzed as a social system deeply embedded within specific cultural ideologies. These studies demonstrate that war does not magically appear when there is trouble on the horizon; rather, it is an intentional and cultural set of behaviors that are enacted according to specific local and cultural codes of conduct. Underlying the whole enterprise of warfare is a specific cultural logic. Most of the case studies are dealing with unique and distinctive non-Western forms of violence and it is crucial that Western notions of violence not be automatically applied.

While these studies represent cases from ancient and historic North America, they are presented as a way to encourage other scholars to frame new questions about warfare's effects on indigenous and early populations in ways that move beyond estimating those that died in direct combat. Thus, this admittedly small sample of case studies representing a specific set of regions within North America is important because it provides a range of new methodological approaches and social theories about questions in this area that can be answered with robust empirical data derived from the human skeletal remains combined with the cultural-historical context. We hope to see many more studies of this kind representing larger areas of the world and more time periods, because that will then permit a better assessment of how warfare has shaped human histories, and how warfare continues to shape our futures.

While male combatants have traditionally been the focus of discussions involving warfare or periods of prolonged violence, we hope to shift and broaden the conversation. The archaeological literature is currently rife with studies on warfare (see for examples, Arkush and Allen 2006; Ralph 2013; VanDerwarker and Wilson 2015) and the discussions rely on the analysis of the material culture of war and

occasionally on trauma of male individuals at sites believed to be involved in battle or warfare. Little if any attention is given to the women, children, or elderly individuals who also resided at these sites and were part of these communities, the so-called *noncombatants*. Perhaps influenced by our own modern day images of warfare involving standing (mostly male) soldiers at either end of a battlefield, noncombatants simply aren't considered as part of the traditional war rhetoric. In fact, noncombatants were so far removed from the battlefield, that they weren't even considered under the Geneva Convention until August 1949, when the Fourth Geneva Convention (GCIV) defined the humanitarian protections for civilians in a war zone (International Committee of the Red Cross n.d.). This included, in summary that "… [p]ersons *hors de combat* [outside the fight] and those who do not take a direct part in hostilities are entitled to respect for their lives and their moral and physical integrity. They shall in all circumstances be protected and treated humanely without any adverse distinction" (International Committee of the Red Cross 1988:1). This declaration was important for its acknowledgement that civilians and others not directly involved in war activities were to be respected and not harmed, but this did little to make it a reality. As we know now, civilian morbidity and mortality during recent wars has always been high and is escalating (Singer and Hodge 2010).

While women and children may not have been traditionally involved in roles that would have placed them directly on the battlefield, it is shortsighted to think that they were also not affected by warfare or periods of prolonged violence. In prehistory, as well as in modern times, those individuals not directly involved in battle still experienced stress and in some cases direct violence. Lack of food and resources, lack of safe shelters, relocation, lack of protection, reorganization or destruction of the family unit, malnutrition, and collateral damage are just some of the issues that noncombatants could potentially face away from the battlefield. In the current political climate, the words of the Geneva Convention fall on deaf ears as more and more civilians are becoming the targets for enemy fire, rather than the soldiers on the battlefield. For example, the Iraq Body Count (IBC) project began as a web-based way to present comprehensive data on the numbers of civilians dying in the 2003 invasion of Iraq by US led allied forces (Wikipedia 2016). What this media, hospital, and locally based data collection showed was that of the approximately 25,000 civilian deaths, 37 % were killed by US-led forces, 9 % by anti-occupation forces, 36 % by post-invasion criminal violence, and 11 % by unknown agents. The timing of the deaths was revealing as well. About 30 % of the civilian deaths occurred during the invasion, while 70 % died in the years after the invasion and direct combat ceased. In addition to deaths, about 42,500 civilians were wounded. These data speak to two important things—the need to consider not only the deaths of those involved in invasions and in combat and the need to consider the aftermath of war as being a dangerous time for civilians.

Harm to civilians can also be used as a means to spread terror and demoralize enemy populations, with women and children being more often targeted and victimized. Sexual violence, in particular, has become a tool of war aimed specifically at civilians and used to affect the relationship between a given individual and their

family or the rest of their ethnic or religious group (Hynes 2004). While we can see firsthand evidence of these types of actions directed specifically toward noncombatants in modern times, it seems likely that these tactics may have been similarly carried out in the past as well. The studies in this volume search for archaeological and historical correlates of these kinds of war time tactics but it is challenging to see the effects of these on human remains. The important thing here is to at least ask the question and frame the research strategies in a way that might permit some inroads into thinking about fear and terror tactics in past groups. Osterholtz (2012) presented compelling data from an AD 800 group in North America that utilized hobbling and torture of captives prior to their execution. Her analysis and interpretation pointed to the ways that violence is *performed* by perpetrators for an audience of witnesses in order to communicate power and fear to them. Other studies from Neolithic Europe have also demonstrated these kinds of tactics (Schulting and Fibiger 2012).

There is a growing body of social theory and anthropological literature that can be drawn upon when thinking about trauma and violence in times of war, particularly when viewing violence on a continuum and when framing violence as a deeply embedded social process. In most cases of warfare, violence is socially sanctioned and culturally accepted within a community. Warfare is usually something that is prepared for and is centrally positioned within the political-economic strategies enacted by non-nation and nation states. Concepts popularized by Farmer (2004), Scheper-Hughes and Bourgois (2004), Whitehead (2004a), and Galtung (1990) provide a number of anthropological perspectives by which to examine trauma and interpret the meaning of violence among combatants and noncombatants in areas where warfare is endemic or sporadic. For example, Singer and Hodge (2010) provide an edited volume entitled "The War Machine & Global Heath: A Critical Medical Anthropological Examination of the Human Costs of Armed Conflict" in which contemporary wars are examined for their broader impacts on all segments of the population. One way they get at the broader effects is to focus on the connections between the direct violence of warfare itself and the side effects of indirect violence on those not directly involved in fighting. Here we see the profound effects of warfare on child health and nutrition, the destruction of medical facilities, the economic hardships placed on mothers, and the devastating effects of disease and disability that reach far beyond the battlefields into the hearts of the communities.

Patrick Clarkin's work, both in the above volume (2010) where he writes about the effects of malnutrition in childhood on adult health and his blog (http://kevishere.com) "War REALLY is Bad for Children (and Other Living Things)," details the effects that war has the health of children in the short and long term. Clarkin's research deals with a range of issues including the interplay of malnutrition, disease, poor growth and development and displacement on children during times of war. Some of the aspects of childhood stress that he is finding in contemporary children in war torn places can be examined for ancient children by utilizing indicators of growth and development that become "recorded" in skeletal remains (see for example Kuckelman, Crandall, and Martin in this volume). Thus, these kinds of effects of warfare on children can be examined in the bioarchaeological record by

including data collection from skeletal and dental material that focuses on child growth and development such as linear enamel hypoplasias, long bone length and age-at-death, and the presence of pathologies indicative of nutritional inadequacy such as porotic hyperostosis (see Ortner 2003 for a full listing of skeletal and dental pathologies that help establish childhood growth and development).

Work by H. Patricia Hynes entitled "On the Battlefield of Women's Bodies: An Overview of the Harm War Does to Women" (2004), which was the original inspiration for the title of the American Anthropological Association session, focuses on the multitude of ways that women are targeted and harmed during periods of warfare. There is a particular emphasis on the types of violence that disproportionately affects women when compared to male counterparts. These include sexual and domestic violence, sex trafficking, and rape camps. Both women and girls who are in war zones and those who are fleeing or in refugee camps are likewise affected. While we can never know the exact nature of sex crimes in the deep past, the skeletal remains of reproductive-aged females and girls can reveal a wide range of insults, injuries, disabilities, and other problems that could lead to an interpretation of abuse during wartime. In recent times, there has been an increasing reliance on both women and children in war activities and nowhere is this more emphasized than in some of the sectarian and local warfare being carried out in parts of the world today (Hermenau, Hecker, Maedl, Schauer, and Elbert 2013). Generally considered in the past to be a protected demographic within civilian sectors, children are increasingly recruited into war forces as child soldiers who are first kidnapped, indoctrinated and trained, and later sold into slavery or inscripted to carry out other forms of violence (Beber and Blattman 2013). Children are clearly less able fighters but they are easily manipulated and contribute to the ability to intimidate and make fearful the civilian population. Framing the question regarding how far back child soldiers go in human history is an important agenda item for future studies seeking to use archaeological and bioarchaeological data to better understand the role of warfare.

Jill Korbin, in her landmark study entitled "Children, Childhoods and Violence" (2003), provides a general review of violence directed specifically toward children during times of peace and war. Korbin emphasizes that children are not immune to violence (2003:432), and discusses the multiple ways that violence impinges on child wellness. Children experience violence in war as well as in dangerous home settings. Violence is perpetrated on children by many different agents (e.g., parent, stranger, larger political entity) and these can become magnified in times of war. Violence of many different kinds including physical, sexual, verbal, and emotional can be life-threatening and produce long-term problems for the growing child.

The raison d'etra of the body of work presented in this volume is to challenge and upend the focus on males. Perhaps because scholars have long been fascinated by the physical aspects of trauma in times of war (e.g., direct evidence of violence such as bullets, broken bones, and cut marks), we aim to shine a light on indirect and structural violence as it affects noncombatants. While the importance of direct violence in these studies should not be understated or undervalued, it is equally important to understand the effects that warfare has beyond this both on individuals and

on communities as a whole. Poor health, disease, malnutrition, and disability are some of the few hidden effects of war on the individual that can outlast the battle itself causing long-term health problems for both those combatants and noncombatants alike. As we stated before, soldiers today are more likely to return from war given advances in technology that protect them on the battlefield, however, many of them come back with physical and mental traumas that can have long-lasting and life-altering affects. Hoge and colleagues (2008) conducted a survey of soldiers returning from Iraq and discovered that nearly 15 % of soldiers in the study were defined as having mild traumatic brain injury. They were more likely to have had a high combat exposure that resulted in blast mechanisms of injury resulting in a loss of consciousness or altered mental state (2008:459). The study found that mild traumatic brain injury had a strong association with psychiatric problems, notably posttraumatic stress disorder (PTSD). Mental illness and PTSD are significant "hidden" issues for soldiers returning from war today. In 2015 alone, 22 military veterans committed suicide every day and suicides among active duty personnel is almost equal to one per day (349 per year) (Service 2015). PTSD is not just a phenomenon of the soldiers fighting in wars. Children who have lived through wartimes have shown to experience high levels of PTSD and evidence of psychological effects of trauma (see Garbarino 1994).

It is important to note that it is not just individual soldiers returning from the battlefield that are affected by warfare, in fact, the effects of warfare are not limited to individuals at all. Warfare affects country, state, city, and community infrastructure; it affects climate, access and allocation of resources, domesticated herd and companion animals, access and usability of farmland and grazing land, crime and poverty levels within a community, and more (Heggenhougen 2009). Long after war has ended, even when "peace" has been declared, battles are fought among the disenfranchised and poor populations.

There is an idea of permanent war in areas of the world that are underdeveloped and this is generally accepted by neoliberal powers in control of these spaces (Bourgois 2009). In these worlds, social stratification, social and political polarization, gender inequality, unemployment, and economic inequalities are high. The poor and minority groups within city and states are stigmatized and in many cases criminalized and they struggle to survive in a marginalized world, doing what is needed. This kind of permanent warfare has been present in Nicaragua despite the fact that the country is not currently "at war." Structural violence and neoliberalism are rife, and first world involvement within the interworkings of the country occurred for some time prior to its period of "peace" (Quesada 2009). Entry into the global economy and the emergence of the neoliberal Nicaragua in the 1990s created a new country that disproportionately negatively affected the poor. This included a sharp reduction in social services, privatization of the healthcare system, a fee-based K-12 education system, elimination of state assistance for the poor in food aid, and more public policies that favored the well-off (Quesada 2009:162). Structural Adjustment Programs (SAPs) took farmland away from farmers and the poor to give it to private sector bidders, destroying the means of living and eating for entire sectors of the population. These policies created a malnourished subclass

within the Nicaraguan populous, an accepted form of violence through government policy and low-level permanent warfare.

Prolonged warfare can have disastrous effects on the environment, which in turn can directly affect the health and well-being of populations and communities who may not have the resources to protect themselves or overcome these problems. Landmines still litter vast regions in Africa, the Middle East and Southeast Asia (Farmer 2009). While their specific intended targets were likely not civilians when they were originally placed years ago, civilians are disproportionately the casualities of these weapons today. One study estimated that 80 % of the people wounded or killed by landmines in modern times are civilians, and one in five of these are children (Farmer 2009). Many of these landmines litter farmland and areas where cattle and other animals graze and can cause unspeakable damage to humans, animals, land, and property.

Other impacts to the environment come in the form of warring over resources such as oil that can have long-term impacts on global warming and related climate changes, which in turn can cause an increase in injuries, diseases, and death. Forty percent of the poorest developing societies house two billion of the world's population (Baer 2010). These areas are already more likely to be involved in armed conflict, and global warming can add to the overall ill health of the existing population. Global warming increases malnutrition by contributing to failing nutrition and drying of freshwater supplies and to the desertification of pastoral areas, and to the flooding of agricultural and farming land (Baer 2010). Diseases and immune response are worsened by malnutrition from lack of resources due to degradation of useable agricultural and pastoral lands. Additionally, global warming leads to the increase in heat stress and respiratory ailments through the increase in nighttime temperatures and warmer summers (Baer 2010). Warmer climates also lead to an increase in vector-borne and waterborne diseases such as malaria, Lyme disease, Giardia, and the norovirus (Baer 2010). Malnutrition and poor health is already present in areas that suffer from prolonged violence and warfare, and environmental degradation further exacerbates this.

Social theories that examine violence, warfare, massacres, and structural violence are helpful in framing studies that aim to provide interpretations regarding the ways that warfare implicates not just fighters but also women, children, and other vulnerables (Scheper-Hughes and Sargent 1998; Scheper-Hughes and Bourgois 2004; Whitehead 2004b). Furthermore, understanding the strain that women, children, and others are placed under during periods of warfare has led some to reconsider the label of "noncombatant." Nordstrom (1997) and Singer and Hodge (2010) emphasize the concept of "war-scapes" which suggest a continuum of war effects where it is often difficult to distinguish the older notions of combatant/noncombatant and civilian/soldier. "This approach [war-scape] allows realization that immediate combatants, in all their variability of ideology, motivation, and behavior in local contexts, are inextricably connected to [local and regional political-economic entanglements]" (Singer and Hodge 2010:6) Thus, war and its effects on trauma, disability, and death should be considered to have ripple effects that move well beyond the number of war dead into short- and long-term effects on vulnerable

groups within the larger populations. This holds true for today's wars, and we are advocating that this was likely true for wars in the past. Thus to truly understand the origin, evolution, and impacts of war in human history, this more inclusive approach to war must be part of the scholarship being produced by bioarchaeologist and archaeologists.

Volume Focus and Organization

In this volume, Koziol (see Chap. 2) uses case studies from Crow Creek, Cahokia, the Huron, and the Cheyenne to discuss the challenges of applying modern and (usually) Westernized frameworks to interpret behaviors and violence as well as those individuals we label as combatants/noncombatants and victims/perpetrators. Furthermore, Koziol cautions researchers in applying Westernized notions of sex and gender when interpreting their data. Koziol suggests that the increasing interest in multi-subfield and multidisciplinary approaches to violence, as well as sex and gender, is a step in the right direction for current and future research.

The application of Westernized notions of sex and gender to situations of violence, victims, and perpetrators skews our vision and understanding of the nuances and cultural meanings of these situations. Violence is a highly performative act that must be understood within the culture it is performed and being witnessed (Whitehead 2004a, b). Koziol's chapter is an important contribution to this volume because it emphasizes caution when applying modern terminologies to describe acts of violence in the past. While these terminologies may be useful to present new ways to explore the past, these terms run the risk of implying intent (e.g., torture, genocide) that may not be applicable in a different cultural context.

Bengtson and O'Gorman (see Chap. 3) also use a case study in the Central Illinois Valley to examine and question the binary nature of many traditional studies on warfare, pairing combatants and noncombatants, warriors and civilians, and between battlefields and other spaces. Additionally, they focus on motherhood as a motivator for female violence. The authors found that bioarchaeological data suggest that the females at Norris Farms and Morton Village (within the Central Illinois Valley) were equally as likely as male counterparts to experience warfare-related trauma. However, the authors take a new perspective and suggest that unlike previous interpretations that point toward women being injured during unexpected attacks or in the course of daily life, women were the aggressors, protecting infants, resources and responding to outside threats.

There is an inherent assumption in studies of warfare that women are passive agents on the landscape. In prehistory, women are often thought of as the victims of raiding, often times sustaining nonlethal injuries, but rarely are they considered to have active roles in warfare. Bengtson and O'Gorman's chapter challenges previous assumptions about the roles that women play within communities during times of violence. This fresh perspective is important to this volume because it suggests that we must broaden our understanding of the trauma that we see on the skeleton and

how it was obtained. Furthermore, it suggests a new class of active agents on the landscape, warriors, and protectors, contributing to the security of the environment and homestead.

Hatch (see Chap. 4) discusses the role that combatants and noncombatants play in the decentralized chiefdoms of the Central Illinois Valley during the Mississippian Period by examining warfare-related trauma and evidence of victim internment. Men, women, and children were all examined, and while men displayed the most injuries related to direct conflict, women and children were more likely to display noncombat-related injuries such as trophy-taking, scalping, and victim mutilation. Hatch suggests that despite not necessarily showing warfare-related trauma, Mississippian culture would allow for women and children to be attacked in addition to other atrocities, and this demonstrates the nuance necessary to understand how Mississippian daily life is affected by war.

Hatch's work is important because it emphasizes that even in communities where women and children may not necessarily be directly involved in warfare, they are not immune from the effects. This is a running theme throughout this volume, but what is unique about Hatch's work is that it emphasizes that there are structures in place within Mississippian culture that allow for women and children to be attacked and to experience other atrocities of war. Hatch points out that in Mississippian time the concept of noncombatant likely didn't exist, and all members of an enemy group were likely possible targets of violence, although some demographics were still more likely targets (e.g., males). While we apply the terms combatants and noncombatants when examining bioarchaeological populations, such distinctions may not have existed in the past, and we must understand violence and trauma within the cultural context in which they exist.

Tegtmeyer and Harrod (see Chap. 6) take a look at health and trauma for women and children in the Ancestral Pueblo sites of Chaco Canyon, Aztec Ruins, and Paquimé and the role of elite ruling classes. These sites represent large, complex, and possibly sequential sites in the Greater Southwest. Profiles of morbidity, mortality, mortuary context, and violence-related trauma were examined and compared for these three sites. Chaco Canyon was always considered relatively peaceful, while Paquimé experienced increasing strife, inequality, and violence as it flourished and declined. Despite its supposedly peaceful nature, skeletal material at Chaco Canyon shows the presence of nonlethal trauma as well as high levels of malnutrition among nonelite women and children, while a much healthier ruling elite class presided over them. At Aztec Ruin there was also a suggestion of an elite class, along with evidence of nonlethal trauma and malnutrition. At Paquimé there is ritual sacrifice and malnutrition of nonelite individuals.

Tegtmeyer and Harrod's chapter emphasizes the role that elite individuals play in the health and well-being of women and children (and other nonelite individuals) within Southwestern communities. Elites play a major role in the allocation of resources within a community along with control over bodies. At Chaco Canyon, elite individuals used social coercion and control to attempt to quell physical violence by the increase in structural violence. The high rates of malnutrition among nonelites versus the elites suggest that the resources were allocated first and fore-

most to elites at the expense of the rest of the community. Likewise, the presence of elites at Paquimé coincided with evidence of malnutrition among nonelites along with evidence of sacrifice. During periods of prolonged warfare, performative violence can be used as a means of social control within a community; sacrifices and massacres are examples of such violence. Understanding of the nature of this type of violence can help us reconstruct the events and cultural meanings behind them. Women and children are often the recipients of this violence, both through cultural (sacrifices) and structural (malnutrition, disease, illness) processes. Understanding the complexities of ancient warfare and the roles that are played by elites and by women and children can help us better understand the past.

Kuckelman, Crandall, and Martin (see Chap. 7) examine multiple sites that represent early and late periods in the Northern Southwest and conclude that during times of warfare both combatants and noncombatants experience significant levels of antemortem and lethal perimortem trauma as well as indicators of stress and malnutrition. Indicators of malnutrition (porotic hyperostosis and cribra orbitalia) were high for both combatants and noncombatants for both early and late temporal groups, although the highest levels of food stress were experienced by noncombatants during the earlier period. Periosteal reaction increased for both groups from the early to late period, suggesting an increase in infectious disease. Adult males experienced increases in trauma in the centuries where warfare was greater. Noncombatants experienced higher levels of antemortem fractures during the early period, while increases in perimortem fracture increased in the later centuries. This high level of perimortem fractures among noncombatants suggests that they were also direct victims during times of war.

Resource scarcity and food stress are often cited as possible causes for violence and warfare among prehistoric populations. The importance of the research conducted by Kuckelman and colleagues is that it directly tests the assumption that increasing food scarcity will correlate with increasing violence. While the effects of warfare are often much easier to see (trauma, malnutrition, disease), motivation for warfare in the past is much harder to ascertain. As the authors point out, malnutrition can be both a result of and a causal factor for warfare. Cross-cultural research has shown that fear of food shortages is a greater predictor of warfare than shortages themselves, and the results of the research shows evidence of this motivator of warfare.

Osterholtz and Martin (see Chap. 8) examine three massacre sites in the American Southwest to understand the presence of women, children, and infants within disarticulated assemblages. Disarticulated assemblages are often thought to be connected with executions and massacre episodes; however, the authors caution that violence must be understood within the specific cultural context and social cosmology that researchers are studying. Additionally, they caution in assuming that one disarticulated assemblage equals another. The massacres that occurred at Mancos Canyon and Sacred Ridge present nuanced examples of disarticulated assemblages demonstrating that despite similarities in the appearance of the violence, there were also some notable differences. Osterholtz and Martin emphasize the role that violence plays in maintaining social identity and community.

As it has been mentioned, performative violence must be understood within the specific context it is being performed. The tendency for research to treat one disarticulated assemblage as another does a great disservice to understanding the unique nature of these events. The importance of Osterholtz and Martin's work is emphasizing the similarities and differences between these types of assemblages and showing how critical the small differences are to getting at the meaning and purpose behind the violence. Increasing social stratification, intimidation, and dominance have all been cited as causes for disarticulated assemblages. Each of these have different social dimensions and meanings. Furthermore, Osterholtz and Martin emphasize the maintenance of social and community identity through the use of violence for the Ancestral Puebloan people. This again stresses the importance of understanding the cultural context of violence within the community that is being studied to gain insight into what the bones and the trauma can reveal.

Carlina de la Cova (see Chap. 9) takes a step away from women and children to take a look at another vulnerable population during the American Civil War. The author examines the impact that the federal military policies had on the health of African-American Soldiers. Discriminatory policies and general attitudes towards African-Americans during this time triggered stress that had prolonged health effects for multiple generations. Results showed that illnesses varied by ancestry, and in the case of African-Americans, whether they were from the north or the south and whether they were free-born or formerly enslaved. There were higher mortality rates among African-American soldiers, and the Sable soldiers suffered more from a multitude of diseases and other ailments. The author suggests that the findings show that these soldiers received differential medical care and experienced poor health from the stress of slavery and contraband camps that further compromised their immune systems.

The importance of the study by de la Cova is to emphasize the fact that there are other vulnerable populations during periods of warfare aside from women and children. In many cases minority populations experience similar instances of structural violence in times of prolonged violence and warfare, and even in periods of so-called peace. This study shows that during the Civil War, Black soldiers were disproportionately affected by illness and disease and suffered higher mortality rates than their white counterparts. This is in part due to years of oppression and structural violence due to slavery and to racist views towards Blacks during war time which compromised their ability to find quality healthcare. While this book emphasizes the differences between combatants and noncombatants (men, women, and children), it is important to understand that this is not the only way in which subgroups can be identified. While we classify combatants together for the purposes of this book, the study by de la Cova is an important reminder that not all combatants are the same, and as such, their experience of war varies. Health impacts, both in the short term and in the long term, disproportionately affect minority populations in times of war, whether they are involved directly in battle or not.

Zuckerman and Banks (see Chap. 10) use a historic case study to examine an application of the "Dirty War Index" (DWI) which is a public health and human

rights tool for highlighting instances of violence inflicted on civilian populations during armed conflict using contemporary laws of war. The authors use the example of the Mountain Meadows Massacre to test the utility of this tool. This massacre involved a series of attacks on a wagon train over the course of several days. The attacking combatants killed the immigrant men, women, and older children, while sparing younger children. The Mountains Meadows Massacre generates several very high DWI values, suggesting that the combatant treatment of the remains were horrific and unacceptable.

The Dirty War Index is a unique tool for determining human rights violations and violence specific to civilian populations. Tools like this pave the way for understanding how noncombatants are affected by warfare in modern times. What is unique about the study by Zuckerman and Banks is that not only do they discuss the utilization of the Dirty War Index for a modern war (The Syrian War), but they are able to use it to examine an archaeological example. Looking forward to the future, tools such as this may increase our understanding of how civilians and noncombatants are targeted and treated during times of war, and how this may change over time and as the rules of warfare change. We know that in the course of modern warfare, civilians (and women and children in particular) are the targets of unspeakable atrocities including kidnapping, rape, being sold into slavery or sex trafficking, and direct violence, among others. Using the Dirty War Index, Zuckerman and Banks show that civilians were similarity mistreated in times of violence and warfare in the past.

The concluding chapter serves to tie themes of this volume together and to provide a forward-thinking discussion on the role that noncombatants play in times of warfare and prolonged violence. The chapters in this volume are necessarily provocative given the challenges of reconstructing the past from human remains and archaeological contexts. However, collectively they demonstrate that by asking the question there are data that provide partial answers. Women and children and other vulnerable or marginalized groups can no longer be considered as passive elements on the landscape unaffected by war. In many cases, these groups experience trauma, violence, illness, malnutrition, and death equally to combatants. It is up to future scholars to continue to probe these questions in order to shift the way warfare is depicted in the past and in historical settings.

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Chapter 2
Shattered Mirrors: Gender, Age, and Westernized Interpretations of War (and Violence) in the Past

Kathryn M. Koziol

Introduction

In thinking about this volume, I was intrigued by the cultural theoretical framing that was being explored for application by bioarchaeologists. I think that this is a positive direction and I am an advocate for more holistic and multi-field research with anthropology in general but also specifically in bioarchaeology. There is a tremendous potential for biocultural and bioarchaeological research that truly integrates these materials (Buikstra and Scott 2009; Goodman 2013, 2014; Goldstein 2006) and this current collection certainly will help add to the growing literature that includes this perspective. However, there are a few points that I want to explore more deeply in terms of making solid inter-subfield connections as well as looking at some of the potential issues that are likely to arise in this type of research. This, in general, involves deconstructing the specifics of theoretical frames and concepts that we seek to apply and ultimately concluding that their use might require limited application by bioarchaeologists. For instance, the concept of a continuum of violence (Scheper-Hughes and Bourgois 2004:1), the use of modern terminologies in explaining past events (particularly in prehistoric contexts), and the continued dominance of Western concepts of sex and gender, and perceptions of age in our interpretations of the past (see Buikstra and Scott 2009 for a detailed bioarchaeological discussion of the life course approach, as well as a brief history of gender and sex discussions in anthropology), all struck me as potentially problematic areas for anthropologists researching ancient contexts of violence especially those who seek to engender these behaviors. These are not insurmountable issues and their exploration helps to demonstrate the inherent complexities that exist in both cultural behaviors and archaeological contexts. I suggest a broad application of the cultural data

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from modern cultures and theories of cultures because these theories and data might be best suited to exploring potential ranges in beliefs and behaviors but often are not well suited for constructing specific models of behavior to predict future behaviors universally nor to interpret the past in cross-cultural contexts. Supporting data used in this chapter were compiled from ethnographic, ethnohistoric, and archaeological contexts.

Acts of violence are indeed deeply embedded within cultural and social processes and we should recognize that as such these are not expressed, understood, nor experienced identically by members of different populations or even by members of the same population (Krohn-Hansen 1994:368; Ralph 2013; Redfern 2013:64, 68–69; Walker 2001). I cannot maximize the importance of understanding the cultural contingency of social contexts enough, as the variances in contexts might significantly impact our interpretations. In other words, we should not assume that our interpretations of acts of violence are not subject to our own cultural and social processes and that even actions that may appear mechanically the same (or very similar) may be valued differently between cultures. Nor, perhaps, should we assume that violent acts themselves are universally understood and seen as natural human behavior (see argument presented in Fry 2006). Patterns of violence certainly exist (Eller 2006; Ember and Ember 1997; Kelly 2000; Knauft 1987, 1991; Scheper-Hughes and Bourgois 2004; Martin and Frayer 1997; Martin et al. 2012; Ralph 2013, and many others) but they are by no means simple to extract and/or interpret even in modern contexts (Eller 2006), and when approaching it from a broad anthropological perspective it becomes evident that ignoring cross-cultural interpretations might cause researchers to miss the variations in meanings, and these may require multiple definitions to describe the act of violence itself (Bruhns and Stothert 1999; Guilaine and Zammit 2005:233; Medicine 1983; Ralph 2013). By exploring the emic perspectives in modern cultures it becomes easier to see the differences that exist in the production of these actions in various cultures as well as demonstrate that these differences are significant and important. For example, there are vast differences in motivations, available participants—both as perpetrators and as victims, and in the specific forms of violence that may be culturally seen as acceptable versus unacceptable (which could furthermore be ignored by participants). Participants might even simultaneously be classified as both perpetrators and victims (Bornstein 2002); it would be difficult if not impossible to reconstruct that level of individual and social complexity and positionality in past contexts. Differences might also in part be attributed to differences in the sociopolitical arrangement of cultures but also may relate to belief systems, mythos, individual personhood, and more. In other words, it is erroneous to assume that we can always assess with sufficient confidence the specific meaning behind the actions (forms of violence) experienced by individuals, nor the identities of these individuals, through the interpretation of the pathological patterns visible on human remains or that we should assume to fully know the circumstances that produced these past contexts; we can only glean so much from these incomplete productions (Ralph 2013:3).

We should also recognize that the acts of violence themselves often overlap and that interpretations are limited to the contexts in which they are found and these

interpretations are further skewed by interpreter biases (Koziol 2010). For instance, prisoners of war might have been symbolically important sacrifices and their deaths could be classified in both categories of violent behavior (though not all prisoners may be viewed as suitable for sacrifice and other warfare casualties might never become prisoners). The captured individuals could be further subjected to interpersonal attacks (non-communal) that might include beatings, rape, humiliation, and more. Furthermore, they may have been selected for warfare participation based on their perceived identities, which could include considerations of sex, gender, age, ethnicity, religion, economic standing, and more. It may be impossible to distinguish all forms of violence present, just as it is likely impossible to identify all the intersections of the identities of these individuals. These are not new critiques in both archaeological and bioarchaeological research; however, in terms of trying to isolate and distinguish physical health, demographic, and other bioarchaeologically relevant consequences that may relate to warfare or violent conditions in the past, and specifically looking at the experiences of potential noncombatants, we find that these interpretations become murkier. Some of this difficulty in assessment is the result of the nature of the archaeological and bioarchaeological records and some comes as a result of the application of terminology that may lack cultural relevance and distinction in past populations. The goal of this chapter is not to discount the important and interesting information that is derived from previous bioarchaeological and archaeological studies of violence in the past but is to bring to this discussion some of the complications in applying modern social theories and modern understandings of gender, sex, and violence in both modern and past populations (Koziol 2010).

Using Modern Terminology and Concepts, and Interpreting Meaning in the Past

Defining acts of violence in the past using modern terminology is not only difficult but may encourage applying Western models and understanding of these acts at the expense of losing sight of the culturally situated nature of the construction of these behaviors (Fry 2006; Koziol 2010; Ralph 2013). For instance, in the modern context, acts of torture are viewed in a predominantly negative light in most contexts and may be considered as a breach in international agreements of legitimate war actions and therefore may be punishable for the perpetrators of these acts in this broad context. If we take specific actions that might be included under categories of torture in many modern contexts (e.g., maiming, burning, cutting, beating, and more), these are not always viewed in the same manner by all populations. For example, looking throughout the historical record it is revealed that various behaviors that fall under this category may be mechanisms in some cases for individuals and/or kin groups to gain social prestige and status or to preserve the honor of kin groups; that they should not be simply dismissed as inhumane or seen as a breach in human rights (another modern concept) though they might be. Among the

seventeenth-century Huron, torture of prisoners was enacted by both men and women and was performed on men, women, and children in varying contexts that would provide a mechanism to gain honor for both the torturers and those who experienced the acts of torture but maintained a brave or defiant face (Koziol 2010; Robb 2008; Trigger 2002:58–64). This is not to say that there were not differences based on age and gender. For example, it was more common for males to be extensively tortured at the captors' home village, while women and children might be tortured and killed upon capture and if brought to the captors' home village women and children were more likely to be adopted into the group in various ways (Robb 2008:91; Trigger 2002:58). Through the use of ethnohistoric methods, Trigger was able to reconstruct some of these variances in contexts and was also able to include a discussion of the underlying motivations and meanings that were associated with these acts of violence. He was able to learn that warfare events were sometimes enacted as retaliation killings and feuds but also that they could be additionally motivated by religious matters or as a way to earn honor and prestige (Trigger 2002:52). These details are often lost to the archaeological record and cannot be reconstructed by looking at the treatment of the body even by the best trained bioarchaeologists, who are in essence forced to rely on their own cultural understandings and historical contextualizations about behaviors and meaning in interpreting acts of violence. It is not that the interpretations would be necessarily incorrect in their modern cultural contexts but as the values behind these actions are subject to change (Robb 2008; Rosaldo 1980), it is possible that from a cross-cultural or historical perspective these behaviors are not constructed in mutually intelligible ways and the effects of equifinality would further complicate interpretations of the past. Specifically, acts of torture and other violent actions that result from acute violence might be misinterpreted by using a modern lens and be assumed as actions that were solely (or primarily) used to dehumanize these victims, or they might be missing from the record as not all those who were tortured were treated in the same manner nor even experienced these acts at the same locations, as evident in the case of the Huron torture practices. Some of these acts of violence involve intersecting relationships between gender, status, ethnicity, and more which further complicates the production and interpretation of events, as one act of violence might overlap with other forms of violence (i.e., structural and symbolic) which might not be easily untangled, if at all, in many past contexts.

It is also significant to remember that some of our modern terminologies to describe acts of violence may present new ways to explore past events. Prior to WWII there was no term that was widely applied to violent events that included actions that systematically and intentionally destroyed populations. It is not that these behaviors did not exist prior to these events but that the scale as well as the shared knowledge and experiences of these events was so widely visible in the WWII context that they could not be dismissed and ignored by the increasingly interconnected global community. In fact, in coining the term genocide, Raphael Lemkin used the previous experiences of exile and killing of Armenians by the Young Turks as behavior that certainly fell under that category. Again, this does not represent a new or completely unique behavior but a change in how the behavior

was identified and discussed (Koziol 2010; Ralph 2013; Scheper-Hughes and Bourgois 2004). I agree with Scheper-Hughes and Bourgois (2004:6) that there has been a reluctance to discuss some violent behaviors in various indigenous cultures because of a legitimate fear that this would further "other" and exotify peoples but this not only produces a romantic view of the past, but it may also unintentionally dehumanize these populations further; in other words, it produces new and not necessarily less dangerous stereotypes of these populations.

Bioarchaeologists have long studied individuals and groups who were involved in violent encounters; the pathological indications left on some remains are undoubtedly clear in terms of their participation in violent acts (Martin and Frayer 1997; Martin et al. 2012; Walker 2001). It is also clear that indigenous groups around the globe participated in violent interactions, prior to Western expansions and for a variety of purposes (e.g., honor, resources, retaliation). New perspectives and classifications should not necessarily be left out of these discussions as the more traditional perspectives were also products of their time. Interestingly, accepting a fluidity and change in how we interpret these events also reminds us that their production and meanings also may have changed within the cultures that produced them (Rosaldo 1980).

The use of modern warfare and violence terminologies and concepts shapes the interpretations of these data by causing us to only consider some types of events (e.g., feuds, raids, battle, war, genocide, sacrifice) based on interpretations of scale, scope, and mode of death which are necessarily shaped by modern understandings, thus collapsing the intersections between categories like gender or age bias that could influence access to resources including diets, or the presence of poverty that might be experienced by some members of the society, or could lead to acts of violence based on gender, age, or economic status. At Cahokia's Mound 72, interpretations focus on the possible status of killed individuals as sacrificial victims (Ambrose et al. 2003; Goldstein 1981; Porubcan 2000; Rose 1999; and many others). While that may be the case, it does not exclude the possibility that individuals experienced other forms of violence or held multiple identities, such as victims of gendered, ethnic, religious, or other targeted forms of violence, or may have been perpetrators of violent acts as well (Koziol 2010, 2012). Using a modern and usually Western frame shapes who we expect to see involved directly versus indirectly in these behaviors and therefore guides interpretations of combatants versus noncombatants, victims versus perpetrators, and more. It also significantly limits our ability to understand the complexity of both identities and violent events that are not discrete.

A Brief Note on Scope and Scale

There are large issues in recognizing and interpreting the scale (size, including number of populations involved) and scope (sectors of the population who participate in or are affected by these acts directly or indirectly) of these events. In modern

contexts, this might affect aid and intervention response times that attempt to prevent or limit some acts of violence like genocide; these are further complicated by political plays, which also no doubt had a presence in past contexts and influence the performance of these events. Specifically, when we explore archaeological contexts these issues might cause us to misinterpret the type of event that occurred at a particular location based on things like burial practices, number and frequency of violent events, and who was likely to be involved as victims, perpetrators, or both. We should not assume that individuals or groups solely fulfilled just one of those roles but should see them as creative identity categories. In prehistoric contexts, it might also be difficult to assess the effects on communities and individuals who might be indirectly affected, such as having limited or restricted access to resources like food and water due to shortages or blockades versus environmental or other social causes in these restrictions that may or may not include violent behavior (e.g., rituals like rites of passage might involve intentional and prolonged food restrictions, blights and disease could destroy food and water resources in some communities while other communities are left unaffected both during periods of peaceful and non-peaceful interactions). These complexities can be untangled but in cases where there is little to no evidence of pathological incidences of violence or material remains of weapons they might be missed entirely. Mortuary analyses have further explored issues of the distance from home villages and the effects of larger raids and attacks on the likelihood of burial of victims of violence by community members (Parker Pearson 1999; Willey et al. 1997; Zimmerman 1997; Zimmerman et al. 1981). At Crow Creek, it was evident in the level of bone disarticulation and because of the presence of evidence of carnivore activity that some time had passed between the death and subsequent burial of individuals who were killed during a violent—likely a raid—event (Willey et al. 1997:516; Zimmerman 1997:82–83; Zimmerman et al. 1981). There is also a body research focused on the relationships of the deceased with those whom may have buried them and how these relationships may result in differences in burial modes that is useful to consider in these discussions (Parker Pearson 1999).

One of the most interesting points in this current discussion is that it allows us to challenge the assumption that women and children are typically less affected directly by the acts of warfare and violence. It enables to look at the modern context where examples include cases of women and even children not only as victims of these events but also at times perpetuating acts of violence even as soldiers or armed combatants. We can also see as new identities are being created (Malkki 1995), such as victim identities among families and ethnic groups targeted in these acts that include men, women, and children fulfilling similar roles to each other as they are trying to flee to safety, as recently occurred among the Yazidi of Iraq. Many of us may want to imagine current events like those in Syria, Iraq, and Gaza, where civilian casualties at times exceed the military casualties or include behaviors that fall under the categories of torture, humiliation, and attempts to terrorize local populations, as isolated and distant rarities, and this desired assumption is imagined for the past encounters of violence. The involvement of women and children in acts of violence and specifically in combat situations seems at times overlooked and under-

valued or they are painted as passive, accidental, or as collateral casualties (Redfern 2013:69). In these cases we are continuing to perpetuate the assumption that most women and children are typically noncombatants though they too can be killed during war events. For instance, at the Norris Farm site in Central Illinois, Milner et al. (1991) reported that males, females, and children were scalped and/or killed during raids and attacks on work parties who were distanced from the village. Throughout the Middle Missouri Valley women were actually nearly equally scalped compared to their male counterparts and all scalps were recognized as significant trophies (Bruhns and Stothert 1999:261). This seems to be a common pattern found in raiding type events where females and children might be included as victims more than generally expected in other combat events (Meyer et al. 2009:421) but these type of scenarios which might be more easily detected archaeologically, especially if they occur at or near villages, may unintentionally reinforce this view. This is because not only do they often seem one-sided (we often cannot reconstruct with complete confidence whom the attackers were, nor can we necessarily identify the myriad root causes that often motivate these events) but because in these raiding scenarios often the elements of surprise and speed might guide the potential outcome, attacks may be planned for times where portions of the population who might be the most able-bodied (of all sexes) are off-site. We should not assume that it was just males who would potentially engaged in these lethal behaviors, even if that is apparently true in many cases—instead we should perhaps recognize that in particular contexts cultures might enable or even encourage the direct participation of all whom are willing (or coerced)—without age, gender, or sex restrictions—in acts of violence and war. Particularly tumultuous times might change the expectation and participation level of individuals who might actively engage in violent events, as Redfern's (2013) discussion of Southern England during the Iron Age period of Roman conquest; here the bioarchaeological evidence supports the argument that overall females may have experienced lower participation rates in violent events but that certain circumstances were flexible to their increased participation. The participation of specific members of populations in these behaviors is no doubt both culturally and situationally mitigated, and Redfern's (2013) example should not be assumed to be an isolated exception.

Engendering the Past and Deciphering Intersections in Forms of Violence

Positionality and aspects of identity like gender, socioeconomic and sociopolitical status, occupations, hobbies/interests, and more are often collapsed in archaeological contexts. There have been attempts to bridge these gaps; for instance, there have been attempts to engender our interpretations of the past by attempting to reconstruct contexts with a focus on gender (Bruhns and Stothert 1999; Buikstra and Scott 2009:29–34), but these bridges might further confuse and obscure the record when the Western model of gender is assumed. Again, this refocusing is in itself a

good thing; however, in Westernized models biological sex is commonly used as a proxy for gender (Buikstra and Scott 2009; Butler 2009 (1990)) and this concept guides the interpretation of these data. This model limits our understanding and reinforces the Western perspective. There is a long critique of gender and sex present in anthropological research which is largely absent in archaeological and bioarchaeological practice, though the discussions are there (Buikstra and Scott 2009:31–34; Walker and Cook 1998). This remains problematic because the range present in these categories on a cross-cultural basis is significantly reduced in the archaeological context and thus they are limited in their accessibility for reconstruction; this is the cause, but the solution should not be to simply assume (intentionally or not) that Western concepts will make do, or fit best. In other words, in the absence of depth in the culturally contextualized details we should not fall into the Westernized modes of thinking (i.e., binary models of sex and gender, economic models of mortuary contexts). In fact, the Western perspective problematically reinforces notions of fixed identities, fixed genders, binary sex (i.e., employing models which focus on biological sex in terms of reproductive potential, thus excluding or at the least severely limiting a discussion of intersexed individuals in the past), and more, that are not always understood or translatable into other cultural contexts.

Among the Cheyenne, there were multiple gender categories that went beyond simple Western binary notions of gender. Their gender categories included male, female, contrary (exaggerated masculine identity), and Halfmen-halfwomen (Hoebel 1978). Even more interestingly, these categories were not permanent and the roles and responsibilities of individuals could change over time (Hoebel 1978: 103). Individuals could choose to modify their gender constructions for a variety of reasons including economic considerations. Unfortunately, this active production of gender identities does not make it to the archaeological record as the final identities as interpreted by those who are burying the deceased are what are represented in the burial context (Parker Pearson 1999). This fluid, non-fixed construction of identity has been reported elsewhere; the Hua of Papua New Guinea, for instance, believe that the accumulation or loss of the substance *nu* in an individual's lifetime enables them to transition between the *figapa* and *kakora* gender categories (Meigs 1988, 1990). Certain behaviors and biological processes are viewed as promoting the change in personal levels of *nu* and these differences would cause individuals different access to roles, responsibilities, knowledge, and more. These are but two of many cultures that share concepts of mutable genders. Though these might not be easily reconstructed, we should not assume that genders are fixed and binary in past contexts. In the case of Cahokia's mass female graves in Mound 72, it has been noted that a minority of the individuals interred were possibly males (Thompson 2013). This does not necessarily mean that different genders were being represented though different sexes might have been included in these lethal rituals. Since gender is a cultural construction and can be created during ritual contexts, it is possible that these individuals were interpreted by culture members as holding the same gender position and/or identity though they may be sexed differently. Robert Hall (1997, 2000) writes that gender identities were mutable during certain rituals and ceremonies such as the Skiri-Pawnee Morning Star sacrifice ritual that enabled individuals

who were identified as biological males as well as those who were biological females to *become* the same gender during their participation in ritual. In other words, the identity of the participants is creatively changed throughout the performance of this ritual; therefore, the individuals' personal identities, including gender identities, are changed and muted by the imposition of a newly formed identity. Perhaps instead of referencing some of the Cahokian mass graves as "female graves" we could say that they are "feminized" when comparing them to the mass graves that are more evenly mixed in terms of sex of individuals present. Ultimately, the concepts of gender fluidity and the constructive nature of gender may be more significant than how we label these categories but the labels used should reflect flexibility, especially when attributing identities.

Why the Continuum of Violence Might Be Problematic: Taking a Cautionary Stance

Though acts of violence are potentially possible for all individuals to participate in, they are constructed and valued in different ways by various cultures. These cultural constructions are not always predictable nor do they always result in the same patterns of pathological stress on the body. In fact, there are many acts of violence that fall under structural or symbolic categories that may or may not include physical elements and that may or may not be detected in an archaeological setting (Geertz 1995; Scheper-Hughes and Bourgois 2004; Ralph 2013). Among the Utku, Jean Briggs (1970) recognized acts of deflection and shunning as mechanisms used to diffuse some potentially violent occurrences from escalating to the point of a nonsanctioned verbal or developing into a physical altercation. Even in cultures that accept some acts of physical violence as a resolution to conflict, certain actions may be considered more or less acceptable based on the culturally contextualized beliefs and understandings of these behaviors (Ralph 2013). In other words, cultures not only inform the meanings attributed to specific acts of violence but may also mitigate how these actions are expressed in some circumstances. In order to gain a full understanding of the past, we would have to know how specific cultures construct acts of violence and which ranges are seen as legitimate and which are prohibited—this really is out of our reach, however, we can discuss potential scenarios that are informed by the ranges in behaviors and beliefs that we can encounter modernly. We should be reluctant to assume that modern concepts apply universally. Ultimately, differences in the conceptualization and performance of acts of violence matter and they should not be dismissed nor assumed to correspond directly to the experiences of modern peoples. The continuum of violence that Scheper-Hughes and Bourgois (2004:1) define recognizes that physical violence is just one dimension in a diverse array of actions that include structural and symbolic acts of violence. Since the physical dimension is typically the predominant dimension that can survive the annals of time, for bioarchaeologists trying to apply this model they would need to specifically consider how to include (when possible) the structural and symbolic dimensions.

Furthermore, though there have been studies that link some aspects of violence with potential future acts, and these may be identified as individual, family, peer/school, and neighborhood/community risk factors (Eller 2006:14–15), these risks are culturally bounded constructions. Perhaps they apply in a wide range of modern cultural contexts but their relevance and thus usefulness may not extend to all cultures. As with the concepts of gender/sex and interpretations about age categories (Buikstra and Scott 2009), if we try to create a model of past behavior using the concept of a continuum of violence, we may simply be applying a continuum that may be appropriate in some modern cultural contexts that has little relevance in other cultures, both modern and ancient.

Conclusion

Despite ongoing efforts to engender the past, as well as the efforts to understand the range and individual contexts of acts of violence, the nature of the archaeological and bioarchaeological records is such that it lacks the information that can be provided through ethnographic methods, which might also be included in some historical accounts. Though we are not able to reconstruct with absolute certainty the specific meaning behind acts of violence, nor can we fully reconstruct gender identities and roles in the past, we equally should not assume that they were constructed and valued same as in the modern Western experience. We should strive to consider the potential range in the expression of these data while accepting the reality that a slight shift in definition of terminology applied can disrupt some models. It is promising to see such strong interests in multi-subfield and multidisciplinary approaches to the topic of violence, as well the topics of gender and sex and life courses. I believe that this will have a positive benefit for all fields that explore these questions from their nuanced perspectives by being more inclusive and allowing the variations that exist in these areas be expressed as fully and deeply as possible.

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Chapter 3
War at the Door: Evolutionary Considerations of Warfare and Female Fighters

Jennifer Bengtson and Jodie O'Gorman

Introduction

The nature of warfare—of particular interest here that of premodern, non-state warfare—has been a fixture in the archaeological literature for at least several decades (e.g., Arkush and Allen 2006; Arkush and Tung 2013; Chacon and Mendoza 2007; Dye 2009; Fry 2013; Haas 1990, 2008; Hegmon 2000; Lambert 2002, 2012; Lekson 2002; Martin and Frayer 1997; Maschner and Reedy-Maschner 1998; Otterbein 1999; Reyna 2008). We recognize, as others have (Hanks 2008; Linduff and Rubinson 2008), that much of this work is imbued, either explicitly or implicitly, with gendered ideas and assumptions. The consumer of this research is often convinced a priori of the masculinity of the perpetrators of war violence. This is in no small measure due to our own cultural preconceptions, perhaps related to an historical neglect of other genders, as active participants in war. As noted by Cook and Woollacott (1993:ix), "after biological reproduction, war is perhaps the arena where sexual division of labor along gender lines has been the most obvious, and thus where sexual difference has seemed the most absolute and natural." When it comes to scientific objectivity about war, peace, and human nature, our scholarship suffers because we have not sufficiently (or at all) considered our own ethnocentric biases around the topic (Fry 2013). While acknowledging that the formal combatants in various forms of warfare are typically male, we argue that ignoring the potential roles that women play risks objectivity in the creation of versions of the past.

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We thus project our own sexual dynamics onto the past, perhaps inadvertently fostering disempowerment of women today.

The connection between maleness and warfare has deep roots in the history of our discipline—in fact, a significant body of research is dedicated to following the roots of violence as far back through evolutionary time as possible. Some researchers have pushed beyond modern and historically documented cross-cultural examples to perpetuate the masculine/violence/warrior trope on the order of millions of years into the past, pointing out that among apes—of species so similar to our early hominid ancestors—males are more likely to engage in violence than females, and/or that the experience of female trauma is likely to have resulted from victimization rather than active, offensive participation in combat (Wrangham and Peterson 1996; and see also Weiss 2009:73 and Thorpe 2003:146–147 for reviews of these studies). However, more recent work counters that there is considerable variability in primate behavior from non-aggressive to aggressive, and that it appears to be tied to environmental and cultural context. Non-related females forming cooperative bonds can be observed not only among apes like bonobos, but also in human societies, serving in part to keep male aggression in check (Wilson 2013; White et al. 2013; Ekholm Fry and Fry 2010). Furthermore, new scholarship clearly documents that female primates, including humans, do engage in aggressive and violent behavior in a variety of contexts.

A return to Darwinian evolution to reengage within a feminist perspective (Fisher et al. 2013) has much to offer for theory building in anthropological archaeology. This perspective questions common assumptions about women's aggression and engagement in violence from the perspective of the same evolutionary mechanism—selective fitness behavior—used to explain male aggression and violence. While the rhetorical complement to the *violent male* ideology has been that of the *nurturing female*, befitting of her in evolutionary terms insofar as the role of motherhood and the ideal peacefulness of the mother–child relationship, it is now theorized that the nurturing female can be as aggressive and violent as necessary given the environmental and cultural context. Maternal reproductive success is measured by a woman's ability to keep her children and grandchildren alive; this is not unrelated to her own survival. As Liesen (2013:59) notes in regard to common aggressive behaviors of todays' mothers, "women must be aggressive *because* the stakes are significant for their long-term reproductive success" (emphasis in original). And as McCracken (2003) eloquently observed over a decade ago,

> Curiously enough, one way to explain women's ability to fight, like their inability to fight, is by recourse to reproductive biology: a woman will act aggressively to protect her home and her children. Maternal instinct explains the transformation of the usually passive woman into the effective combatant. Yet the appeal to a female psychology defined by biological reproductive roles situates women as ambivalent with respect to killing. They cannot fight because they are mothers- they nurture, they do not kill; they can fight because of a maternal instinct that will lead them ferociously to defend their homes and family against threat from the outside. In other words, menstrual blood would seem to mark women as unsuited for war, whereas the blood of parturition seems to condition women as potential fighters. (p. 640)

Continued allusions to gendered biological and psychological propensities or the simple generalization that it is primarily men that are warriors should not prevent

researchers from seriously investigating the roles of women as active participants in warfare. In fact, the ethnographic record makes it clear that women have taken on the warrior role at different times and different places (Ewers 1998; Goldstein 2001; Hanks 2008; Hollimon 2001; Jones 1997; Jones-Bley 2008). Although some researchers have historically argued for an essential correspondence between masculinity and warfare/warriorhood, such research fails to explicitly consider that women, in their roles as protectors and nurturers of children, might be quick to resort to physical confrontation when their lives, homes, and children are in danger from impinging violence.

Many forms of female aggression, including physical violence and killing, are documented everywhere on earth (Liesen 2013). There is also a range of reasons why women engage in warfare. A recent observation made by multiple scholars is that aggression and violence in human and nonhuman primates may be context dependent, and benefits may override usual behaviors that avoid personal injury to self or even offspring. Of particular interest to us for our case study are the following situations in which female aggression has been widely observed: (1) to protect infants, (2) if scarce (or we would argue, important) resources including food, water, and territory are threatened, and (3) when strange animals or predators are encountered (Liesen 2013:46). We specifically examine situational or context-dependent female aggression and violence as motivation for engaging in warfare because it is most pertinent to our case study. However, recent US military policy changes to allow women to serve in any combat position for which they are qualified, along with numerous examples throughout prehistory and history of females engaging in warfare under what appear to be very different situations, remind us that there is a wider array of motivating factors that may be at work. As Thorpe puts it, considering the available ethnographic and historical examples, to brush off women's participation in combat as too rare to warrant serious investigation, "merely sidesteps the issue" (2003:148).

Combatants and *Battlefields:* Binary Structures and the People and Places of War

As much as engendered notions of the evolution of our species and the origins of warfare are worthy of discussion and critique, our concerns lie also with the social nature of warfare in all of its variety. Feminist considerations of modern warfare outside evolutionary frameworks reveal the agency of women even in the most dangerous and confining situations, and this informs our work. Revealing the intersection of women's lives with war and violence challenges binary structures that have seemed "natural" (Alexander and Hawkesworth 2008). As these works "challenge traditional stereotypes of women as perennial victims, perpetual peacemakers, or embodiments of nation that men seek to protect and defend" (Hawkesworth 2008:5) in today's world, we seek also to challenge these stereotypes in the past.

As in much of the work that academics do, binary structures and typologies provide organizing principles by which we communicate information about warfare.

Much of the attendant terminology refers to what we might consider the "scale" and "nature" of war—concerned with the purpose behind it and the level of formality observed. War has been characterized as either *organized* or *disorganized*, *total* or *limited*, *real* or *ritual*. Carman and Harding (1999) provide important historical backdrop in this regard, but they make an additional observation that we cannot take lightly: these categories are, themselves, cultural constructions. "Such distinctions…," they point out, "are as ritual as any other ideological limitation placed upon war-making." Also significant is Hartigan's (1982) observation that practical distinctions between "combatant" (warrior) and "noncombatant" (civilian)—one engage-able and the other not—are not constant across time or across different forms of warfare (p. 4). In fact, we suggest that to search only for formally designated combatants further limits our understanding of the plethora ways that women have actively participated in and contributed to war as formal warriors and in a range of ritual and supportive roles, but also as incidental fighters protecting the lives and livelihoods of themselves and their children as needed in any given circumstance. We do not need to look very hard or into deep time in order to find examples of women's aggressive involvement in war-related conflict that easily contradict the binary structures of male warrior/female noncombatant. For example, in Sierra Leone's civil war of the 1990s, although abducted and victimized, some girls embraced the violence of warfare to negotiate their own insecurity (Denov and Gervais 2007). The recognition of these ideas opens up the past to new investigations of both the origins and social nature of warfare. Questioning the utility of categories like "*combatant* versus *noncombatant*" and "*warrior* versus *civilian*" broadens our purview to accommodate archaeological investigations of roles played by women and participants who have not traditionally been considered.

Just as categories of personal identification have gendered components that are simultaneously constructed and blurred by the process of war (Goldstein 2001; Hawkesworth 2008), so do the spatial settings and boundaries of involved experiences (Cook and Woollacott 1993:xi). New insights into the complexity of aggressive behavior in females is particularly important when we discuss small-scale warfare that literally comes to the doorstep, unlike our own current warfare practices that take sons and daughters and transport them to battle zones far removed from their family networks. Theoretical separation of a (masculine) "battlefront" and (feminine) "homefront"—one representing the space of war and the other representing the space of everyday domestic life—is well recognized in the literature pertaining to the gendered geography of war in modern contexts (Dowler 2012; Fluri 2011; Lopez 2015). Gilchrist (2003) suggests that portrayals of warfare as "an exclusively male preserve" stem in part from a focus on trauma resulting from physical engagement within discrete battlefields. Perhaps we might also consider a more rigorous incorporation of domestic spaces into prehistoric warfare studies as is being done in geographic perspectives on contemporary conflicts (e.g., Fluri 2011). We can easily envision the "fronts" of our own modern wars, but what differentiation in the spatial contexts of warfare were recognized in the past, how were they gendered, and how spatially discrete were they? Might we envision the village and resource procurement areas as variably overlapping with battlefields as potential

sites of female participation within a broader socioenvironmental theater of warfare? In any case, focusing warfare studies solely on formally recognized, normative people (*warriors)* or places *(battlefields)* of war disenfranchises non-warriors who fight in other, limiting our understanding of the places (battlefields as opposed to the spaces of daily life) and participants (combatants as distinct from noncombatants) of war.

Disposing of the strictures imposed by binary structural perspectives, we are freer to explore archaeologically the role of women in warfare in a more holistic light, insofar as how, when, where, and why they fought. Above, we identified three scenarios cited by Liesen (2013) as circumstances in which women's aggressive nature is apt to be expressed, and each of these is (bio)archaeologically visible *and* relevant given what we know about life in our study area—the late prehistoric Central Illinois River Valley. First, important resources here may have been threatened by endemic warfare, potentially leading to resource circumscription. Threats to security of village and resource procurement areas would necessitate the protection of infants and children, as women's long-term reproductive success is dependent upon the survival of their young. Linking the previous two issues together is the notion of the aggressive engagement of encountered predators—in this case, the predators are of the human variety. We specifically examine situational or context-dependent female aggression and violence as opposed to formal warriorhood as motivation for female engagement in warfare because it is most pertinent to our case study and more inclusive of a range of women in the community.

Case Study: Morton Village and the Norris Farms #36 Cemetery

Village Life

Around AD 1300, a group of people whom archaeologists recognize as part of the Oneota tradition migrated—for currently unknown reasons—into the Central Illinois River Valley (CIRV), a region that was already occupied by Middle Mississippian people (Esarey and Conrad 1998; Conrad 1991) (Fig. 3.1). Oneota is considered to be part of a broader "Upper Mississippian" cultural expression, which displays several important similarities and distinctions with contemporaneous Middle Mississippians (Table 3.1). In this chapter, we will simply use the terms *Oneota* and *Mississippian* for the sake of discussion. Five sites with varying amounts of clearly documented Oneota cultural material have been identified in the CIRV, and these have been referred to in the literature as comprising the Bold Counselor phase. Of these, Morton Village and the adjacent Norris Farms #36 cemetery have been most extensively investigated (Fig. 3.2). Excavations at the other Bold Counselor sites were limited, but suggest variable levels of integration between Mississippian and Oneota people. Although Bold Counselor Oneota is defined in part as having some level of Mississippian influence (noted particularly through incorporation of Mississippian ceramic vessels,

Fig. 3.1 Map of region, *dot* indicating location of sites within Fulton County, IL

decorative elements, and/or hybridity), Morton Village has the clearest evidence for actual cohabitation of the two groups.

Community members representing both sexes and a range of ages were buried at Norris Farms #36 cemetery and likely resided at the nearby Morton Village site, and were part of a dynamic and sometimes violent social environment shaped by migration and intergroup conflict. The cemetery was fully excavated as part of a salvage project in the 1980s, and subsequent osteological analyses of the 264 well-preserved individuals indicate that at least half of the adult population experienced physical trauma in the form of fractures, scalping, and projectile injuries (Milner and Smith 1990; Milner et al. 1991—see also extensive discussion below). However, the precise nature of this violence as it relates to Mississippian/Oneota interaction and cultural integration is poorly understood, as the Morton Village site was subject to only limited investigation at the time. Recent geophysical surveys and excavations (conducted between 2008 and 2015 by Michigan State University and Dickson Mounds Museum) indicate that the village may have approximately 100–150

Table 3.1 General characteristics of Oneota and Mississippian prior to co-residence in CIRV

|	Mississippian (in CIRV)	Oneota (elsewhere)
Origins in CIRV (Conrad 1991; Emerson and Brown 1992; Esarey and Conrad 1998; Harn 1991a; Santure et al. 1990)	Descendants of local Late Woodland groups influenced by Cahokia and/or migrants from Cahokia ca. AD 1050	Migration probably from the North ca. AD 1300
Villages (Conrad 1991; Harn 1991b; Hollinger 1993; O'Gorman 2010; Schroeder 2004)	Settlement hierarchies: large fortified temple towns with plazas to smaller farmsteads	Significant variation across the tradition, usually with clusters of local villages, but no temple towns and no settlement hierarchies
Architecture (Emerson and Brown 1992; Santure et al. 1990)	Wall-trenches employed	Usually single-post construction
Social Organization (O'Gorman 2010; Schroeder 2004)	Probable chiefdom organization—ranked/hierarchical society	Probable tribal organization
Subsistence (Conrad 1991; Gallagher and Arzigian 1994; Tubbs and O'Gorman 2005; Schroeder 2004)	Farming (indigenous species and non with emphasis on corn) with hunting, gathering, and fishing. More use of corn than Oneota. (Corn, deer, fish, and waterfowl important)	Farming (indigenous and non-indigenous species, including corn with ridged fields identified), hunting, gathering, and fishing. Characterized as "intensification through diversification" (large and small mammal, wetland/riverine species, fruits, nuts, and indigenous plants)
Mortuary location (Conrad 1991; O'Gorman 1996)	Cemeteries or cemetery mounds	Variable throughout tradition including cemeteries, in-village, in-house, less use of mounds and often intrusive
Pottery (Conrad 1991; Schroeder 2004)	Shell tempered, distinctive decoration and exterior treatment, variability in vessel shape/function/refinement, with effigy elements and shapes	Shell tempered jars with bowls only rarely found, distinctive decoration, low variation in vessel shape/function
Stone tools (Emerson and Brown 1992)	Small triangular points, Mill Creek hoes, discoidals or chunkey stones, celts, massive sandstone frog and human effigy pipes	Small triangular points, thumbnail or hump-backed scrapers; bun-shaped grinding stones, sandstone arrow-shaft straighteners

From Bengtson and O'Gorman (2016)
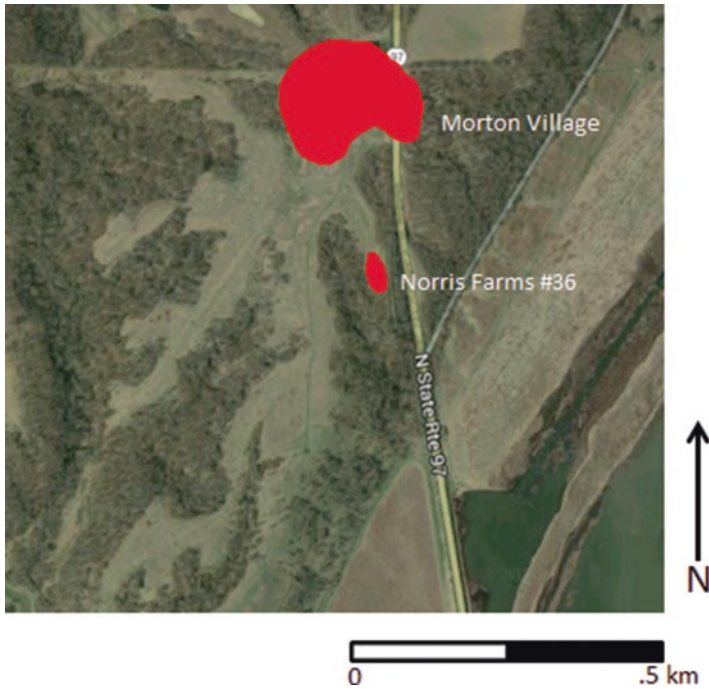
Fig. 3.2 Map showing proximity of Morton Village and Norris Farms #36, based on 1980s surveys. Please note that recent surveys have indicated a more expansive village area. Adapted from Santure et al. (1990) and Google Earth image

domestic structures, most of which are concentrated within the central portion of the nine hectare site. No evidence of a palisade has been found to date in spite of targeted test excavations and geophysical work, a curious observation given traditional models of village protection strategies within contexts of substantial intergroup violence (Dye 2009). Furthermore, while burning is evident in many of the domestic structures, the vast majority appear to have been emptied first, suggesting that the burning was perhaps planned, subsequent to abandonment, or was otherwise not directly resultant of acts of violence (Raslich et al. 2015).

Several lines of new evidence converge on an interpretation that Mississippian and Oneota not only simultaneously occupied the CIRV region, but also the Morton Village site itself. For example, no instances of superpositioning between Mississippian- and Oneota-style houses have been observed—in fact, some structures combine elements from each tradition. The most compelling evidence comes from analyses of ceramic distributions, particularly that the most commonly encountered scenario within households is a mixture of Oneota and Mississippian sherds on the floor or in the lower basin fill (Raslich et al. 2015). Adoption of Mississippian vessel forms with retention of Oneota decorative style, both in village and mortuary contexts, further suggests a cultural sharing, emulation, or (at the very least) a situation that is much more nuanced than simple mutual antagonism. This

leads us to ask a larger regional question: with whom were the Morton Villagers fighting? Further, given the non-palisaded village and lack of violent burning, and despite the clear instances of violence that surely did occur, it seems that Morton Villagers must have enjoyed some level of peace and security. The prospect of village security is not incompatible with Dye's (2009:28–29) description of tribal warfare consisting primarily of feuding, and indeed security as a state of being is as worthy of archaeological attention as the experience of violence. How was this security maintained within the context of regional warfare? We believe that a new look at the evidence can contribute to a hypothesis that women were active agents of village security, owing in no small part to their defensive acumen.

Osteological and Mortuary Data

Significant attention has focused on the results of excavations at Norris Farms #36, the cemetery associated with Morton Village (Table 3.2). Although Oneota-style vessels predominate, the presence of Mississippian-style goods in some graves mirrors the blended assemblages seen in habitation contexts (Santure 1990a, b). Specifically bioarchaeological investigations have focused on issues such as biodistance and population movements (Reynolds et al. 2014; Steadman 1998), but of particular interest here are interpretations of community health and the experience of violence made possible by osteological analyses, which (considered together with early interpretations of village data) contributed to a narrative of health at Morton Village as negatively affected—both directly and indirectly—by violence and the threat thereof.

Direct evidence for violence is revealed via analysis of osteological trauma. At least 43 of the 264 individuals in the Norris Farms sample (34.2 % of the adult population) appear to have died as a direct result of traumatic injury (Milner and Smith 1990; Milner et al. 1991). This may, in fact, be an underestimate of the actual epidemiology of violence, as injuries that were limited to soft tissue are skeletally unobservable. Milner and Smith (1990) discuss fatal and nonfatal traumatic injuries evident on these remains, including blunt and sharp force fractures, scalping, decapitation, and embedded projectile points associated with both male and female remains in nearly equal numbers. Exhaustive tabulations and analyses are available in several widely disseminated articles and reports. We direct readers to these

Table 3.2 Norris Farms #36 skeletal series: basic demographics

Relative age	Sex	N
Adult	Female	62
Adult	Male	52
Adult	Indeterminate	5
Subadult	Indeterminate	145

sources for a comprehensive review, but a summary of the data most relevant to the current study is provided here. Although a range of injuries have been noted, we intentionally focus our discussion on those traumatic injuries that are most easily attributable to warfare-related violence: embedded projectiles, depression fractures to the cranial vault, scalping, decapitation (as evidenced by missing skulls and cut marks to one or more cervical vertebrae), and other cut marks associated with dismemberment/trophy taking. In the original volume, evidence for prolonged exposure and concomitant taphonomic alteration (sun bleaching, scavenger damage) are considered to suggest violent death at some distance from the village and delayed recovery. The data discussed in the following sections are compiled from three main sources: Milner and Smith (1990:144–142, Table 11.17), Milner and Smith (1990:144, Table 11.19), and Table 13.2). Although all of these data sources are provided in the same descriptive volume, there are some minor inconsistencies between them (indicated at the bottom of Table 3.4 of this chapter).

One noteworthy trend observed in the Norris Farms skeletal series observed by Milner and Smith (1990), Milner et al. (1991), and Santure (1990a) is that females were as likely as males to have sustained traumatic injuries or to have died as a direct result of a violent encounter (see Tables 3.3 and 3.4). Females were as likely as males to suffer any observable manner of violent perimortem trauma, including scalping, decapitation, cranial fractures, and projectile injuries (see Table 3.5). Furthermore, at least 31 individuals showed taphonomic evidence of scavenger gnawing or sun bleaching of their bones, suggesting death away from the village and delayed recovery. A significant proportion of the Norris Farms 36 series showed evidence of antemortem trauma, indicating post-traumatic survival for a long enough period of time for healing to occur. A range of healed injuries were observed, and although many were likely the result of violent trauma, a precise etiology of all of them is difficult to ascertain. For example, fractures to the hands and forearms may have been defensive injuries *or* the result of nonviolent occupational hazards, while injuries such as compression fractures to vertebrae were likely age-related. These were generally excluded from this table so that we might highlight those healed injuries that resembled the fatal trauma noted in the perimortem sample, and thus could most confidently be attributed to violence (see Table 3.6). These data make it clear that, as is the case with violent death, females were at least as likely to sustain and survive traumatic injury of violent origin as their male counterparts.

In Table 3.4, we also list specific antemortem injuries that meet the following criteria: (1) present on the bodies of victims who appear to later succumb to violent deaths; (2) do not appear to be degenerative or age-related (e.g., fatigue and compression fractures of the vertebrae); and (3) are listed by Milner and Smith (1990) or as potentially attributable to interpersonal violence. We do this to highlight the

Table 3.3 Victims of violent death (as indicated by perimortem trauma) by sex

Female	Male	Indeterminate
18	17	8

Table 3.4 Victims of violent death: detailed data table (From Bengtson and O'Gorman 2016b)

Burial number	Sex	Age	Scalped?	Decapitated?	Perimortem cranial fracture?	Perimortem postcranial trauma?	Nature of perimortem postcranial trauma	Evidence of dismemberment?	Evidence of delayed recovery?	Antemortem trauma? (excluding degenerative)	Nature of antemortem trauma
14	F	18–21							X		
38	F	18–21		X							
72	F	18–21	X		X	X	Projectile point, humerus fracture		X	X	
90	F	30–40		X		X	Hand fracture, celt blow to shoulder		X	X	Foot
91	F	35–40		X		X	Celt blow to shoulder		X	X	Radius
92	F	45–50	X		X				X	X	Rib
94	F	35–40		X					X	X	Foot
96	F	50+							X		
139	F	50+							X	X	Ulna and radius
200	F	35–40	X		X	X	Radius, ulna, and hand fractures		X	X	
229	F	25–35	X			X	Hand fracture			X	Femur
231	F	18–21		X		X	Projectile point[a]	X		X	Rib

(continued)

Table 3.4 (continued)

Burial number	Sex	Age	Scalped?	Decapitated?	Perimortem cranial fracture?	Perimortem postcranial trauma?	Nature of perimortem postcranial trauma	Evidence of dismemberment?	Evidence of delayed recovery?	Antemortem trauma? (excluding degenerative)	Nature of antemortem trauma
235	F	35–40		X		X	Hand fracture, sharp force to scapula	X		X	Ribs, hip dislocation
244b	F	20–30	X		X				X		
249	F	50+	X			X	Projectile point				
252	F	50+		X					X		
255	F	30–35			X	X	Blow to sternum			X	Ribs, scapula, depression fracture of frontal
272	F	35–40	X		X				X		
230	I	Infant	X		X						
239/242	I	Adult	X		X				X		
239	I	Adult						X	X		
240	I	Adult							X		
241	I	Adult						X	X		
242	I	Adult						X	X		
269	I	Adult							X		
278	I	Child	X								
3	M	25–28	X						X		

Burial	Sex	Age					Accidental (non-violent)[b]			Shoulder dislocation
6	M	45–50						X		Shoulder dislocation
19	M	50+						X		X
50	M	30–35	X					X		
62	M	30–35	X			Projectile points		X		X
105	M	25–28				Perforated (stabbed) ribs				X (Humerus, frontal)
190	M	16–18	X			Projectile point[c]				
194	M	45–50	X			Projectile points				
225	M	40–45				Projectile points[b]				
236	M	35–40		X		Blows to back				
244a	M	50+						X		
261	M	40–45						X		
265	M	35–40			X	Tibia, fibula[d]		X		
266	M	27–30				Projectile point[e]		X		
267	M	25–30				?[f]		X		
268	M	35–40		X	X			X		

(continued)

Table 3.4 (continued)

Burial number	Sex	Age	Scalped?	Decapitated?	Perimortem cranial fracture?	Perimortem postcranial trauma?	Nature of perimortem postcranial trauma	Evidence of dismemberment?	Evidence of delayed recovery?	Antemortem trauma? (excluding degenerative)	Nature of antemortem trauma
281	M	50+					Projectile point[g]	X	X		
288	M	40–45		X		X	Ribs, projectile point[h]		X	X	Rib
293	M	25–30							X		

[a]Burial 231 is listed by Santure (1990a, b, c) as having a projectile point in body cavity. Milner and Smith (1990) do not list it as one of the indivuals struck by an arrow point. The nature of this discrepency is unclear

[b]Listed on table, but excluded from discussion. The nature of the perimortem injuries seen in Burial 6 suggest accididental death (Milner and Smith). Burial 225 is listed by Santure as having "2 arrows in back" (p. 155, Table 13.2), but this individual is not listed by Milner and Smith (1990, pp. 142 and 144, Tables 11.17 and 11.19) as displaying evidence of either antemortem or perimortem damage. The nature of this discrepency is unclear, and the data associated with this individuals is not included in the discussion in the body of the manuscript

[c]Burial 190 is listed by Milner and Smith (1990, p. 145) as having a projectile injury to a rib, but Santure (1990a, b, c, p. 155, Table 13.2) notes only a cranial injury in her table. The nature of this discrepency is unclear

[d]Burial 265 is listed by Santure (1990a, b, c, p. 155, Table 13.2) as dispaying evidence of a fractured tibia and fibula. This postcranial trauma is not noted on Milner and Smith's (1990) antemortem or perimortem trauma tables. The nature of this discrepency is unclear

[e]A perimortem projectile point injury to a lower thoracic vertebra was noted for burial 266 by Milner and Smith (1990, p. 144, Table 11.19), but was not noted by Santure (1990a, b, c, p. 155, Table 13.2). See note below

[f]Santure (1990a, b, c, p. 144, Table 11.19) notes a projectile injury to the back of burial 267 which is not listed with either antemortem or perimortem trauma by Milner and Smith (1990, pp. 142 and 144, Tables 11.17 and 11.19). It is possible that Santure's attribution of this injury to burial 267 was intended to be listed as burial 266 (see above note)

[g]Burial 281 is listed by Santure (1990a, b, c) as having a projectile point associated with the neck. Milner and Smith (1990) do not list it as one of the indivuals struck by an arrow point. The nature of this discrepency is unclear

[h]Burial 288 is listed by Santure (1990a, b, c) as having a projectile point associated with the pelvic region. Milner and Smith (1990) do not list it as one of the indivuals struck by an arrow point. The nature of this discrepency is unclear

Table 3.5 Perimortem trauma: summary table

Perimortem trauma	Female	Male	Indeterminate sex
Perimortem scalping	7	4	3
Decapitation	7	4	0
Other perimortem cranial trauma	6	2	2
Gnawing/sun bleaching	9	13	6
Perimortem projectile injury	3	7	0
Violent death and antemortem trauma	9	3	0

Table 3.6 Antemortem violent trauma (not including those who also display perimortem trauma)

Antemortem trauma	Female	Male	Indeterminate sex
Healed projectile injury	2	0	0
Healed scalping	3	0	0
Healed cranial depression fracture	7	10	1

fact that out of the 18 females represented in the perimortem (fatal) trauma subsample described above, 9 also displayed clear evidence of healed trauma that may have occurred in a previous, separate episode of violence. This was also the case for 3 of the 17 males in the perimortem trauma subsample (see also table 3.5).

Morton Village children were not immune from the experience of violent trauma. Two young teens (Burials 42 and 114) displayed evidence of healed depression fractures of the cranium. Given the time it would have taken for these injuries to heal and remodel, Santure (1990a) suggests that these injuries likely occurred during childhood. A 16–32-month-old (burial 141) had a healed humeral fracture while an additional 12–24-month-old (burial 162) had healed rib fractures. A 23–32-month-old (burial 230) suffered a fatal cranial fracture and was also scalped and 6–7-year-old (burial 278) who was scalped, presumably after being killed. It should be noted that the injuries to burials 141 and 162 could have been accidental, but the nature of the trauma in the other children—celt wounds and scalping—were almost certainly purposely inflicted.

In addition to trauma analysis, Milner and colleagues (Milner and Smith 1990; Milner et al. 1991) also observed signs of infectious disease and nutritional deficiency in the Norris Farms #36 skeletal series, including cribra orbitalia/porotic hyperostosis, treponemal infection, and tuberculosis. Village excavations from the limited salvage work done in the 1980s revealed lower than expected diversity of animal species from houses and domestic features given the rich diversity and availability of resources in the area (Styles and King 1990). Taken together with osteological observations suggesting that some work parties had been slain away from the village and their bodies left exposed to the elements for some time before recovery and burial (sun bleaching, carnivore damage), it was suggested that fear of ambush led to circumscription of subsistence pursuits in an otherwise resource-rich ecological zone. This would have layered nutritional stress onto psychosocial stress, synergistically contributing to poor overall community health. In other words, high

threat of violence and low resource diversity imply work parties that were reluctant to venture very far for resource procurement purposes, resulting in dietary insufficiency and poor health (Milner et al. 1991:590–591). When they did venture out far enough to be attacked, women were often killed rather than captured, perhaps because the attackers did not wish to integrate them into their own communities (p. 594). Other times, women were spared their lives when rescued by fellow Morton Villagers (Milner et al. 1991:590).

Twenty-five years after these original interpretations, analysis of faunal utilization from newly excavated village contexts is beginning to paint a somewhat different picture. Of course, the trauma data remains intriguing and important in the context of reconstructing interregional social relations. Although preliminary, diverse and rich faunal remains from recently excavated household contexts suggest that Morton Villagers exploited a full range of available resources, which likely would have required subsistence forays beyond a tightly circumscribed zone around their village. Notably, many of these remains are from terrestrial species like deer and elk, generally attributable to men hunting, but fish—potentially acquired by women from lakes and rivers in the region—is also well represented (Tubbs et al. 2015). Recent bioarchaeological analyses indicate male diets were particularly enriched with terrestrial meat sources (Tubbs 2013), furthering an interpretation that men were absent from the village at least some of the time on hunting forays, as indicated by the availability of significant amounts of meat. A new interpretation that reconciles osteological trauma patterns with new archaeological, bioarchaeological, and theoretical data seems to be in order, and here we choose an explicitly feminist lens to do so.

Discussion

The bioarchaeological data clearly indicate that Norris Farms/Morton Village females were as likely as males to suffer osteologically evident, warfare-related trauma, as has been noted since the original analyses published in the 1990s. That women lived within a social landscape fraught with danger and experienced the physical effects of warfare is unequivocally indicated by trauma analysis. We seek to construct a critical reinterpretation of this data in a new, feminist light. Here, we combine old (and some new) bioarchaeological data with new archaeological perspectives within a feminist theoretical framework to suggest a revised narrative of female participation in late prehistoric warfare in the Central Illinois River Valley. We do this with reference to commonly cited motivators for female aggression, specifically the protection of infants, defense of resources (including food and territory), and response to threats from outsiders.

At the heart of our criticism of old interpretations is the implication of female passivity—that women came to be injured due primarily to unexpected attacks during subsistence outings, creating an environment of fear and resulting in the circumscription of subsistence regimes. This model is contingent on a number of lines of evidence that have not stood the test of time, a primary one of which is that resource

utilization does not reflect the range of foodstuffs one would expect to result from unencumbered exploitation of the given environmental setting. Although preliminary, new faunal analysis demonstrates significant faunal diversity in at least some village contexts, including those likely to have been contributed by men leaving the village to hunt, as well the acquisition of marine animals that women may have contributed to. Supplementing this, stable isotope analyses indicate that at least some segments of the population consumed a diet with terrestrial protein as a major component (Tubbs 2013), which we might assume men were primarily responsible for acquiring.

Taken together, this new subsistence data suggests that Morton Villagers—men and women alike—were indeed moving widely throughout a subsistence landscape at least some of the time. This is further indicated by the original interpretation that sun bleaching/gnawing damage indicates that men and women in equal numbers were dying at some distance from the village—they could not have gotten to those places in the first place had their movement been fully circumscribed! So not only was the subsistence landscape a site of resource extraction, but also a site of warfare-related violence where women were engaged—whether defensively or offensively—within a contentious space that must have overlapped in some way and to some extent with the spaces of formal warriorhood. Some of these women died as a direct result of their injuries, but the presence of healed, antemortem injuries suggests that women often survived attacks, gaining valuable experience in engaging their attackers and reentering the subsistence regimen prepared for potential danger. In fact, some of these women appear to have survived previous attacks only to die later in a subsequent violent episode. Thus, perhaps not only did the community *not* significantly curtail its subsistence activities and associated spatial movements, but some women even returned to the subsistence front in spite of, and presumably prepared for, well-understood risks. Requisite defensive skills likely translated to the homefront, as well, where warfare was—quite literally—at the front door, or at least the figurative backyard. In this scenario, the boundaries between places and spaces of home life, work life, and engagement of war are blurred—and thus available for more nuanced exploration regarding their potential to elucidate regional social experiences of war.

Evolutionary perspectives on motivations for female aggression provide an interpretive framework that takes into account both the female and childhood trauma samples. It seems intuitive that the social environment would have caused Morton Village women to perceive threats to not only their own lives, but also those of their children—either through direct physical violence or threat of reduced access to valuable resources. Although examples of violent trauma in children are relatively rare in the skeletal series, these data suggest that children's lives were indeed threatened by violence. It does not require a huge leap of the interpretive imagination to posit that women would have actively engaged in violent combat—in their homes or elsewhere within the larger socio-physical landscape—to protect and defend the lives and livelihoods of their children. In fact, Hollimon (2001) cites McDermott's (1940) ethnographic observation that village defense was an activity fairly typical of women in some historically documented Native American villages in the

Midwest. This role is a crucial element to our interpretations of village security, especially given Santure's (1990b) suggestion that men were being lost to warfare in increasing numbers over time (see her interpretation of sex and temporal-spatial patterning in the cemetery), or the indirect implication from Tubbs' (2013) isotope work that men were away from the village at least some of the time for hunting pursuits. Even if some of the men remained in the village, women's roles as village defenders could have become even more critical. Under such circumstances, women must have played a large part in maintaining a relative state of village security.

Finally, we suggest that a strong sense of camaraderie would have provided a foundation for the successful navigation of this potentially precarious situation. Related females form strong social bonds, and unrelated women form strong alliances as well through a variety of cultural innovations (Moscovice 2013). The collective experience of psychosocial and physical stress can further intensify such feelings, in what Turner (2012) refers to as the "communitas of disaster." These alliances likely came into play against threats to the community and could very well have material expressions (Bengtson 2015). Our mention above of the evidence for ceramic hybridity at Morton Village and Norris Farms #36 may seem ancillary given the bioarchaeological focus of this volume, but we see it as an important line of evidence of cooperation and cultural sharing between women—related directly to cooperative defensive success—for building a more complete picture of the role of women and womanhood in the maintenance of community and security within a dangerous time and place (Bengtson and O'Gorman 2016a).

Conclusion

In this chapter, we offer an alternate interpretation of patterns of osteological trauma observed in the Norris Farms #36 skeletal series. We do so in light of new archaeological investigation of the associated village, and with a specific focus on women. Most of the subsamples of osteological data cited in this work are too small to be meaningfully subjected to statistical analysis, but based on the apparent proportionality, it is clear that incidence of warfare-related traumatic injuries in males and females appear to have been nearly equal. Morton Village women experienced the same hazards of life at this time and place as their masculine counterparts.

We welcome further explorations and even criticisms of the ideas expressed in our work, but we are adamant in our insistence that the active participation of Morton Village women is a legitimate research endeavor worthy of serious consideration. Our alternate interpretation is as valid as any other, particularly in its accounting for new, numerous, and diverse lines of evidence. Of course, we do not mean to imply that more work is not necessary to further test our perspective and to bolster our understanding of women's lives at Morton Village. For example, we noted that the subsistence analysis is preliminary and based on faunal data. Floral analysis would contribute an additional perspective on landscape use—particularly women's movements through the resource procurement areas of the region—as

would raw material sourcing studies. On the osteological side, a more precise analysis of the anatomical location of trauma on both male and female bodies would further a narrative of gendered engagement of warfare. These lines of inquiry are pending.

Although our focus here has been on women, we do not seek to minimize the roles played by men—they were obviously important, too. We are also not discounting the distinct possibility that some women played a formal warrior role at Morton Village. We know from the ethnographic record that Native American women in this region were sometimes socially recognized as warriors. However, we choose instead to focus on incidental, situational participation in warfare that must have been inevitable at times and in which women's responses were likely influenced by their roles as mothers, grandmothers, aunts, sisters, and other protectors of youngsters. When war comes to her door or confronts her as she navigated her subsistence landscape—children in tow—the Morton Village woman had the knowledge and ability to fight for herself and her family.

We began this line of inquiry because we could not understand why most archaeologists seem to not care about critically evaluating the role of women in conflict and warfare. At Norris Farms #36, women are hard to ignore. Men are usually portrayed as the primary actors in warfare, with women serving the role of pawns, captives, coerced brides, and/or a common underlying cause of conflict. As we summarized above, many assumptions are made about males and females in conflict and warfare and this impacts our interpretations of the past. We now offer a more interesting question. Why is it important to consider the role of women in warfare? A lack of consideration of the similarities and differences in how males and females experienced warfare could be masking important variation in the social context of warfare. We need to better understand the variability in the physical involvement of women in violent encounters and their role in warfare at particular times and places. Part of the evolutionary argument used here suggests that, given certain contexts and situations, it is in a female's best interest to fight. Understanding what those contexts and situations are may help us to better understand the variation in causes and types of conflict and warfare in different times and places in prehistory.

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Chapter 4
Politics and Social Substitution in Total War: Exploring the Treatment of Combatants and Noncombatants During the Mississippian Period of the Central Illinois Valley

Mallorie A. Hatch

Introduction

A society's sociopolitical complexity contributes to differences in how war affects the morbidity and mortality of combatants and noncombatants. For non-state societies, the principle of social substitution, where any group member may be representative of another, dictated that noncombatants were appropriate war victims. This study assesses how combatants and noncombatants were targeted during total war in decentralized chiefdoms of the Central Illinois Valley (CIV) during the Mississippian Period (ca. AD 1050–1425). War is defined here as a premeditated, socially sanctioned, goal-advancing, and potentially fatal conflict participated in by spatially discrete groups (Webster 1993). Prehistoric warfare was practiced variably, necessitating a broad definition that is able to accommodate behaviors from small raids and ambushes to large-scale massacres of villages or to total war.

Although the term total war is generally restricted to confrontations between contemporary industrial states, Mark van de Logt (2010:35) has expanded it for use among non-state Plains Native American tribes. He explains that total war in these societies:

> …most closely approaches the state of affairs between the Pawnees and the Sioux and Cheyennes. Both sides directed their actions not solely against warrior-combatants but against the people as a whole. Noncombatants were legitimate targets. Indeed, the taking of a scalp of a women or child was considered honorable because it signified that the scalp taker had dared to enter the very heart of the enemy's territory. The war also had a distinct economic component, in that the Sioux and Cheyennes often targeted Pawnee women on their way to their gardens, plundered the storage pits in the towns, and attacked Pawnee hunting parties in search of buffalo.

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Also following van de Logt (2010), this research defines noncombants as women and children. This definition certainly ignores non-male variation in warfare participation, but it provides a working definition that characterizes the typical noncombatant role of women and children in ethnohistoric accounts of Eastern Woodlands war.

Participation in total war is influenced by the politico-economic characteristics of a society. In a study of non-pacified African societies, Ember et al. (2013) found significant relationships between political centralization, resource scarcity, and treatment of noncombatants. State societies were more likely than non-state societies to kill noncombatants during periods of chronic seasonal resource scarcity. They were also more likely to commit harmful acts to noncombatants during seasonal resource problems, including raping women, destroying resources, and participating in acts of nonphysical intimidation. The only significant correlation found for non-state societies was the killing of combatants during periods of seasonal resource scarcity.

While Ember and colleagues' (2013) did not find a correlation between non-state societies and war atrocities against noncombatants, they acknowledged that attacks on noncombatants were common. Such attacks may be a consequence of social substitution among non-state societies. The principle of social substitution dictates that any member of an external group represents an appropriate target of violence (Kelly 2000). Consequently, there would be little differentiation between combatants and noncombatants during war between such societies. Even though every member might be an appropriate target of warfare, not all individuals are equally likely to be attacked. In fact, certain members of a group may be preferred, as their deaths may increase the prestige of their attacker.

Mississippian Chiefdoms and War

The Mississippian Period (ca. AD 1000–1700) of the U.S. Midcontinent and Southeast offers a compelling context in which to address violence-related questions. The expansion/adoption of Mississippian culture is hypothesized as resulting in a substantial increase in war and violence (e.g., Dye 1995, 2006; Emerson 1997, 2007; Milner 1999; Blitz 1999; King 1999). Archaeologically, the importance of violence among Mississippian cultures has been inferred in iconographic depictions of warriors and captives in portable art (e.g., Brown 1996; Dye 2004; Brown and Dye 2007; Emerson 2007). Moreover, a proliferation of this warfare-related portable art, which is referred to as the Southeastern Ceremonial Complex (SECC) (Phillips and Brown 1978; Knight 1986; Townsend 2004; Reilly and Gerber 2007), is correlated with an increased construction of palisades surrounding sites through time during the Mississippian Period (Milner 1998a).

Mississippian war followed greater pre-and postcontact Eastern Woodlands patterns of periodic raids and ambushes (Milner 1995, 1999; Milner et al. 2013; Dye 2006, 2009; Varner and Varner 1951). Raids varied organizationally from small-scale assaults on individuals distant from a settlement to large, well-organized forces

directly attacking fortified villages (DePratter 1983; Dickson 1981; Dye 2006; Gibson 1974; Hudson 1976; Larson 1972; Varner and Varner 1951; Steinen 1992). As Steinen (1992:134) has suggested, well-organized southeastern Native American attacks "were not full-scale military operations in the modern sense but were what can be thought of as raids in force." These "raids in force" were made possible through alliances formation between chiefs, enabling warriors from more than one polity to be amassed (Dye 2009). Institutionalized status differences during the Mississippian Period likely enabled greater collaboration between larger raiding parties than was possible among bands and tribes from previous temporal periods (Dye 2009; Milner et al. 2013).

Ethnohistoric reports of intergroup violence among Eastern Woodlands and Plains peoples reported trophy-taking objectives and total war (Thwaites 1899:70, 1900:68; Lusser 1730; Adair 1775; Lorant 1946; Romans 1962; Strachey 1849; Knowles 1940; Tooker 1962; Swanton 1928, 1946). Scalps, arms, legs, hands, and feet were common trophies taken after battle (e.g., Thwaites 1899:70, 1900:68; Lusser 1730; Adair 1775; Lorant 1946; Romans 1962). Scalping, a trophy-taking practice, has been documented in Mississippian skeletons (e.g., Neumann 1940; Snow 1941, 1942; Berryman 1981; Steadman 2008; Hatch 2012). Cut marks indicative of decapitation or limb trophy-taking are more infrequently identified from Mississippian skeletal remains (Berryman 1981; Worne 2011).

Captive-taking was also a principal impetus for Eastern Woodlands and Plains Native American warfare during the contact period (Thwaites 1899:49, 1900:62, 1901:71; Strachey 1849; Knowles 1940; Tooker 1962). Captors and their communities had many options regarding prisoner treatment, including adoption, enslavement, torturing, or killing them (Charlevoix 1851/1682-1761; Thwaites 1898:2, 23, 26, 36; Richter 1983; Tooker 1962; Knowles 1940). Adoption did not guarantee nonviolent treatment, and some accounts recall beatings from members of the adoptive kin or tribe (e.g., Edwin 1830; Plummer 1973/1839; Swanton 2001/1931; Cole 2000). Captives also commonly resisted their adoption, escaping, and reintegrating with their former community members months or years later (Cole 2000). If taken as children, however, captives were far more likely to assimilate into their adoptive family and tribe (Seaver 1824; Edwin 1830; Plummer 1973/1839; Cole 2000).

The frequency and goals of Mississippian war were heavily influenced by Mississippian sociopolitics. While Mississippian sociopolitical organizations are typically described as chiefdoms, classic chiefdom models and their focus on population size, redistribution, and chiefly authority (e.g., Sahlins 1958, 1963; Service 1962, 1975) do not accurately characterize Mississippian societies. The nature of centralization in Mississippian chiefdoms is among the most debated topics in the archaeological literature of the period. This debate is due to evidence for tremendous variation in the political, economic, and social characteristics of Mississippian chiefdoms. Some depictions of Mississippian chiefdoms have posited nearly state-like levels of political centralization, while others have argued for a more diffuse power structure with much weaker authority vested in apical chiefs. To better char-

acterize this debate, Blitz (2010), expanding on Milner (1998b), has segmented the Mississippian political economy literature into two schools of thought: centralized versus decentralized models.

For centralists, Mississippian pyramidal site hierarchies created strong centralized power structures (e.g., O'Brien 1972, 1990, 1991; Fowler 1974; Griffin 1983; Dincauze and Hasenstab 1989; Welch 1991; Peregrine 1991; Pauketat 1992; Anderson 1994a, b, 1996a, b; Knight and Steponaitis 1998). Chiefs at the apex of a three-tier hierarchy consolidated authority through their membership in a ruling lineage. Economic resources, including prestige goods, were integral for bolstering centralized chiefly power (Steponaitis 1986; O'Brien 1991; Peregrine 1991; Pauketat 1992; Emerson 1997; Welch 1996; Cobb 1989; Brown et al. 1990; Peregrine 1992; Pauketat 1992; Trubitt 2003; Dye 1995), and war might be undertaken for their accumulation (Dye 1995).

In contrast, the proponents of decentralized models assert that decentralized political organization and modest hierarchy characterized Mississippian societies. Their arguments are supported by the absence of archaeological evidence supporting craft specialization, strong ranking, tribute mobilization, and administrative control over resource access (Milner 1990, 1998a, 2006; Blitz 1993; Saitta 1994; Muller 1995, 1997; Cobb 2000, 2003; Byers 2006, 2013). They contend that elite control over the populace was less authoritarian than centralized models depict. Rather, chiefs and their kin created loose alliance networks with other political factions within the polity. As a result, power was more dispersed and highly constrained within the chiefdom. Polities acted quasi-autonomously, with limited control exercised by the apical chief. These leaders held power tenuously, and polities were joined together in unstable coalitions (Milner 1998b; Cobb 2003). Consequently, direct administrative control of hinterland sites was rarely achieved. Evidence suggests great organizational diversity throughout the Midcontinent and Southeast, making large three-tier site hierarchies more the exception than the rule.

Both centralists and decentralists linked increased Mississippian war and violence to reduced elite authority and effectiveness. For some centralists, Mississippian political centralization suppressed war and violence of previous periods (Knight and Steponaitis 1998; Brown et al. 1990; Anderson 1996b). Strong, centralized elite power successfully curbed the aspirations of lesser chiefs. Only once the elite power structure weakened did violent conflicts erupt again. Some decentralists, in contrast, argue that Mississippian elite authority was insufficiently concentrated to ever truly quell violence (Muller 1997; Milner 1998b). Decentralization and limited control left greater numbers of political rivals vying for power. Lesser chiefs maintained considerable autonomy and required significant coercion to check their ambitions. As Milner (1998b:13–14) asserted, violence was an ever-present threat used to compel compliance among political subordinates in the regional districts within an apical chief's sphere of influence. Mississippian wars, however, were not waged just to maintain authority over regional subordinates. It was also used to obtain material advantages like trophies, food, or captives and to increase a warrior's prestige.

The Central Illinois Valley

Located approximately 200 river km north of the Mississippian site of Cahokia, Central Illinois Valley (CIV) sites (Fig. 4.1) were probably never integrated into more than ephemeral two-tier political hierarchies with highly dispersed power relationships. At their most complex, CIV settlements were organized with central temple towns surrounded by smaller hamlets and extractive sites (Harn 1994). Platform mounds, central plazas, and large village habitation areas characterized the largest towns in the CIV settlement system (Harn 1978, 1994). It is unlikely that authority was highly centralized in the region. Elite authority was comparably weak, and politics were more segmentally organized than at Cahokia or in a classic chiefdom.

Traditionally, bioarchaeological studies of CIV Mississippian violence have focused on trauma case studies (e.g., Neumann 1940; Poehls 1944; Morse 1978a), rather than population-level analyses. Dawnie Steadman (2008), in contrast, conducted a population-level trauma analysis of remains from the Orendorf site, couching it in a regional synthesis of CIV warfare. Her work supplied a thorough summary of available trauma case reports and was strongly supported with archaeological evidence. Steadman (2008) argued that "ritual" violence, rather than war, occurred between AD 1050 and 1200. After AD 1200, the valley was rife with endemic war.
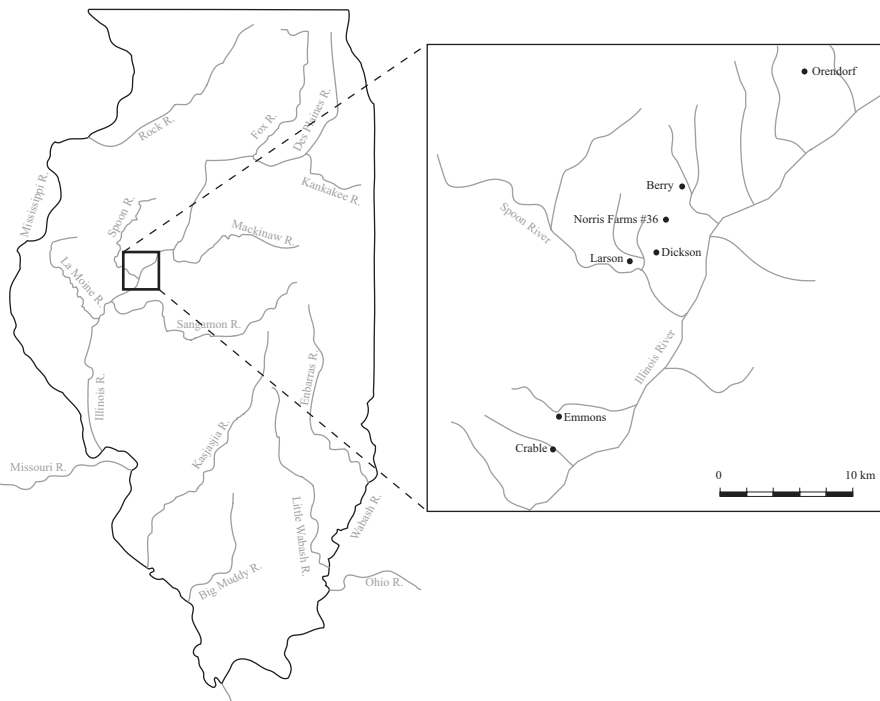
Fig. 4.1 The Central Illinois Valley and relevant Mississippian sites

Recent studies have refined Steadman's synthesis, adding insights gained from a renewed interest in CIV warfare.

During the Eveland phase (ca. AD 1050–1200), symbolic tableaus of "ritual" sacrifices are prominent. These ritualized contexts are argued to be human offerings of community members (Conrad 1989, 1991; Cobb and Harn 2002), which reenact Siouxan Morningstar fertility and world renewal myths (Hall 1997). Two contexts, Kingston Lake and Dickson Mounds (Cobb and Harn 2002), provide evidence for this "ritual" violence. At the Kingston Lake site, a commingled grave containing two adults without crania or trauma were interred with a child who exhibited more than 100 cut marks on the skull (Poehls 1944; Conrad 1989; Cobb and Harn 2002). At Dickson Mounds, four headless individuals with pots placed in the position of their absent heads have been interpreted as evidence of ideological violence (Conrad 1989; Cobb and Harn 2002). No cut marks were identified on any of the skeletal elements recovered from these four headless burials (Hatch 2015).

Archaeological evidence of nucleated settlements and fortifications support findings from of a shift in warfare practices after AD 1200. Gregory Wilson (2012) has noted that near the end of the Eveland phase CIV settlements became more nucleated and defensively positioned on bluff tops. By approximately AD 1200, many settlements were both nucleated and fortified. Throughout the Mississippian Period, however, burned structures with large and heavy domestic items remaining in situ were common (Harn 1994). It is unknown if warfare or nonviolent site abandonments caused these burning episodes. Improved site histories would help reveal the cause of these razed domestic structures.

By the Orendorf phase (ca. AD 1200–1250), the intensity of violent conflict escalated. At the Orendorf site, two of the five sequentially built settlements were constructed within palisades (Santure 1981). Steadman's (2008) analysis of skeletal remains from Orendorf found evidence for skeletal trauma indicative of warfare in 9 % of 268 individuals excavated. Clear evidence for warfare-related trauma, however, is limited to 15 individuals who exhibit cranial cut marks, often in concert with embedded projectile points, chop wounds, or blunt-force trauma. Adult males and females were affected in approximately equal frequencies. During the subsequent Larson phase (ca. AD 1250–1300) of the CIV, the number of palisaded towns increased with a rise in population density (Harn 1994). Settlements exhibited greater nucleation and were often placed in defensive locations (Harn 1994). Analyses of Larson phase samples have focused on counts of elements with traumatic lesions and have reported cases of individuals who display embedded arrow points or cut marks to the cranium at the Dickson Mounds and Emmons cemeteries (Lallo 1973; Morse et al. 1961; Morse 1978a; Wilson 2010, 2014).

Syntheses of violence within Crable phase (ca. AD 1300–1425) Mississippian communities have yet to be conducted. At the Crable site, Neumann (1940) described one of the first cases of prehistoric scalping, while Morse (1978b) reported the presence of another individual with an embedded arrow point in a vertebra. The presence of endemic violence during this phase has caused Esarey and Conrad (1998:43–54) to speculate that the presence of some Oneota ceramics in Crable Mississippian household assemblages could be evidence of Mississippian and Oneota domestic cohabitation. These culturally mixed assemblages could have

formed from a number of scenarios including: Mississippian–Oneota intermarriage and the presence of Oneota refugees and/or Oneota war captives in Mississippian households (Esarey and Conrad 1998). Although interesting, Esarey and Conrad's arguments for Mississippian–Oneota cohabitation require further evaluation using Crable phase site assemblages and phenotypic and genetic analyses from the individuals buried at Crable. The complexity of Mississippian–Oneota interactions deserves greater attention to resolve questions about inter- and intragroup violence during the Crable phase.

The highest frequencies of violence recorded in the CIV were not identified in a Mississippian society, but instead, in the Bold Counselor Oneota occupation of the valley during the Crable phase. At Norris Farms #36, 16 % of 264 individuals had perimortem trauma indicative of interpersonal violence (Milner and Smith 1990; Milner et al. 1991; Milner 1995). Perimortem blunt-force, sharp-force, and projectile trauma were observed in this sample. Scalping and decapitation provided prominent evidence of trophy-taking. In addition, as both males and females were killed in equivalent proportions, it is unlikely that those who perpetrated the attacks at Norris Farms #36 sought to obtain female captives (Milner 1995). This high frequency of violent conflict evident at Norris Farms #36 has been hypothesized to be the result of Oneota entry into the central Illinois valley around AD 1300 (Santure et al. 1990). Although many of the Mississippian peoples living in the CIV had dispersed this time, pockets of Mississippian peoples remained (Conrad 1991; Jackson et al. 1992; Esarey and Conrad 1998).

Methods

In this analysis, 776 individuals curated at the Illinois State Museum (ISM) in Springfield were assessed for sex, age at death, burial type, corpse position, and warfare-related trauma. These remains were associated with provenience information that assigned them to Mississippian components of five CIV sites: Dickson Mounds, Larson, Emmons, Crable, and Berry. Interments from these sites together span the entire CIV Mississippian Period. Remains from Larson, Emmons, Berry, and Crable were excavated from the associated cemeteries of each site's habitation area. In contrast, Dickson Mounds was a multicomponent system of accretional burial mounds that were not directly linked to a habitation site. Harn (1994) initially linked Dickson Mounds burials to residents of the nearby Eveland and Myer-Dickson sites although Harn (2011) recently acknowledged that these small habitations could not have been the only sites interring the thousands of burials into Dickson.

Age and sex were estimated for each individual using standard osteological methods (Buikstra and Ubelaker 1994), and mortuary analysis proceeded using data made available by other researchers (e.g., Harn n.d.-a, n.d.-b; Morse et al. 1961). These researchers recorded burial type and body position for individuals interred in Dickson Mounds, Larson, and a subset of remains from Emmons. No mortuary information was available for individuals from Crable or Berry. Each individual was examined for osteological trauma attributable to a violent etiology,

Table 4.1 Warfare behaviors and possible trauma correlates

Behavior	Trauma pattern
Scalping	Few (<20), small cuts partly circling area of scalp on the cranium—cuts should be infrequent on postcrania
Trophy-taking	Few cuts to the cervical vertebrae to remove the head; isolated cuts or chops at joints to remove limbs; isolated cuts to attachment sites for muscles of mastication to remove the mandible—cuts should not be distributed throughout body
Other warfare injuries	Unhealed trauma, including embedded projectiles, chop marks, stabbing injuries, mutilation cuts, and large elliptical BFTs to skull

including scalping, cranial blunt-force, sharp-force injuries indicative of mutilation or trophy-taking, and embedded projectiles (Table 4.1). As discussed previously, Native American ethnohistories have documented scalping and trophy-taking as widespread warfare practices (e.g., Lusser 1730; Pratz 1758; Adair 1775; Grant 1890; Swanton 1946; Lorant 1946; Romans 1962; Thwaites 1898:68, 70). Scalps and trophies were important not only for a warrior's social prestige, but also were a necessary component for a variety of rituals (e.g., Grant 1890; Swanton 1946). Since scalping and trophy-taking are more typical warfare practices, their presence provides strong indication that a death was caused by warfare, rather than to intra-group homicide or accidents.

Scalping was identified through the presence of short, parallel transverse or oblique cutmarks encircling the crown of the head (Hamperl 1967; Milner et al. 1991; Olsen and Shipman 1994). Typically, scalping cuts concentrate on the frontal bone near the hairline. They can also be located on the side of the head above the ears and on the posterior cranium (e.g., Milner et al. 1991; Owsley and Berryman 1975; Owsley et al. 1977; Pollack et al. 1987; Zimmerman et al. 1981). Cut marks to limbs, mandibles, or vertebrae may indicate element removing from trophy-taking (e.g., Milner et al. 1991; Smith 1993). Such trophy-taking behaviors must be distinguished from cuts used to deflesh bones in secondary burial programs (e.g., Olsen and Shipman 1994; Mensforth 2001; Hatch 2012). Olsen and Shipman (1994:380) distinguished among seven different signatures that allow cuts resulting from conflict to be differentiated from those caused by secondary burial processing. These signatures, including skeletal representation, cut mark frequency, and cut mark location, type, orientation, and distribution, were used in this analysis. Secondary burials from the Mississippian Period of the CIV rarely have cuts from perimortem processing. At Dickson Mounds, no secondary burials exhibited any cuts associated with defleshing or disarticulation (Hatch 2015). When secondary burials were processed in the CIV, they displayed intensive cutting throughout long bone diaphysis, which implies that this cutting is done during later stages of decay to clean remaining flesh (Strezewski 2003a).

Perimortem projectile injuries are strong indicators of violent death, rather than accidental injury. Yet, arguments persist about distinguishing warfare violence from homicide. For instance, Jurmain (1999) and Jurmain and colleagues (2009) have argued that projectiles are the only unequivocal evidence of warfare. In contrast, Ferguson (2013) and Lambert (1997) asserted that projectile wounds indicate a vio-

lent intent due to the amount of effort and concentration required to aim and successfully shoot a target. Such intentionality, however, is unable to discriminate between intragroup homicide and intergroup warfare. The burial context, victim demography, and any co-associated trauma must be considered in ruling out homicide as the cause of an embedded projectile (e.g., Rogers 2004).

Blunt-force trauma may also result from violent or accidental causes. Differentiating between these two trauma etiologies is accomplished through the location of injury. In clinical studies, blunt-force injuries to the head and face are more likely to have been caused during violent events, rather than accidents (e.g., Paaske and Madsen 1987; Ström et al. 1992; Hussain et al. 1994; Brink et al. 1998; Brink 2009; Saddki et al. 2010). A blunt-force wound to the cranium may specifically indicate intergroup violence if it is observed as a point of impact with multiple linear and concentric fractures (Merbs 1989). The great amount of force necessary to create this extensive fracture pattern is generally accomplished through swinging a mace, club, or celt (e.g., Steinbock 1976; Merbs 1989; Walker 1989; Ortner 2003).

Results

Sample Demography

The demographic composition of the skeletal samples in this analysis are unfortunately biased and underreported. Most of the CIV skeletons examined in this analysis were acquired from the activities of amateur archaeologists or suffered from intensive prehistoric and historic disturbances. Consequently, the sample is primarily composed of partial skeletons or isolated skeletal elements. The Dickson Mounds sample comprises approximately 65 % of the CIV individuals studied (Table 4.2). While the majority of Dickson Mounds interments were professionally excavated and recovered as primary inhumations (Conrad 1972; Harn n.d.-a), this site was intensively disturbed and many individuals are represented by isolated limbs. Individuals from the Larson site were acquired from professional salvage excavations to mitigate the effects of a modern cemetery expansion (Harn n.d.-b).

Remains from Crable, Emmons, and Berry were acquired primarily through the donations of amateur excavators. These individuals are represented commonly only as isolated skulls. Just nine of the individuals excavated in professional excavations

Table 4.2 Sample sizes by site

Site	Frequency
Dickson Mounds	502 (64.7 %)
Crable	197 (25.4 %)
Emmons	42 (5.4 %)
Larson	19 (2.4 %)
Berry	16 (2.1 %)
Total	776 (100 %)

by Morse and colleagues (1961) were curated at the ISM and available for analysis. The remaining skeletons from these excavations were generally reburied, but a small subset of skulls and pathological postcranial elements were provided to local dentists and physicians for study. Many of these individuals were later donated to the Illinois State Museum and comprise a portion of the CIV sample in this analysis.

Of the 776 individuals represented by at least one skeletal element, approximately half could not be estimated for sex. In the remaining half of the sample, males were present in higher frequencies than females (Table 4.3) although the difference was not statistically significant ($\chi^2 = 1.934$, df $= 1$, $p = .164$). The sample was also characterized by a high frequency of subadults, as those under the age of 18 years at death comprised approximately 40 % of the sample (Table 4.4). Old adults, those 50 years and over at death, represented only approximately 5 % of the sample, while young and middle adults combined to represent about one-third of the sample. The low frequency of old adults may be attributed to the tendency of the age estimation methods used in this analysis to underestimate age-at-death.

Warfare-Related Trauma and Victim Interment

Both combatants and noncombatants were commonly victims of war during the Mississippian Period of the CIV. Only 11 individuals (1.4 %) exhibited trauma characteristic of war violence, indicating low intensity war occurred at these sites. Five men, three women, three indeterminately sexed adults, and a child exhibited these

Table 4.3 Sex estimates of the CIV sample

Sex	Frequency
Female	175 (22.6 %)
Male	202 (26.0 %)
Indeterminate	399 (51.4 %)
Total	776 (100 %)

Table 4.4 Age-at-death estimates of the CIV sample

Age-at-death	Frequency
Infant	177 (22.8 %)
Child	86 (11.1 %)
Adolescent	51 (6.7 %)
Young adult	152 (20 %)
Middle adult	104 (13.4 %)
Old adult	29 (3.7 %)
Adult	177 (22.8 %)
Total	776 (100 %)

Table 4.5 CIV victims of warfare-related trauma

Site	Burial/inventory#	Trauma time since injury	Age[a]	Sex	Trauma
Dickson	287	Perimortem	YA	Male	Left first rib projectile injury
Dickson	380	Perimortem	YA	Male	Scalping and projectile embedded in a thoracic vertebra
Dickson	560	Antemortem	MA	Male	Blunt-force elliptical depression fracture
Larson	12A	Perimortem	Adult	Male	Scalping
Larson	12B	Perimortem	YA	Female	Scalping and blunt-force trauma and cuts to mandible
Larson	12C	Perimortem	YA	Female	Cuts to cranium and right ilium
Larson	12D	Perimortem	Adult	Indeterminate	Cuts to cranium
Larson	12H	Perimortem	Child	Indeterminate	Cuts to left mandible
Larson	8	Perimortem	MA	Female	Blunt-force trauma to mandible
Crable	#2364	Perimortem	Adult	Indeterminate	Depression fracture to the parietal bone
Crable	#4791	Perimortem	MA	Male	Cuts to right zygomatic bone

[a]*YA* young adult, *MA* middle adult, *OA* old adult

injuries (Table 4.5). More CIV men experienced warfare-related trauma than women or children. However, women experienced warfare-related trauma only slightly less (2.5 % of men and 1.7 % of women).

Men were more likely than women to exhibit injuries associated with direct combat. For instance, Dickson Burial 560 survived an elliptical-shaped blow suggestive of a celt or club to the left lateral aspect of the cranium (Fig. 4.2). Similarly, Dickson Burial 380 displayed a projectile embedded in a thoracic vertebra and cut marks associated with scalping on the frontal bone. Perimortem injuries to women and children were not the result of direct combat. Their injuries were limited to cut

Fig. 4.2 Elliptical blunt-force wound to Dickson Mounds male burial 560. Photo courtesy of the Illinois State Museum

marks on the cranium and mandible, most probably caused by trophy-taking or victim mutilation. Women exhibited a variety of these injuries, including scalping (Fig. 4.3), cranial cuts, and cuts or perimortem blunt-force trauma to the mandible. The blunt-force trauma to the mandible appeared consistent with attempts to forcibly disarticulate the mandible.

Combatants and noncombatants may have exhibited different treatment at death although this tendency is imperfect and tentatively offered. Men with evidence of conflict-related injuries were more likely to be recovered from a formal cemetery, Dickson Mounds. The three males with these injuries were interred as either primary inhumations or secondary bundles within Dickson Mounds. In contrast, two of the women and the child who display evidence of trophy-taking or mutilation were interred in midden pit with animal bones (Harn n.d.-b). These individuals were part of a commingled burial, Larson Burial 12, which contained a minimum of eleven individuals. Those interred were highly fragmentary, commingled, and some exhibit evidence of burning.

Discussion and Conclusion

The finding that just 1.4 % of individuals examined exhibited warfare-related trauma may be attributed to the large number of missing skulls in the sample. Only 378 individuals studied were represented by at least 25 % of the skull. The lack of complete
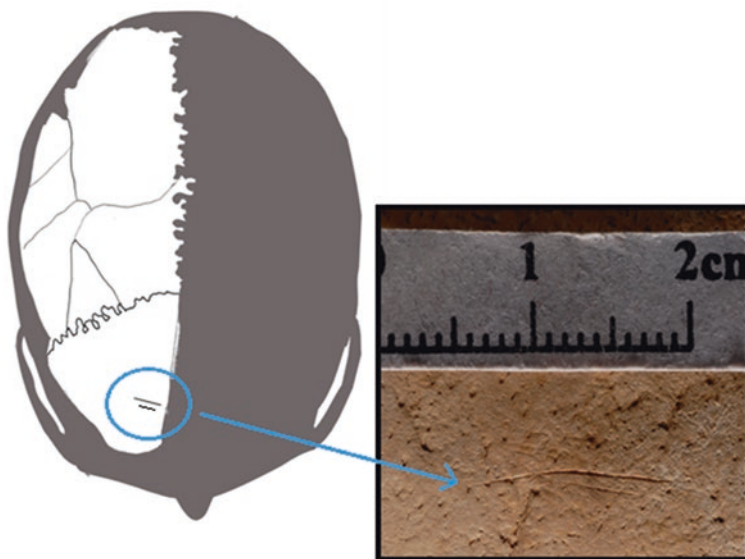
Fig. 4.3 Larson female burial 12B scalping cuts. Photo courtesy of the Illinois State Museum

skeletons and large number of isolated elements in this sample may also have driven the trauma rates lower, as any potentially injured elements may not have been recovered. The low frequency of warfare violence may also be partially attributed to the conservative definition of what constitutes warfare-related trauma. Numerous healed antemortem cranial depression fractures were observed in the sample but did not meet requirements for direct evidence of a war injury. Only one large elliptical cranial depression fracture consistent with a club or celt blow offered strong evidence for a warfare etiology. Moreover, the frequency of violent deaths in this sample may be underestimated due to differential recovery of dead killed at a distance from their town of residence. For instance, the Iroquois at European contact reportedly raided into Maryland and Illinois from their home in New York State (Thwaites 1900:62). It is unlikely that when wars were being fought at a distance that fallen group members would be transported home.

While the effects of war are certainly underestimated in this analysis, available evidence indicates that CIV Mississippian adult males were more likely to be war victims than were women or children. The difference in war injury frequency between adult males and females was effectively negligible. Children, while victims of war, were less likely to be targeted. As a result, it is unlikely that a concept of noncombatants was used in Mississippian war. Membership in an enemy group was the only requirement to identify an appropriate war target although certain demographic characteristics made the killing of some targets more prestigious than others. These findings are consistent with Kelly's (2000) principle of social substitution in non-state societies. Mississippian men, women, and children, regardless of their combatant status, could be attacked.

There also may be a difference in the burial types and corpse positions of combatant and noncombatant war deaths. Two males with direct evidence of war injury (i.e., embedded projectile points) were interred in Dickson Mounds with their torso in a prone position. Men, women, and children who exhibited only evidence of trophy-taking (e.g., scalping or attempted mandible disarticulation) at death, rather than direct combatant injuries, tended to be interred in informal disposal areas. This pattern may be an effect of sampling, as the majority of individuals who exhibit evidence of trophy-taking were interred in a single context. This context, Larson Burial 12, included 11 individuals that were interred in a refuse pit with animal bones. These men, women, and children were highly fragmented at the time of recovery and evidence of burning was found on some remains. Although this disposal type was unusual in the CIV, University of Chicago archaeologists Fay-Cooper Cole and Thorne Deuel in the mid twentieth century identified a similar Larson phase interment at the nearby Morton site (Strezewski 2003b). This feature was only mentioned briefly in Cole and Deuel's field notes, and the skeletal remains were not collected.

In previous research, I interpreted the remains interred in Larson Burial 12 as victims of war violence and possibly even evidence of war captives (Hatch 2012). A later biodistance analysis indicated that the dental phenotypes of these individuals were consistent with those of the larger CIV population (Hatch 2015), indicating that these individuals were members of region's community and not external captives. The lack of evidence for captive-taking in this research is surprising given the ubiquity of this practice in the ethnohistoric record of the Eastern Woodlands. In fact, the Eastern Woodlands historic record is replete with stories of torture and sacrifice of warfare captives. Mississippian captive-taking would also be expected given the depictions of captives in Mississippian art. It is also likely that captives were not interred in formal disposal areas and may not be identifiable in the archaeological record.

The ability to ascertain how resource scarcity may have impacted treatment of noncombatants during war, as examined by Ember and colleagues (2013), requires more detailed dietary and environmental studies and greater temporal control than is currently available. Yet, research has demonstrated that resource use did change during times of war. VanDerwarker and Wilson (2015) found that diet breadth was significantly reduced after AD 1200 and attributed this problem to a reluctance to forage far from village safety during periods of total war. This finding is consistent with total war practices among contact Plains Native Americans, as attackers would prevent their enemies' access to economic resources (e.g., van de Logt 2010).

Sociopolitical organization has a profound influence on war's intensity, goals, and the treatment of noncombatants. In nonstate societies, social substitution provided that noncombatants, including women and children, could be attacked during conflict. In Mississippian CIV war, atrocities, in the form of killing and taking trophies from women and children, certainly occurred and were intensified by social substitution. These ill effects of war on noncombatants were not limited to death. War substantially altered the health and well-being of a society. For instance, Hatch (2015) found an association between war and intragroup

violence during the Mississippian Period of the CIV. As warfare increased after AD 1200, skeletal trauma indicative of intragroup violence increased concomitantly. More research is necessary, however, to assess how Mississippian daily life was affected by war. Such work is needed to better understand the consequences to all members of society caused by engaging in war.

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Chapter 5
When Elites Wage War: Violence and Social Coercion Along the Chaco Meridian

Caryn E. Tegtmeyer and Ryan P. Harrod

Introduction

The Chaco Meridian proposed by Stephen Lekson (1999, 2015) suggests that between circa AD 850–1450 there were three sequential capitals or regional centers within the Greater Southwest that shared cultural elements. The name Chaco Meridian is derived from the name of the first regional center and because all three sites are found on or near the 108° longitude line or meridian in present-day New Mexico and Chihuahua. The Chaco Meridian connects Pueblo Bonito and the other sites in Chaco Canyon (AD 500–1125), the three sites at Aztec Ruins (AD 1110–1275), and the city of Paquimé (AD 1250–1450), which are large centers of political and possibly religious control throughout Pueblo II, III, and IV periods in the Greater American Southwest (Lekson 2015:57) (see Fig. 5.1). One of the roles associated with these centers was to control conflict in the region. For example, at the height of Chaco Canyon there seems to be a reduction in violence that some researchers have suggested was a consequence of social control (Harrod 2012; LeBlanc 1999; Lekson 2015). The temporal and spatial relationship Lekson (2015) argues connects these sites that may or may not be valid, but regardless the sites appear to have played a significant role in the prehistory of the Greater Southwest, especially during periods of peace and violence. Skeletal remains are examined from several sites in and around Chaco Canyon, one site at Aztec Ruins, and Paquimé.

Archaeologists and ethnographers have found that evidence for warfare in pre-state societies is surprising ubiquitous, however, many of these studies have tended to have a narrow focus, examining only the role that male combatants play and its

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Fig. 5.1 Map of the Chaco Meridian. Created using WorldMap by the Center for Geographic Analysis and Google Earth

effects on overall male mortality. Viewing warfare through the lens of combatants and noncombatants is misleading and ambiguous as noncombatants experience an array of different types of violence during periods of prolonged conflict, despite not necessarily being involved directly in battle. For the purposes of this study, the term "combatants" refers to primarily males engaged in, or targeted during, warfare, while "noncombatants" refers primarily to women and children who affected by the intergroup conflict. Small-scale societies do utilize forms of warfare in a range of cultural and environmental contexts ranging from nonviolent raids to violent, deadly massacres.

Taking a bioarchaeological approach this study seeks to illuminate the role that women and children play during periods of prolonged violence and the toll that this violence takes on their bodies through the examination of health and trauma. Bioarchaeology is the study of ancient human remains in a richly configured cultural, biological, and ecological context (Buikstra and Beck 2006; Larsen 2015; Martin et al. 2013), which is why it is in a unique position to study the role of violence and warfare within a given environment and population. In particular, it can supplement archaeological and ethnographic evidence by providing a direct link to the toll that prolonged periods of violence takes on individual bodies and what that may reveal about the population as a whole and how they navigate during war times.

Women and Children as Noncombatants

The effects of warfare on women and children or those individuals who are traditionally not directly involved in battle have not received the same attention as the combatants; this is especially true when the noncombatants survive. Women and

children are intimately tied to periods of violent conflict as captives of raiding, victims of massacres, or the loss of relatives (Meddings 2001; Sugiyama 2014). There are international laws and agreements in place today to ensure that warfare generally attempts to minimize the involvement of noncombatants, one example is the forth Geneva Convention (Pictet 1958). Yet, the existence of a set of rules for warfare is often more ideological than what actually happens during times of conflict. Meddings (2001:9) cites International Committee of the Red Cross (ICRC) data to show that approximately 35 % of people requiring surgical care from the Red Cross during conflict were likely noncombatants based on gender and age. Looking to the past, archaeological data suggest that a significant portion of people who suffered trauma related to violence were women and children (see, for example, Lahr et al. 2016; Melbye and Fairgrieve 1994; Osterholtz 2012).

Even when not directly involved in instances of warfare, women and children may be exposed to a range of other forms of violence, including social coercion, malnutrition, inequality in the redistribution of resources, rape, captivity, and more. When we look at episodes of conflict that are not traditionally identified as warfare (e.g., raiding, captive-taking, sacrifice, witchcraft-killings, massacres, and terrorism) the reality is that often they are equally involved in many of these violent contexts as male combatants, and in some situations are the intended targets of excessive violence. Collectively, these other forms of violent interaction are often referred to as structural violence because they are less obvious and may or may not result in bodily harm (Farmer 2009; Galtung and Höivik 1971). Structural violence is often overlooked because they are hard to detect in the archaeological record, and if they are socially sanctioned, they are not necessarily reported in historic accounts or oral traditions. Despite the hidden nature of structural violence the reality is that it is equally as detrimental to an individual's overall health. In this chapter, we will explore what impact warfare at three sites on the Chaco Meridian in the Greater Southwest had on lives of these noncombatants.

Background to Study Area

While "Chaco Meridian" is in the title, the intent of this research is not to support Lekson's theory, but to examine how women and children at these three large regional centers (related or unrelated to one another) were affected by warfare. The complexity of the three sites is evidenced by their size and the presence of rare and unique items like turquoise and macaw feathers. The problem is that the Greater American Southwest is a massive covering and area from Las Vegas, Nevada in the West to Las Vegas, New Mexico in the East, and Durango, Colorado in the North to Durango, Mexico in the South (Reed 1951:428). The region has been occupied throughout prehistory by a number of distinct archaeologically defined cultural groups, for the better part of two thousand years including the "Anasazi" or Ancestral Puebloan, Hohokam, Mogollon, Sinagua, Salado, and Patayan. Each of these culture groups have their own rich set of material culture, architecture, mortuary context, and history that makes them unique, and these sites are not all found within the same cultural area.

Chaco Canyon

Chaco Canyon is located in the northern portion of New Mexico, and it is associated with the Ancestral Puebloan culture group that was found throughout northern New Mexico and Arizona and southern Colorado and Utah (Cordell and McBrinn 2012). Several major changes occurred to the Ancestral Puebloan culture over a thousand-year period. This time period is broken down into smaller, more specific periods, which begin with Basketmaker II (AD 300–500 AD), Basketmaker III (AD 500–700), Pueblo I (AD 700–900), Pueblo II (AD 900–1150), Pueblo III (AD 1150–1300), Pueblo IV (AD 1300–1450), and contact period (AD 1450–1600). Chaco Canyon would be abandoned by the middle of the Pueblo III, and much of the remainder of the northern Anasazi culture region would follow by the end of the Pueblo III period (Benson et al. 2007).

A number of cultural shifts occurred within each of these time periods. The first major shift occurred with the transition from hunting and gathering to part-time agriculture to intensive agriculture, where maize becomes the staple form of subsistence (Badenhorst and Driver 2009; Coltrain et al. 2006; Martin and Goodman 1995; Reed 2000). The adoption of agriculture not only results in a shift in settlement pattern and overall subsistence pattern, but it has also been suggested that the pattern of activity for women changed, as they are thought to have been the ones most involved in corn processing and ceramic production (Crown and Wills 1995; Hawkey 1998; Nagy and Hawkey 1993). During the transition from Basketmaker III to Pueblo I, there is a shift from semipermanent occupation sites to small permanent sites, and finally to larger, permanent aggregate village sites (Judge 1989; Lekson 1990). The majority of these changes are happening during the Pueblo I period (Kohler et al. 2008; Wilshusen 1999). During the Pueblo II to Pueblo III periods, the large aggregate villages begin to shift toward cluster village sites of above ground structures built of elaborate masonry. These "Pueblos" are multi-roomed structures that consist of habitation, storage, and other multiuse rooms along with communal areas, known to the as "kivas" (Van Dyke 2002). There is an increase in cultural complexity and evidence of long distance trade, which seems to tie into an increase in sociopolitical inequality. This is especially true for Chaco Canyon.

Building at Chaco Canyon began in AD 850 with its first three sites: Pueblo Bonito, Una Vida, and Peñasco Blanco (Lekson 2007a; Wills 2009; Windes and Ford 1996). A number of other sites would be built within the canyon, and between AD 1000 and 1130 Chaco Canyon experienced an increase in building activity, both within the canyon and outliers outside of the canyon, along with a complex road system leading to Chaco from the outside (Irwin-Williams 1972; Lekson 1999, 2015; Marshall 1997; Sofaer et al. 1989). Pueblo Bonito, as the largest site within Chaco Canyon, is often times considered the regional control center of this vast system. Chaco Canyon fluoresced until approximately AD 1125 when building in the canyon ceased due to a series of droughts that lasted until around AD 1150, which occurred along with the burning of rooms within existing great houses,

suggestive of ritual abandonment (Benson et al. 2007; Lekson and Cameron 1995). As construction of many of the largest sites ends at Chaco Canyon, some researchers have suggested that the elite moved north to Aztec Ruins (Lekson 1999, 2015; Lekson and Cameron 1995; Van Dyke 1999, 2009) This existence of a ruling class of elites in the Southwest at both locations is further emphasized and supported by the caliber of the network of Chaco Canyon and Aztec Ruin sites, network of road, and the extensive trade network throughout the region, often times dealing in exotic goods such as Macaw feathers (Watson et al. 2015).

The Southwest was considered relatively peaceful during the height of Chaco Canyon. Some researchers argue that the increasing complexity of Chaco Canyon would lead to the development of an elite ruling class that were able to yield sufficient power and authority to suppress violence in the region (Harrod 2012; LeBlanc 1999; Lekson 1999, 2015; Pérez 2006; Plog and Heitman 2010). Several of these researchers also believe that the elites likely sustained their power through heavy social coercion.

Aztec Ruins

Aztec Ruins located approximately 90 km north of Chaco Canyon (Marshall 1997; Van Dyke 2009) consists of several sites including West Ruin, East Ruin, North Ruin, and Earl Morris Ruin (Brown et al. 2008; Morris 1919; Windes and Bacha 2008). The site of West Ruin is the largest of the sites outside of Chaco Canyon associated with the Ancestral Puebloan culture during the Pueblo III (Brown et al. 2008:235). Also, nearly all of the human remains were recovered from West Ruin, so analysis of elites is limited to this site (Morris 1924). Unfortunately, there have been no excavations conducted at North Ruin, which was the first great house built in the area (Brown et al. 2008:246).

If a ruling elite class followed the Meridian north to Aztec, you would think we would find similarities. They are both larger complexes with several sites cluster in a rather small area. The architecture at both Chaco Canyon and Aztec Ruins is also more elaborate than other sites around. For example, Chaco Canyon contains 14 great houses, of which Pueblo Bonito is the largest with nearly 700 rooms (Lekson 2007b) and Chetro Ketl is not far behind, while in West Ruin at Aztec Ruins is close with approximately 500 rooms (Lister and Lister 1987). Finally, Aztec Ruins came into prominence after the decline of Chaco Canyon during the late 1100s and early 1200s. However, researchers do not all agree that this larger regional center was related to Chaco Canyon, it is possible that it was a separate competing regional polity (Wilcox 1999). In fact, the influence of Chaco Canyon is not universally agreed upon, Kantner (1996) suggests that many of the larger sites could be a product of competition among more local residential leaders. Aztec was occupied until approximately AD 1290, when a second series of droughts likely led to its downfall as well (Benson et al. 2007; Billman et al. 2000).

Paquimé

Paquimé (also known as Casas Grandes) lies in the northwestern portion of the state of Chihuahua in Mexico. The occupation of this region is generally separated into two major time periods: the Viejo (AD 700–1150) and the Medio (AD 1200–1450). In general, very little is known about the Viejo period, other than it is generally lacking in signs of stratification or warfare. However, it is during the later Medio period when Paquimé experienced an increase in population size, migration, and trade in and out of its city center, and increase in social stratification which led to attempts at social control through overtly violent means such as social coercion and warfare. These changes are reflected in both the architecture and the mortuary context at the site.

There is still some debate about who it was that occupied this great city during the peak of its occupation. Some theories have fallen out of favor, such as the Pochteca or Puchteca model of Mesoamerican traders proposed by Charles Di Peso (1968), in which Paquimé was the result of outsiders from the south occupying the region due to its use as a trade route. This theory was not well received; however, the alternative theory of an in situ development of the local population that already inhabited the region prior to the building of Paquimé has gained favor (McGuire 1980; Minnis 1989; Whalen and Minnis 2003). This theory gains its strength from the fact that there is evidence of people living in the region as early as 1150 BC, and even by the time the Spanish arrived during the contact period the region was still relatively fertile and provided a stable subsistence economy (Whalen and Minnis 2003). The increase in complexity between the Viejo and the Medio periods can be attributed to cultural evolution and in situ development as time when on, as well as possibly from outside influences through trade connections with groups throughout the Southwest and Mesoamerica.

According to Whalen and Minnis (2003), another theory that should be discussed was first proposed by Gladwin (1936) and later supported by Lister (1946, 1958) is the theory that the individuals that inhabited Paquimé are actually Mimbres Mogollon that migrated south after they abandoned the Mimbres Valley after AD 1000. The Mogollon are one of the three "major culture areas" of the Southwest and inhabit the southern portion of New Mexico, the southeast portion of Arizona, eastern Sonora, and Chihuahua Mexico. Part of the weight behind this theory is the close proximity between the Mimbres people and Paquimé. Given that the borders between the United States and Mexico are arbitrary and did not exist in prehistory, there would be little to stop people from migrating from one side to another.

Finally, we will look at the Chaco Meridian theory that proposes a group of elites from Chaco Canyon and Aztec Ruins, after their collapse, followed the meridian south to Paquimé until it's eventual, and possibly catastrophic, collapse in the 1400s (Lekson 1999, 2015). The whole migration took approximately a century from the beginning of the fall of Chaco around AD 1125 to the beginning of the Medio period at Paquimé around AD 1250. This theory was extremely controversial at its introduction and still causes tremendous debate and has garnered significant criticism

today. However, this theory is still prevalent in the literature and must be considered when discussing the population that inhabited Paquimé during the Medio Period.

During its peak, Paquimé was one of the most complex sites in Southwestern prehistory. Throughout the course of its *entire* occupation (AD 700–1450), the region experiences a relatively stable environment and as it increased in complexity during the Medio period, it has a stable economy, experienced an influx of migration and trade with the surrounding regions (Casserino 2009; Di Peso et al. 1974; Nielsen-Grimm 2008; Whalen and Minnis 2001a, b; Woosley and Olinger 1993). Despite its stability, there is evidence in the archaeological record of increasing social strife, warfare and social control and coercion by a few elites through violent means, and general unrest (Benfer 1968; Di Peso et al. 1974; Rakita 2008; 2001; Whalen and Minnis 2001b). Eventually, the city suffered a possibly catastrophic collapse in the mid-1400s, which was likely the cause of internal social breakdown or prolonged periods of warfare, rather than a lack of resources or deterioration of the environment, which was still viable when the Spanish arrived in the early 1500s.

Evidence of Violence in the American Southwest

Current models of violence in the American Southwest generally agree that is has been present within prehistory for some time, dating at least as far back as Basketmaker III. Both archaeologists and bioarchaeologists have provided a wealth of evidence to support the presence of violence in the past, including defensive architecture, such as palisades and walled villages, burned structures, burned skeletal remains, and even cut marks on bones. This violence was particularly prevalent during the Pueblo III period (AD 1200–1400).

The original model proposed that the Pueblo I period had been a time fraught with generally "small-scale" warfare, such as raiding and feuding and other hand-to-hand combat. This period was followed by a hundred years of "peace" during Pueblo II, although LeBlanc (1999) later revised this to include "pax with a twist," to include obvert violent social coercion being expressed throughout this time period. The revised model of violence and warfare in the Southwest that is particularly relevant to our discussion was first proposed by LeBlanc (1999) and was then later revised by Lekson (2002) (see Fig. 5.2 Martin 2016) that shows the lack of regional warfare and the use of extreme processing events or massacres as social control during the periods when the three regional centers were being occupied. A more pronounced, large-scale form of warfare that began in the mid-1200 and continued up through the contact period followed this period of peace. It is during this last period you begin to see the most archaeologically relevant evidence of defense to outside attack. Lekson (2002) added to the original model by suggesting that the reason that violence decreased during Pueblo II was a direct result of the influence and power wielded by Chaco Canyon during the peak of its occupation. However, it is important to note that "peace" here does not necessarily mean the absence of violence, as this so-called peaceful period is interrupted by numerous massacres and
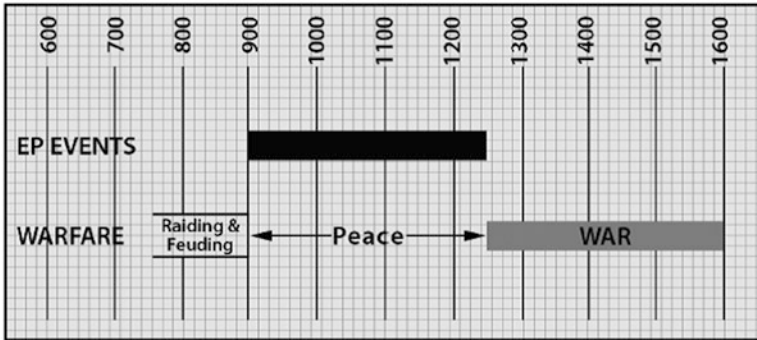
Fig. 5.2 Model of warfare in the Southwest. From Martin (2016) (After Lekson 2002:621)

events of extreme disarticulation and processing which has often times been thought to have been linked to cannibalism or warfare.

Critics of this model (Harrod 2012, 2013; Pérez 2006, 2012) are quick to point out its flaws, starting with the fact that these massacres and extreme processing events that has become so common during the "peaceful period" actually occur throughout prehistory. Evidence of massacres and extreme processing in the Southwest extend as far back as the Basketmaker III period with a site known as Cave 7, and in Pueblo I at Sacred Ridge, and as far forward as Pueblo III with sites such as Castle Rock (as discussed in this volume by Kuckelman and colleagues) and Cowboy Wash (Billman et al. 2000). Furthermore, violence and warfare are strategies for survival. It seems unlikely that individuals living in the past wouldn't employ multiple strategies at different times given varying circumstances. For example, we know that in addition to large-scale lethal warfare, nonlethal violence was also being employed during throughout prehistory. There is evidence of nonlethal cranial depression fractures throughout the American Southwest (see for example Martin et al. 2015). Violence within the American Southwest was prevalent, and it took on many different forms depending on what the strategy is being employed for. Nonlethal cranial depression fractures, social coercion, massacres and extreme processing, scalping, cannibalism, small-scale and large-scale warfare, each of these levels of violence has been seen at some point within this region.

Data Set/Sample

Skeletal remains from the so-called peaceful period of Chaco Canyon, the "transitioning period" of Aztec Ruins, and the "warring" period of Paquimé were examined for health and trauma to illuminate the effects of violence and prolonged periods of warfare on women and children. Specifically, nonspecific indicators of malnutrition (cribra orbitalia, porotic hyperostosis) and nonlethal cranial depression

fracture frequencies were recorded for noncombatants and combatants to compare morbidity patterns between these two groups to see how each was faring during these periods of violence.

Chaco Canyon

The skeletal remains from Chaco Canyon came from both sites within the Canyon itself and site beyond the Canyon in order to create a comparison of age-at-death, health, and trauma data and to understand how health differed between the ruling elite that lived within Chaco itself and those of lower status that lived elsewhere. A total of 7 sites were analyzed for a sample number of 271 individuals (see Table 5.1).

While each of the sites do demonstrate variability in the number of adults and infants and children, they all are generally representative of all age groups. In terms of sex ratio, there is significant variation at some sites between males and females; however, overall, both sexes are equally represented in the mortuary context.

Aztec Ruins

The burial collection with the known mortuary context was excavated from West Ruin by Morris between 1916 and 1922 (Lister and Lister 1990). This collection is currently housed at the American Museum of Natural History. While Morris states that 186 burials were excavated from the site and identified, roughly one-third of those went back to the museum (Morris 1924), and of those only some were complete enough to be included in the study (see Table 5.1). The remains come from a

Table 5.1 Chaco Canyon skeletal remains

Site	Female	Male	Intermediate	Subadult
Pueblo Bonito				
Room 33	5	8	–	–
West	32	15	3	24
Aztec				
West Ruin	11	22	–	14
No Provenience	2	4	–	2
Peñasco Blanco	8	6	–	–
Pueblo del Arroyo	2	4	–	5
Kin Bineola	11	8	1	14
Wingate sites	11	5	–	3
La Plata sites	22	20	6	3
	104	92	10	65

Population total = 271

variety of different mortuary contexts (Morris 1924; Stone 2000), and the majority of the remains are dated to the later half of the Pueblo III period (Brown et al. 2008; Morris 1924).

Paquimé

The skeletal remains from Paquimé were excavated between 1959 and 1961 by Charles DiPeso and account for approximately 40 % of the main complex of the site. These remains accounted from individuals from both the Viejo period and the Medio period (see Table 5.2).

Approximately 76 individuals were recovered from the Viejo period. In general, there is little evidence of trauma and poor health, but they are a representative sample of infants, children, and teens, as well as adult males and females. Individuals between the ages of 0 and 5 years old account for the greatest number of death within this time period. The Medio period revealed significantly more individuals than the Viejo period, likely due a substantially larger overall population and preservation of the remains. A total of 576 individuals were uncovered during excavation, 225 of which were subadults, with the remaining 351 individuals being adults. It's important to note that unlike the Viejo period where infants were the most vulnerable population, adult females account for the greatest number of deaths in this population.

To date, no systematic study of the health and trauma of the entire skeletal population has been completed in detail, but research is currently ongoing to rectify this. Research into these remains has tended to focus on subsets of the skeletal population, with emphasis on those burials with the most evidence of violence, trauma, and differential mortuary patterns. There are several of these burials from the Medio period at Paquimé, which will be discussed in more detail below, but include burials with evidence of sacrifice, as well as possible trophy taking, and evidence of an elite ruling class, similar to what we see at Chaco Canyon.

The Effects of Warfare on Noncombatants

Examination and analysis of the skeletal material at Chaco Canyon and Paquimé revealed interesting patterns in morbidity and mortality between the males and the women and children. These patterns suggested that there was, indeed a ruling elite

Table 5.2 Paquimé skeletal remains (Di Peso et al. 1974; Ravesloot 1988)

	Subadult (0–18)	Young adult (19–35)	Middle adult (35–50)	Old adult (50+)	Adult (unspecified age 18+)
Viejo Period (AD 700–1150)	32	–	–	–	44
Medio Period (AD 1150–1450)	225	141	77	31	102

present at *both* Chaco Canyon and at Paquimé, and that they wielded their power in similar ways that impacted the health and well-being of the lower status individuals. Each site will be discussed individually below.

Chaco Canyon

Nonlethal violence was found at every site under investigation in this study to varying degrees, and, with the exception of Pueblo del Arroyo, was found in individuals of both sexes. Immediately, this is important because it shows that women are not buffered from violence even during the so-called peaceful periods in Puebloan prehistory (for a full breakdown of the percentages of males and females with head trauma, please see Table 5.3). The overall prevalence of trauma across the region varies greatly, with rates of nonlethal trauma ranging from 12.5 % all the way to 63 % among particular genders at each site. This suggests that rather than Chaco Canyon using its power and influence to reduce all violence, it is possible that some members of the community were actively encountering violent interactions. Harrod (2013) has suggested the violence might have been used as a form of social control, which is evident in the presence of instances of extreme processing events and massacres, along with smaller instances of nonlethal conflict that seems targeted toward certain demographics in the community.

Nonlethal trauma is recorded as cranial depression fractures which are either in the process of healing or have already been fully healed. According to Fig. 5.4, the highest rates of nonlethal trauma are seen among the males at Pueblo Bonito-Room 33 (62 %) and among the females at the nearby site of Kin Bineola (63 %—this site

Table 5.3 Nonlethal violence at Chaco Canyon

Site	Sex	Total
Pueblo Bonito-Room 33	Male	5/8 (62.5 %)
	Female	1/5 (20.0 %)
Pueblo Bonito	Male	3/15 (20.0 %)
	Female	4/32 (12.5 %)
Aztec Ruins	Male	7/20 (35.0 %)
	Female	4/11 (36.4 %)
Peñasco Blanco	Male	2/6 (33.3 %)
	Female	3/8 (37.5 %)
Pueblo del Arroyo	Male	2/4 (50.0 %)
	Female	7/11 (63.6 %)
Kin Bineola	Male	1/5 (20.0 %)
	Female	7/11 (63.6 %)
Wingate sites	Male	2/5 (40.0 %)
	Female	3/11 (27.3 %)
La Plata Sites	Male	7/18 (38.9 %)
	Female	11/21 (47.6 %)

is a Chacoan outlier site and is not found within the Canyon itself). Pueblo Bonito Room 33 is thought to contain the skeletal remains of several male elite individuals, and it has been theorized that the high rate of trauma among the males seen here (and the lone female individual) is the result of status seeking competition through face-to-face combat, as was seen among the Chumash Indians of Southern California (Lambert 1997; Walker 1989). The next highest frequencies appear at the Chacoan site of Peñasco Blanco in both the male (33 %) and female (37 %) individuals.

In terms of health, there are indications that nonelite individuals were suffering from lack of resources and malnutrition, while elite individuals were generally the healthiest individuals living within the Chaco region (see Fig. 5.3). Cribra orbitalia and porotic hyperostosis are considered general indicators of anemia and malnutrition. Porotic hyperostosis is identified as areas of pitting and porosity on the cranial vault. It is caused when the body over produces red blood cells causing an expansion of the diploë and a resorption of the outer table of the cranial vault, resulting in a "spongy" appearance (Walker et al. 2009). Cribra orbitalia is generally thought to be caused by similar processes at porotic hyperostosis, but is found on the roof of the eye orbit. Both of these illnesses are more representative of childhood health status and generally occur during an individual's youth; however, healed lesions may be present in adults and may provide evidence of health status at an earlier point in life.

The analysis of health suggests that nutritional stress and other health problems were a problem for adults living outside of Chaco, as indicated in the top portion of Fig. 5.3. Circled is the Adult population from Pueblo Bonito-Room 33, which shows the lowest percentage of the population suffering from anemia, while Aztec Ruin, a site north of Chaco has the highest percentage of the population suffering from anemia. We've already suggested that Room 33 represents an elite burial, and the lack of malnutrition within this site strengthens that argument. The elite ruling class likely would have had greater access to resources, both of an exotic, ritual nature, and of a more generalized subsistence nature, and may have been responsible for distributing resources throughout the region, giving them direct access to the most abundant source of nutrition and resources. A different pattern emerges when you examine the health for the subadult population within the sample. The percentages of the populations suffering seems almost reverse than the adult population with the subadults from Pueblo Bonito showing the highest percentage of anemia and poor health, and those children at site outside of Chaco Canyon, such as Aztec, Kin Bineola, and La Plata also showing high frequencies of anemia. This suggests that while the adult population within Chaco seemed to be better off than the adult population living outside of Chaco, that both children within and outside of the Canyon were suffering equally, and were both likely at risk for early death and poor health.

These data suggest that life during the Chaco Phenomenon was not quite as peaceful as previously suggested by researchers. Furthermore, these data support the idea of a ruling class of individuals that was faring better than the rest of the population, and overall showed better health and longer lives. Adult women at Chaco were not buffered from the violence experienced within the canyon, or
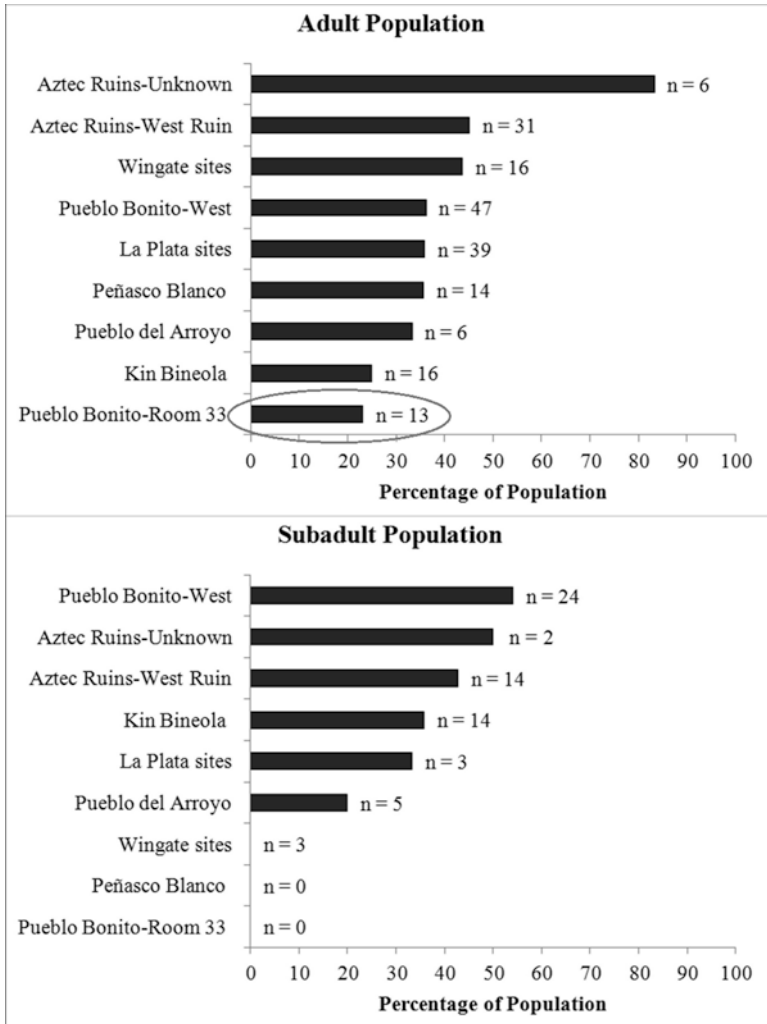
Fig. 5.3 Health status of adults and subadults at Chaco Canyon using anemia as one indicator of health

beyond it, and were subject to nonlethal violence just as much, and in some cases more often than their male counterparts, and are subject to malnutrition as well. Children are suffering from malnutrition and morbidity and from early mortality, whether they live inside or outside of Chaco Canyon. The rates of nonlethal violence coupled with the low levels of anemia within Room 33 and the high rates of anemia elsewhere within and beyond Chaco Canyon suggest that the ruling class of elites likely used violence as a means of coercion and control over the population. These measures used to enforce social control and maintain "peace" within the canyon added to the suffering of women and children throughout the entire Puebloan region of the American Southwest.

Aztec Ruins

Analysis of the human skeletal remains from Aztec Ruins also suggested some indication of an elite class. This was evident in the fact that there were more males with slightly higher rates of cranial trauma and the presence of a male burial with elaborate grave goods. The problem however is that this male was not overly robust and most of the males at the site had less developed entheses than the males in Room 33. In general, the males and females at Aztec Ruins had fairly low development of the entheses.

Looking at trauma, the males and females at Aztec Ruins had roughly the same amount of trauma approximately 30 %, which is not exceptionally high or low. One burial stands out, a male interred in Room 178. This middle-aged male is unique because the burial contained a range of impressive grave goods, including a shield (large basket), two stone axes, and a sword (possibly a digging stick). The presence of these grave goods resulted in this mortuary context being referred to as the "Warrior's Grave" (Morris 1924). Lekson (1999) suggests that it was possible that this individual represented an elite burial at Aztec Ruins. Prior bioarchaeological analysis of the remains indicated that the individual was taller in stature than other age-matched males in the region. However, these studies do not note any indications of trauma, which does not lend credence to the "Warrior's Grave" hypothesis. There are no isotopic data from these remains available; however, carbon dating is being performed by Steve LeBlanc (personal communication).

Paquimé

As mentioned above, examination of the skeletal remains at Paquimé has tended to focus on those graves which prove to have the most aberrant burials, with limited focus on what might be considered the normal burials for the population. However, these burials can still elucidate much information about which members of the population are suffering from and experiences instances of violence, and who might be faring better than others. Several examples of possible sacrifices and trophy bones have been recovered from the site that suggest that certain segments of the population were being targeted. In particular, children and young adult females at Paquimé may have been under excessive stress or victims of violence. One piece of evidence that supports this argument is burial designated 44-13 (see Fig. 5.4).

This burial comprises 12 individuals and has been suggested by many (Casserino 2009; Di Peso et al. 1974; Kohn 2010) to be an example of ritual sacrifice, with the top layers representing offerings to the elite individuals below. Four children aged 10–16 make up the top layer and show signs of postmortem processing and were fragmentary in nature. A recent reanalysis of the burial by Offenbecker and colleagues (2014) showed that these adolescent individuals displayed evidence of poor health, including
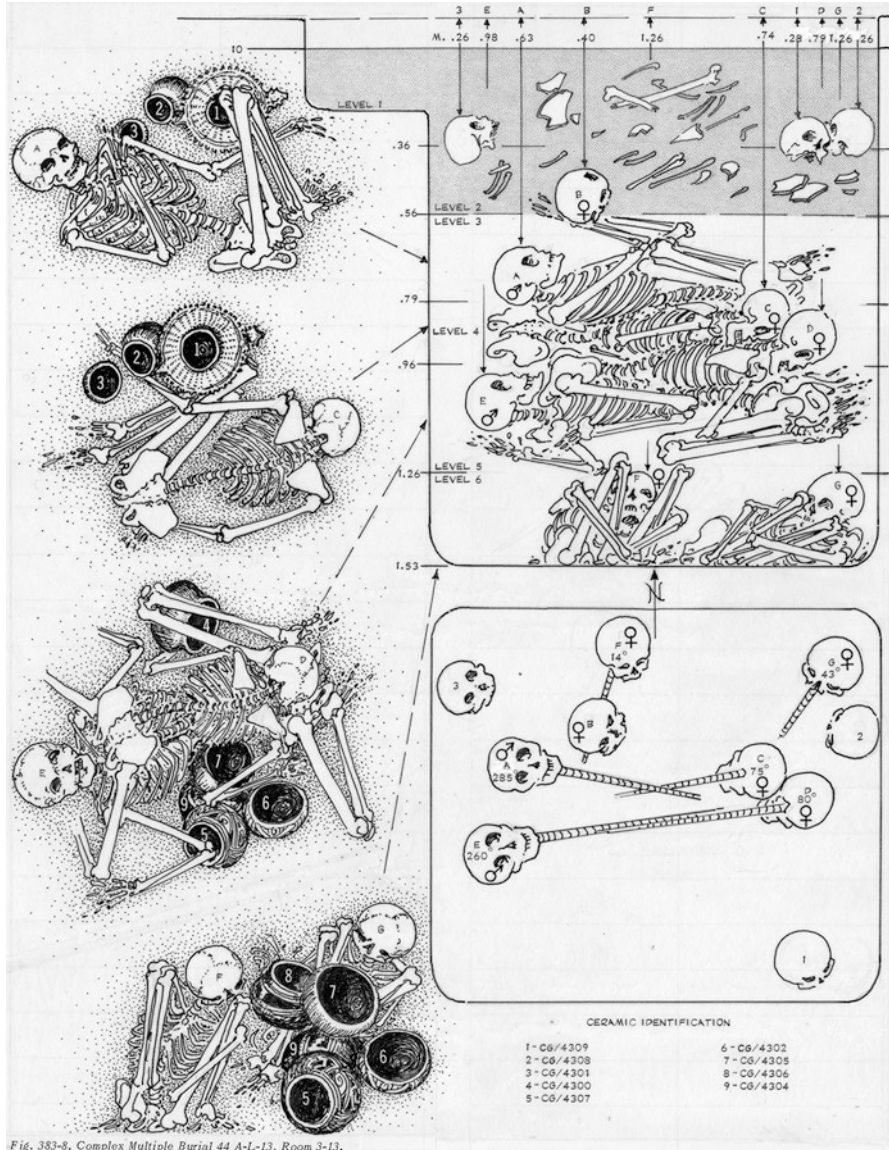
Fig. 383-8. Complex Multiple Burial 44 A-L-13, Room 3-13.

Fig. 5.4 Previously published in Casas Grandes Volume 8, p. 389. Original line artwork by Alice Wesche

evidence of porotic hyperostosis and anemia. Both adult male and female individuals made up the remaining components of this burial, and some of the females also had health problems, including low body mass and linear enamel hypoplasias (Offenbecker et al. 2014). There are three individuals that stood out to Offenbecker et al. as potentially representing the elite lineage that was the focus of this burial. 44E is a robust adult male with grave goods who appeared to be in good health with an adult female who was placed on top of him in a suggestive position (44D). It has been suggested that the individual 44E was the most important individual within this burial (Offenbecker et al. 2014). 44A, and elderly male, and 44G, and old female, were also buried with many grave goods. The positioning of malnourished children and young adult females showing evidence of postmortem processing supports the suggestion of Offenbecker et al. that young adult females at Paquimé may have been the targets for violence and sacrifices, as well as postmortem processing in general.

The evidence for elites and possibly celebrated warriors is ample at Paquimé. In addition to burial 44-13, burials for elite individuals are also suggested elsewhere throughout the site. The burials suggest that elite lineages were buried with grave goods in addition to possibly including sacrificed women and children. Few individuals were buried in burial vaults or subfloor tombs (Di Peso et al. 1974; Ravesloot 1988). These were likely reserved for elites and warriors over the general population. Males were buried in more elaborate burials, including within burial tombs, and they were more likely to be buried with rare objects when compared to female individual (Di Peso 1974; Ravesloot 1988). Burial 44-13 strengthens the argument for the presence of elites in the region, and further suggests that while male elites may have existed, it is likely that male individuals still occupied the highest points on the social hierarchy at Paquimé.

The role of warfare at Paquimé presents a more complex picture of the role that prolonged violence and warfare looks like at the nonstate level. Warfare at this level was previously rarely considered in the literature, but it was clearly ubiquitous and likely affected all members of the population, not just male warriors engaged in combat. Evidence discussed here shows that women and children suffered, both as victims of the small number of elite lineages that wielded power and control over food and other resources, and also as sacrifices. Thus, the finding and examination of males only tells part of the story; in instances of endemic warfare and prolonged violence, there was also likely an increase in the number of casualties for women and children as well.

Conclusions

Bioarchaeological analysis of the three regional centers along the "Chaco Meridian" shows that it is clear that conflict during times of relative peace or political upheaval is not clear-cut. Human remains provided new insights into our thinking about peace and war in small-scale societies. The role and function of violence and warfare in the past is much more nuanced and must be understood within the larger

context of elites and those in power. The claim for peace and war cannot be solely based on archaeological evidence (i.e., the lack of fortified villages does not necessarily reflect regional harmony). Looking at Chaco Canyon, the presence of high status individuals with trauma and the occurrence of ritually processed remains seem to suggest that regional conflict was controlled by a strong system of social control. This same system of control does not seem to be present at Aztec Ruins, where the high status male lacks evidence of nonlethal trauma, and when we look outside of Aztec Ruins evidence for regional warfare is evidenced by the presence of massacre sites (Billman et al. 2000; Kuckelman et al. 2002). Warfare in small-scale societies is often facilitated with performative violence such as human sacrifice, which provides a way to communicate power and to normalize the violent practices. When warfare is ongoing violence will impact women and children, but even during times when regional conflict is suppressed, rigid social control can also cause suffering. Ancient warfare is far more complex and variable, and it must include an identification of the elites who wield power, and the ways that this affects real people on the ground through analysis of human remains.

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Chapter 6
Caught in a Cataclysm: Effects of Pueblo Warfare on Noncombatants in the Northern Southwest

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Introduction

The impacts of warfare on human societies are incalculable and extend far beyond the combatants themselves to women and nonadults, who typically occupy more passive niches within the realm of violent interactions between groups of antagonists. Archaeological and bioarchaeological data have provided compelling evidence of endemic warfare among ancestral Pueblo peoples of the northern Southwest. Direct evidence of physical violence on human remains that reflects episodes of warfare between groups in the northern Southwest has been associated with archaeological evidence of fortifications, masonry enclosing walls, and sites in strategic and defensible locations. Although the frequency and intensity of violent interactions waxed and waned throughout the Pueblo occupation of the northern Southwest, warfare contributed to the final depopulation of the region and to the relocation of Pueblo groups farther to the south. Violent upheavals no doubt affected Pueblo society and the course of Pueblo history in far-reaching ways. In this chapter, we investigate wider societal effects of warfare by examining bioarchaeological data for evidence of warfare-associated morbidity and mortality in adult females and children and compare this evidence with that for adult males. Bioarchaeology is the integrated analysis of human remains in a richly configured context that includes the reconstruction of the cultural, ideological, symbolic, and environmental factors that shape human well-being.

For the purposes of this study, we use Ferguson's (1984:5) definition of warfare as "organized, purposeful group action, directed against another group that may or

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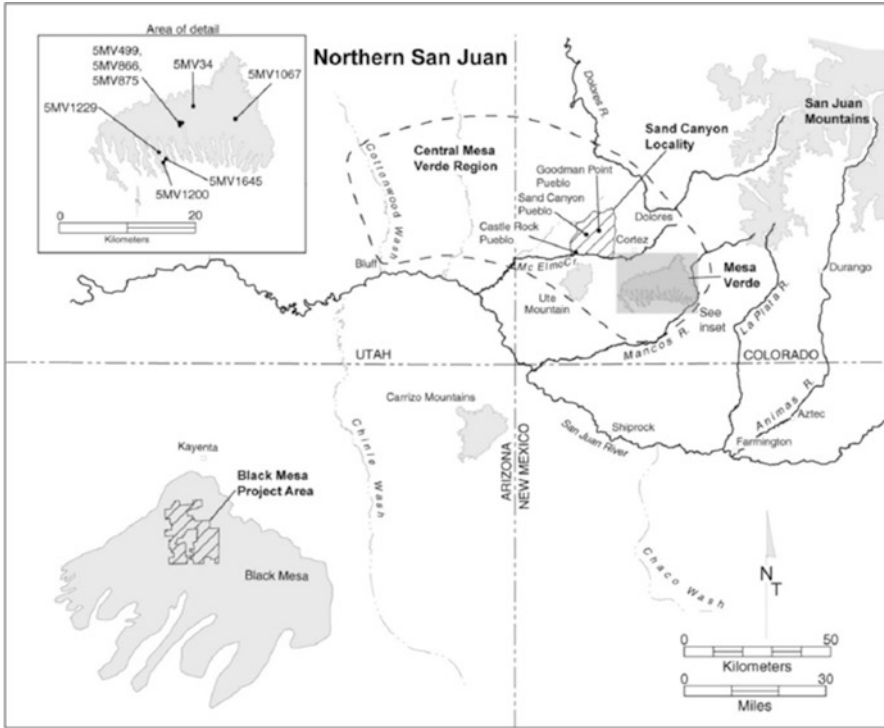
Fig. 6.1 Map of the northern San Juan (area north of the San Juan River) and Black Mesa in northeastern Arizona. Adapted with permission, Crow Canyon Archaeological Center

may not be organized for similar action, involving the actual or potential application of lethal force." The modern terms "combatant" and "noncombatant" are not without ambiguity but serve the purposes of this study in distinguishing between adult females and children who, according to historical accounts of Pueblo warfare, are likely to have played more passive roles in violent, intergroup confrontations, as opposed to adult males, who are most likely to have served as warriors both offensively and defensively (Ellis 1951; James 1974:63 – 64; Parsons 1996).

Background to Study Area

Our study area is a diverse landscape of mountains, buttes, canyons, mesas, and rolling uplands, and ranges from approximately 4000 ft (1220 m) to more than 13,000 ft (4000 m) in elevation (Fig. 6.1). Ancestral Pueblo farming families settled this portion of the northern Southwest by at least 500 B.C. when maize had already become a dietary staple (Coltrain et al. 2007). During this Basketmaker II period (500 B.C. to A.D. 500), both maize (*Zea mays*) and squash (Cucurbita spp.) were

cultivated. Families lived in shallow pithouses within alcoves or in scattered farmsteads near their crop fields but continued to gather a variety of edible wild plant foods and hunt fauna such as mule deer (*Odocoileus hemionus*) and cottontails (Sylvilagus spp.). Domesticated turkeys (*Meleagris gallopavo*) were introduced into the region by at least 400 B.C., and their feathers were important for the production of blankets, but turkey meat was not part of the diet until the middle A.D. 1000s (late Pueblo II period).

Although the earliest crude pottery vessels were produced during Basketmaker II times, pottery manufacture did not become widespread until the Basketmaker III period (A.D. 500 – 750), by which time the common bean (*Phaseolus vulgaris*) had been added to the diet and, along with maize and squash, formed a subsistence triad that would sustain Pueblo populations for many generations thereafter. Both a variety of pottery vessels and the bow and arrow became standard household equipment. Fauna and edible wild plants continued to supplement crop foods. The population of the region burgeoned during this period, with immigrants entering the central portion of the region from the east and west. Farmsteads of pithouses and free-standing, aboveground storage rooms began clustering into communities, and, for the first time, large public structures called "great kivas" were built to accommodate large gatherings.

Regional population continued to increase during the Pueblo I period (A.D. 750 – 900), and many villages–some housing hundreds of residents–were constructed. Residences included deep pit structures and blocks of contiguous rooms. New types of pottery vessels were fashioned, but other technology and the subsistence base continued mostly unchanged from the previous period. A sharp decline in the population of the region at the end of the Pueblo I period probably resulted from a climatic shift to warmer and drier conditions unfavorable for agriculture. Some groups might have moved into the Chaco Canyon area of northwestern New Mexico; others are likely to have emigrated to the Rio Grande region (Bocinsky and Kohler 2014; Washburn 2013).

The population of the northern San Juan again increased during the Pueblo II period (A.D. 900 – 1150) after climatic conditions improved in the early A.D. 1000s. Similar to the Basketmaker III settlement pattern, communities of clustered family farmsteads formed, some of which boasted a great kiva. Domiciles evolved from deep pit structures to masonry-lined kivas. Subsistence strategies and technology were similar to the previous period, except that mule deer had been mostly hunted out by the middle A.D. 1000s (Driver 2002), and domesticated turkeys were added to the diet at about the same time. Maize composed approximately 80 % of the diet (Katzenberg 1995). Influence from Chaco Canyon led to the construction of "Chaco outliers" or "great houses" that echoed the architectural styles that were employed in the formal, multiple-story buildings of Chaco Canyon itself. The occupation of Chaco Canyon and the influence of the Chaco system appear to have ended by about A.D. 1130, which heralded the onset of arguably the most severe drought ever experienced in the northern Southwest (Cook et al. 2004; Meko et al. 2007; Van West and Dean 2000).

This megadrought persisted from about A.D. 1130 to 1180, well into the beginning of the Pueblo III period (A.D. 1150 –1280) and co-occurred with a dramatic

Table 6.1 Percentages of health indicators on adult females and children vs. adult males, by time period

Health indicator	Adult females and children (0–19 years)				Adult males			
	A.D. 1100 and earlier		Post A.D. 1100		A.D. 1100 and earlier		Post A.D. 1100	
	No. assessable	% with	No. assessable	% with	No. assessable	% with	No. assessable	% with
Porotic hyperostosis	82	41	79	37	24	50	27	37
Cribra orbitalia	58	24	74	16	17	0	27	11
Periosteal reaction	69	17	84	30	32	13	29	28
Antemortem fracture	63	30	78	15	32	47	28	57
Perimortem fracture	47	6	79	14	30	7	30	37

No. number

escalation of warfare throughout the region (Kuckelman 2016), and with another period of population movement out of the northern San Juan (Berry and Benson 2010). Evidence of violence during this period was found at many sites in the northern San Juan (Kuckelman 2016: Fig. 6.1, Table 6.1). By the late A.D. 1100s, however, favorable climatic conditions brought an upsurge of repopulation to the area, and population boomed in the early A.D. 1200s. Clusters of farmsteads formed communities, many of which centered on public architecture such as a great kiva or a Chaco-style great house. This century witnessed the peak of ancestral Pueblo architecture and pottery manufacture, the greatest population density, and the construction, in the mid-thirteenth century, of the largest pueblos ever constructed in the region. The cultivation of maize was the cornerstone of the subsistence system—the diets of turkey flocks (Bocinsky et al. 2011; McCaffery et al. 2014; Nott 2010; Rawlings and Driver 2010) and families (Decker and Tieszen 1989; Matson and Chisholm 1991) were heavily maize dependent.

But by A.D. 1250, environmental conditions had again begun to deteriorate (Salzer and Kipfmueller 2005), and tensions increased between communities, which were by this time densely populated, across the region. A massive volcanic eruption in the late A.D. 1250s reduced global temperatures and is thus likely to have caused additional agricultural challenges in the northern Southwest (Mann et al. 2012; Salzer 2000). Many communities on Mesa Verde aggregated within protected cliff alcoves, constructing defensive homes, walls, and towers. Food was safeguarded in granaries built on ledges that were especially difficult to access (Fig. 6.2). Communities in the rolling uplands to the west and northwest of the Mesa constructed defensive villages, some of which were walled (Fig. 6.3), surrounding their canyon-head springs (Fig. 6.4). Archaeological data indicate that severe drought that began in A.D. 1276 (Douglass 1929) brought crop failure, a return to a hunting-and-gathering subsistence strategy, and a final escalation of Pueblo violence to the

Fig. 6.2 Food-storage granaries protected by their location on a canyon ledge, Mesa Verde National Park. Photo taken by K.A. Kuckelman

Fig. 6.3 Artist's reconstruction of Sand Canyon Pueblo. Painting by Glenn Felch. Courtesy Crow Canyon Archaeological Center

northern San Juan (Kuckelman 2010). The failure of maize crops would have resulted in a collapse of the subsistence system—as much as 90 % of ancestral Pueblo calories came from maize by this time (Matson 2015). About A.D. 1280, the

Fig. 6.4 Canyon-head spring, Central Mesa Verde region. Photo taken by K.A. Kuckelman

occupation of Sand Canyon, Castle Rock, and Goodman Point pueblos all ended with attacks in which many residents perished (Kuckelman 2016). Residents of Mesa Verde cliff dwellings also experienced violent death (Kuckelman 2014). Settlements across the region were all depopulated about this same time as survivors of these difficult conditions migrated southward.

On Black Mesa, in what is today northeastern Arizona, ancestral Pueblo occupation occurred mostly from 200 B.C. to A.D. 200 (Basketmaker II period) and again from about A.D. 800 to 1050 (Early Pueblo) and A.D. 1050 to 1150 (Late Pueblo). The characteristics of the Black Mesa occupation are similar to those of the northern San Juan during contemporary temporal spans, with the following exceptions: (1) the former was never as densely settled as the latter, (2) occupation of Black Mesa was not continuous throughout the Basketmaker and Pueblo periods, and (3) ancestral Pueblo occupation of Black Mesa ended by A.D. 1150, whereas that of the northern San Juan continued until the permanent depopulation of the region about A.D. 1280.

Thus, throughout the ancestral Pueblo occupation of the northern Southwest, patterns of settlement reconfigured periodically as families relocated to remain within the shifting "dry-farming belt" (Petersen 1988), a geographic strip of variable width that experienced adequate levels of precipitation as well as a growing season long enough for maize crops to mature. Archaeological and bioarchaeological evidence of multiple outbreaks of Pueblo warfare in northern San Juan has been documented widely during the past several decades. For this chapter, we wanted to investigate how the health of noncombatants, that is, women and children, was affected both directly and indirectly by warfare and by various associated aspects of a societal and economic atmosphere of warfare.

Evidence of Violence in the Northern Southwest

Archaeological evidence of warfare among ancestral Pueblo peoples of the northern Southwest includes defensive architecture (multiple-story structures, parapets, tunnels, loopholes, village-enclosing walls, access-restrictive entryways, difficult-to-access granaries), defensible habitation locations (cliff alcoves, butte tops, tops of boulders, proximity to springs), burned roofs, warrior shields, rock art images of violent interactions, and traditional accounts of warfare events. Cross-culturally, defending stored food has been recognized as a common indicator of internecine warfare (Matson et al. 1988). The strongest and most abundant direct bioarchaeological evidence of violence and warfare in this region consists of antemortem and perimortem cranial fractures; however, fractured noses, tooth ablations, cranial cut marks indicative of scalping, and a variety of other types of trauma have also been documented (Baker 1994; Billman et al. 2000; Bond 2011:16; Brew 1946:129; Brues 1946; Dice 1993; Errickson 1993a, b, c, d; Fetterman et al. 1988; France 1988; Kuckelman 2012; Kuckelman et al. 2000, 2002; Lambert 1999; Luebben and Nickens 1982; Martin 1997, 2008; Martin et al. 2001; McNitt 1966:75; Morris 1939:105; Morris et al. 1993; Nass and Bellantoni 1982; Stodder et al. 2010a, b; Street 2001:198; Turner and Turner 1999; White 1992). Indirect bioarchaeological evidence of warfare includes scattered remains in abandonment contexts such as roof- and wall-collapse debris, carnivore-disturbed remains, weathered remains, and articulated remains in sprawled positions on structure floors. Remains that appear to have been the object of anthropophagy (the consumption of human flesh) especially in contexts that include other evidence of warfare have also been interpreted as evidence of violence and warfare (Baker 1994; Billman et al. 2000; Kuckelman 2016; Kuckelman et al. 2000, 2002; Stodder et al. 2010b; Turner and Turner 1999; White 1992).

The Data Set

The bioarchaeological data used in the present study were derived from analysis of the remains of 340 individuals, most of whom lived sometime between A.D. 850 (Pueblo I) and A.D. 1280 (terminal Pueblo III). Our dataset comprised the remains of 184 individuals from within the central Mesa Verde region: 50 individuals from Sand Canyon, Castle Rock, and Goodman Point pueblos in the Montezuma Valley northwest of Mesa Verde (Fig. 6.1) and 134 individuals from eight sites at Mesa Verde. Also included in our dataset were the remains of 160 individuals from numerous sites on Black Mesa, in the northeastern corner of Arizona. The remains from Mesa Verde National Park date from the tenth through the thirteenth centuries and were recovered during excavations that were conducted from the mid-1950s through the early 1960s at a variety of cliff dwellings and mesa-top habitation sites: 5MV34 (Soda Canyon), 5MV875 (Lister #1), 5MV499 (Lister #2), 5MV866-897,

5MV1067 (Morefield Great Kiva), 5MV1200 (Long House), 5MV1229 (Mug House), and 5MV1645 (Two Raven House). These data were generated during NAGPRA compliance conducted by Debra Martin and colleagues in 1995.

It is important to note that many human remains from Mesa Verde, some dating from the warfare-torn middle-to-late thirteenth century, that might have exhibited evidence of morbidity or trauma–such as those encountered in Cliff Palace and Long House by early relic collectors in the late 1800s (Nordenskiöld 1979:29 [1893]) and later researchers (Street 2001:198), as well as remains described by Fewkes (1909:24) at Spruce Tree House and Morris (1939:42) at Site 6–were not among remains reanalyzed by Martin and colleagues. Many such remains were discarded, lost, or sold long ago (Diamond and Olson 1991; McNitt 1966:25) or are otherwise not available for study; unfortunately, those remains cannot be examined using modern analytic methods or techniques nor included in studies such as this on morbidity and mortality.

Human remains at the village sites of Castle Rock Pueblo, Site 5MT1825 (Kuckelman 2000), Sand Canyon Pueblo, Site 5MT765 (Kuckelman 2007), and Goodman Point Pueblo, Site 5MT604 (Kuckelman In Press), dating from approximately A.D. 1250 to 1280, were excavated by the Crow Canyon Archaeological Center between 1984 and 2008 as part of its long-term research in the Sand Canyon locality of southwestern Colorado into the depopulation of the northern San Juan region (Fig. 6.1). The human remains data for Castle Rock and Sand Canyon pueblos used in this study were collected in 1997 by Debra Martin and colleagues during a comprehensive reanalysis of remains from both sites. Bioarchaeologist Kathy Mowrer collected in-field osteological analytic data at Goodman Point Pueblo during Crow Canyon's excavations at that site from 2005 through 2008. The remains from Black Mesa, most of which date between A.D. 850 and 1120, were recovered from small seasonal habitations in the Black Mesa Archaeological Project area on the northern portion of the mesa during excavations from 1968 to 1987. These remains were analyzed by Debra Martin and colleagues during the course of that project (Martin et al. 1991).

For the purposes of this study, we defined combatants as males 20 years of age or older and noncombatants as adult females as well as all individuals 19 years of age or younger. We included individuals who had been coded as either "female" or "probable female" into our "adult female" category and those individuals who had been coded as either "male" or "probable male" into our "adult male" category. To enable us to detect differences in health attributable to warfare, we created two temporal categories–remains that date up to and including A.D. 1100 (n = 179) and those that date from the twelfth and thirteenth centuries (n = 161). Multiple lines of evidence suggest that less warfare occurred during the earlier span. The second temporal span included two intervals of heightened warfare–A.D. 1130 to 1180 and A.D. 1250 to 1280; the latter interval of heightened violence contributed to the complete depopulation of the northern San Juan by Pueblo peoples.

Detecting the Effects of Warfare on the Vulnerable

Although casualties of endemic warfare in small-scale societies are very difficult to detect in the bioarchaeological record, some deleterious effects of warfare can leave markers on osteological remains. Warfare in the prehistoric northern Southwest was highly variable and included raiding, hand-to-hand fighting, skirmishes, and opportunistic encounters. In addition to the bow and arrow, weapons included wooden clubs and stone axes hafted onto wooden handles (Titiev 1944:66; Woodbury 1954:42). Use of stone axes and wooden clubs resulted in fractures to various areas of the skull. Arrow penetration would have seldom resulted in skeletal impress, however, and thus most such trauma cannot be detected in the osteological record.

An indirect effect of warfare and the conditions that give rise to warfare is morbidity resulting from nutritional deficiency. However, relationships between nutritional shortfalls and osteological pathology are complex and challenging to define (Ambrose and Katzenberg 2000; Martin et al. 1985), and even death from starvation cannot be reliably detected on skeletal remains (White 1992:363). Some studies of morbidity and nutritional stress use enamel hypoplasias as stress indicators; however, for the purposes of the current study, we chose to exclude this potential marker because it needs to be interpreted within a more complex analysis of dental wear and antemortem tooth loss. With the above factors in mind, we chose the following five health indicators that are discernable on skeletal elements as being the most likely to reflect morbidity or mortality among individuals represented within the assemblages included in our study: porotic hyperostosis, cribra orbitalia, periosteal reaction, antemortem fracture, and perimortem fracture.

Porotic hyperostosis (PH) is a stress response associated with iron-deficient anemia that is most often present on the cranial vault of immature individuals. PH involves a thinning or destruction of the outer table of the cranium, expansion of the diploë, and a thickening of the cranial vault. This condition leaves the exterior surface of the cranium with a coral-like appearance and is typically manifested on the parietals. Cribra orbitalia consists of lesions that are localized on the roof of one or both orbits. PH, once thought to result simply from iron-deficient diet, is now believed to result from a complex array of variables such as diet, infectious disease, and constitution (Mensforth et al. 1978), which can act synergistically to compromise and lower hematocrit levels of iron. The causes of PH in populations in the Southwest have been studied and discussed by many researchers (Akins 1986:42; El-Najjar et al. 1975, 1976; Hinkes 1983:47; Martin et al. 1991:151; Palkovich 1980: 41–47, 1987; Stodder 1987; Stuart-Macadam 1987, 1991; Walker 1985; Walker et al. 2009; Wapler et al. 2004; White 1992:95; White et al. 2012:448 – 450). The causes and frequencies of PH in human remains from sites in the Southwest have been summarized as follows:

> The remarkable prevalence of osseous lesions indicative of anemia among prehistoric Southwest Indians apparently resulted from the interaction of a complex set of biological and cultural variables relating to nutrition and infectious disease. Lack of iron in the diet, prolonged breast feeding, diarrheal and helminth infections, and living conditions conducive

to the spread of disease all appear to have contributed to the prevalence of porotic hyperostosis (Walker 1985:153).

Regardless of the specific cause or causes of PH in any particular individual, the occurrence of PH among Pueblo residents of the northern Southwest nevertheless reflects circumstances that negatively impacted the health and well-being of the affected individuals and therefore constitutes an accurate reflection of morbidity.

Periostitis is inflammation of the periosteum–the fibrous membrane that covers the surfaces of bones–that can occur as a result of an infectious disease, noninfectious disease (Ortner 2003), or trauma. Periosteal reactions that involve multiple long bones, often bilaterally, generally result from systemic infectious diseases, whereas isolated reactions usually result from localized trauma (Martin et al. 1991:128). The great majority of periosteal reactions are probably the result of common, transmissible bacterial infections such as staphylococcus and streptococcus. Periosteal reactions are thus meaningful reflections of conditions that negatively impacted the health of Pueblo peoples in the northern Southwest.

Nonlethal violence and trauma was captured by the record of antemortem fractures, or fractures that had healed or had begun to heal at the time of death. Many antemortem fractures recorded for the northern Southwest are located on the skull and are inferred to result from violence (Bond 2011:19; France 1988; Kuckelman 2012; Kuckelman et al. 2000, 2002; Lambert 1999; Martin 1997, 2008; Martin et al. 2001; McNitt 1966:75; Stodder et al. 2010b; Street 2001:198; Turner and Turner 1999; White 1992). Perimortem fractures–fractures suffered around the time of death–are used in this study as an indicator of warfare-associated mortality. Although it is not certain that any specific perimortem fracture was the cause of death, such fractures, especially those of the cranium, are likely to have contributed to the death of the individual. Many perimortem fractures of other elements in our database were spiral fractures and were accompanied by thermal alteration, thus increasing the likelihood that the death was warfare related.

We held two main hypotheses: (1) that males (combatants) experienced the greatest levels of trauma and heath stress, but that females and children also experienced significant levels of trauma and poor health and (2) that the remains of noncombatants (women and children) dating from the earlier period, of less warfare, would exhibit lower levels of trauma and stress than those from the tumultuous twelfth and thirteenth centuries.

Our results contain a mix of expected and unexpected outcomes. For indicators of morbidity relating to diet, levels of porotic hyperostosis were high for both groups and both temporal spans (Table 6.1, Figs. 6.5 and 6.6). The remains of combatants dating from the earlier, lower-warfare temporal span exhibited the highest incidence of PH (50 %), although PH among noncombatants was nearly as prevalent (41 %) during that span. However, the highest levels of dietary inadequacies, as reflected in the form of cribra orbitalia, were experienced by noncombatants during the earlier span. These results are unexpected in that we anticipated that food stress would have been greater for both groups during the later centuries. Thus, food insecurities might have been relatively greater before A.D. 1100 than previously
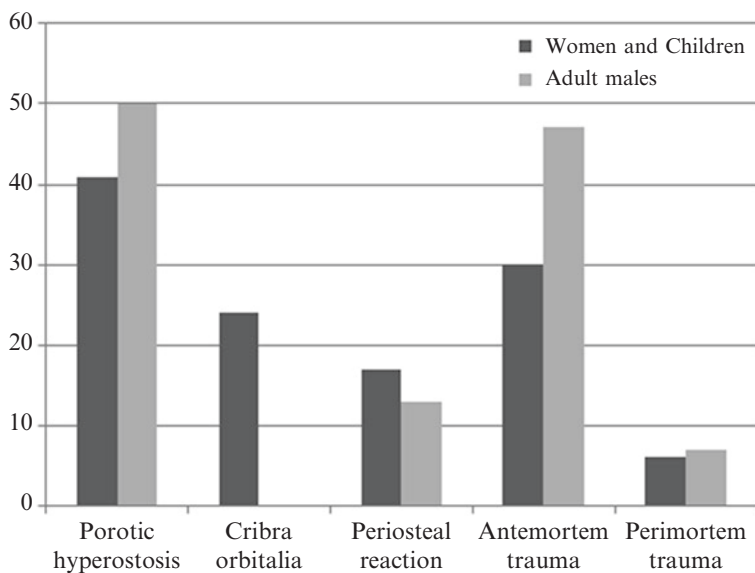
Fig. 6.5 Morbidity indicators by percentage of those assessable, A.D. 1100 and earlier
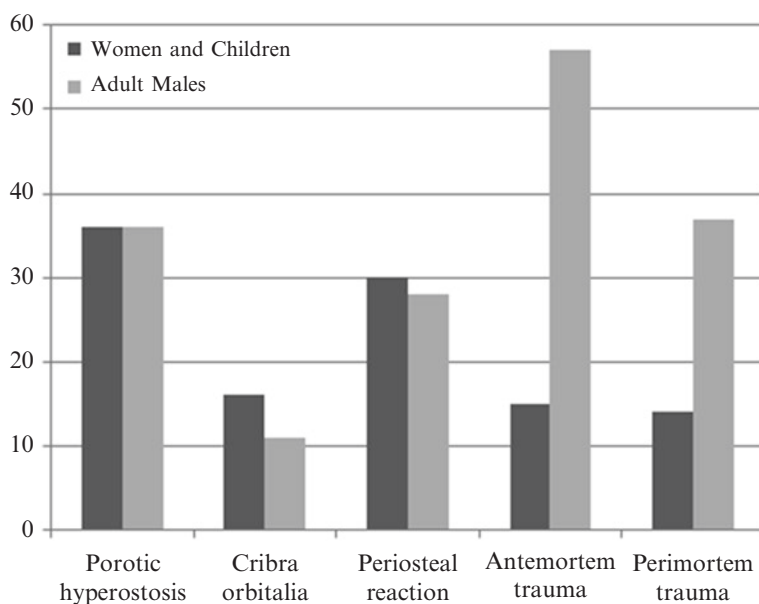

Fig. 6.6 Morbidity indicators, by percentage of those assessable, post-A.D. 1100

recognized, especially on Black Mesa, where many of the earlier remains in this study originated.

The frequencies of periosteal reaction–physical response to disease or trauma–nearly double for both groups from the earlier temporal span to the more war-torn centuries (Figs. 6.5 and 6.6). These results are among the expected outcomes and could reflect an increase in the prevalence of infectious disease stemming from generally poorer health during times of heightened conflict, including population packing into villages for safer and more effective defensive response as well as offensive organization, strategizing, and solidarity. The infection of wounds sustained in violent conflicts might have contributed to this increase as well.

As expected, adult males experienced relative increases in both antemortem and perimortem fractures in the centuries of escalated warfare (Table 6.1). Also as expected, women and children experienced antemortem trauma as well. However, the incidence of antemortem trauma among noncombatants is twice as high for the earlier centuries as for the later centuries, and the rate of antemortem fractures among adult males in the earlier period is also unexpectedly high. These results may reveal significant, and previously undetected, levels of raiding during the earlier centuries. Also, as expected, the incidence of perimortem fractures increased dramatically, that is, fivefold, for combatants from the earlier to the later centuries, when warfare is more visible in the archaeological record. Importantly, the incidence of perimortem fractures more than doubled for noncombatants in the later centuries, which suggests that noncombatants were also direct victims of warfare events.

Conclusions

Our results offer new insights into morbidity and mortality during times of violence and warfare in ancient small-scale societies. Our database of the remains of 344 adult males, adult females, and children from the northern San Juan and Black Mesa reveals substantial evidence of morbidity associated with nutritional inadequacy and nonlethal trauma as well as of mortality associated with perimortem trauma. Dietary shortfalls revealed by porotic hyperostosis and cribra orbitalia for adult females and children vs. those for adult males for both the earlier period and the later, more violent, period highlight the challenges of being agriculturalists in marginal, semiarid environments. The greater incidence of porotic hyperostosis during the earlier period for both groups might reveal that the northern portion of Black Mesa was, overall, a less favorable environment for crop production than was the northern San Juan. That is, a disproportionate percentage (80 %) of the remains in our study dating from the earlier time span originated from Black Mesa, whereas 92 % of the post-A.D. 1100 remains were found in the northern San Juan. Thus, some frequencies of health indicators might be attributable to the dietary disparities of different geographic regions.

Even though the evidence of an association between famine and warfare among ancestral Pueblo groups in the northern San Juan is compelling (Kuckelman 2016), determining the precise relationships between famine, nutritional shortfalls, and warfare is a complex task. In other words, nutritional shortfalls are likely to have both stimulated warfare and been exacerbated by warfare, at least for victim groups. To further complicate the matter, a broad survey by Ember and Ember (1997) using Human Relations Area Files cross-cultural data found that for small-scale food producers, the fear of food shortages is a powerful predictor for warfare and is, in fact, a more powerful predictor than are actual food shortages. In addition, food producers in unpredictable or marginal environments were those who were most frequently engaged in raiding.

Agriculturalists in semiarid and desert environments cannot predict crop yields, which leads to fears of impending famine. Combined with unpredictable rainfall during the time periods used in our study, food insecurities and anticipated shortfalls might have spurred previously undetected low-level raiding in the earlier time span, which left men, women, and children alike vulnerable to nonlethal violence and dietary shortages. Nutritional challenges were greater for everyone in the earlier span, whereas infection and perimortem trauma were elevated for everyone during the later temporal span of more overt warfare that was accompanied by a range of structural manifestations such as walled villages and fortifications.

In conclusion, theorizing the effects of warfare for small-scale agriculturalists is linked to understanding the motivations for warfare. The data from human remains are useful for clarifying not only the effects but the possible causes of large-scale warfare. In the northern Southwest, many lethal fractures can be inferred to result from warfare; however, the complex intertwining of warfare with food insecurities and the vicissitudes of rainfall and drought complicate the task of isolating warfare as a causal factor of various forms of morbidity. Yet, cross-cultural research has demonstrated how strongly fear of food shortages and warfare are related, and we may be seeing that in the results of this study.

The results of our study tend to support an inference that the health and well-being of noncombatants are affected to a significant degree by warfare and the conditions that give rise to warfare. The thirteenth-century cycle of raiding and warfare in the northern Southwest ended in complete and permanent depopulation by about A.D. 1280. The indicators of morbidity and mortality that were the focus of this study reflect that, during multiple spans of increased violence in the northern Southwest, women and children were caught in a cataclysm that impacted their health and the quality of their lives in negative and very real ways. On a regional scale, the men, women, and children who survived the devastating conditions and events near the end of the thirteenth century were displaced from their homeland to settle in new locations elsewhere in the Southwest, which profoundly reconfigured the geographic, social, political, and ritual fabric of Pueblo communities. This series of events highlights the profound and far-reaching impacts of warfare on noncombatants as well as combatants.

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Chapter 7
The Poetics of Annihilation: On the Presence of Women and Children at Massacre Sites in the Ancient Southwest

Anna J. Osterholtz and Debra L. Martin

Introduction

The American Southwest before contact was inhabited by indigenous people living in small and mid-size villages who built multistory buildings out of mud and stone, and whose social and spiritual lives were complex and enduring over hundreds of years and continuing into the present (Ware 2014). From about AD 800 to contact with invading European outsiders in the early 1500s, the northern region that encompass the Colorado Plateau comprised groups that were multiethnic and linguistically diverse although they all shared underlying cultural ideologies, technologies, and subsistence strategies (see Cordell and McBrinn 2012: 84) (Fig. 7.1). These indigenous people are the ancestors of the contemporary Pueblo peoples who live today in northern New Mexico and parts of Arizona. For this reason, archaeologists refer to these past peoples as the Ancestral Pueblo to acknowledge the continuity over time and place of a persistent cultural system that has survived over millennia (Martin 2015).

Thus, the Ancestral Pueblo groups in the northern Southwest are considered a single culture in part because they shared agricultural techniques, pottery and ground stone technologies, and architectural design. However, villages and village leaders went about forming alliances, practicing risk-avoidance strategies, sharing resources, exchanging goods between regions, moving around the landscape, and trading for nonlocal items that demonstrated nuance and perceptible differences (Schachner 2015). Thus, we have advocated for studies that take seriously the call for understanding localized and historical factors for individual villages instead of

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Fig. 7.1 Map showing the
general region of the
American Southwest
encompassing the general
area where the four states
meet (often referred to as
the four corners area).
Massacre sites discussed in
the chapter are noted

collapsing archaeological data into larger categories that hide the variability inherent in the different data sets (Martin 2016).

We take this more nuanced approach in our analysis of three villages where massacres took place in order to demonstrate the utility of local and historical context in making meaning out of violence. All was not harmonious in this region prior to colonization. Archaeologists have long detailed the ebb and flow in various activities that fall under the general category of violence and warfare that included small-scale feuding, raiding (for women, children, and resources) and interpersonal fighting (LeBlanc 1999). There is archaeological evidence for fortified sites, palisades, defensive architecture, aggregation of communities, strategic site locations and for structures interpreted as watchtowers (Haas and Creamer 1997; LeBlanc 1999; Wilcox and Haas 1994). Warfare in the Southwest archaeological literature is described as described as raiding, ambush, intercommunity violence, and intra-ethnic or tribal clashes (LeBlanc 1999: 119). However, osteological indications of warfare are generally absent, and skeletal collections in general show little evidence of widespread perimortem or lethal injuries related directly to warfare (Martin 2016).

The reconstructed chronology of warfare in the ancient Southwest follows that the Pueblo I period (PI, AD 700–950) was fraught with hand-to-hand combat and skirmishes defined by raiding and light warfare. Following this in the Pueblo II period (PII, AD 900–1150), there was thought to be less outright warfare but widespread evidence for disarticulated human remains variously thought to be indicative of cannibalism (Turner and Turner 1999), but this has recently been overturned in favor of executions and body annihilation (Martin 2016). At the end of PII, there were mass migrations out of certain regions and a more devastating form of warfare is thought to have flourished in the Pueblo III period (PIII, AD 1150–1400) primarily

bolstered by evidence of fortification of villages and attacks that left many of the villagers dead (LeBlanc 1999: 232–233). Whether these were massacres of entire villages, partial villages, or extended families within villages is not known, and the variation in the assemblages available for study suggests that there is sufficient variability on how warfare was conducted to suggest multiple and simultaneous "programs" ongoing through the PI through PIII occupations (Martin 2016). The Pueblo IV period covers the time right before contact with European invaders on into the historic period (PIV, AD 1400–1700s).

Interpretations of the exact meaning of these kinds of events are challenging because violence carried out by indigenous people does not necessarily mirror known types of violence in contemporary times involving colonization and modern warfare. Indigenous violence has its own contours and meaning within particular localities at particular times, and this level of nuance must be preserved to make sense of violence writ large across the landscape. For example, Ogilvie and Hilton (2000) present a context-specific analysis of a disarticulated assemblage from Ram Mesa in New Mexico (circa AD 900–1100). Their conclusion, based on multiple lines of evidence, is that the disarticulated assemblage was due to violence associated with the execution and body annihilation of a group of 13 people ranging in age from 1- to 40-plus years. Other massacres appear that are more in the range of 30 or more people.

For this study, the focus is on the demographic composition of mass commingled graves consisting of disarticulated human remains associated with the execution and defilement of the bodies of infants, children, and adults as part of a larger complex of social violence that spans from the earliest occupations through to historic times. A poetics approach is utilized because it provides a way to think about these events in a broader way that includes an interrogation of the various ways that individuals were part of these horrifying events (Whitehead 2004). These include the perpetrator as well as the witnesses who may or may not have participated in the violence. While the focus is on the victims of violence during these events, the poetics framework invite interpretations that include understanding factors that led to the massacre, and the aftermath of the massacre on the survivors (Osterholtz 2012). A poetics approach encourages the analysis of symbolism in ritualized performances of violence (such as massacres), and for the emphasis on the social and public aspects of these performances (Whitehead 2004: 67). A poetics framework is based on the underlying principal that culturally sanctioned violence has an internal logic and that when conducted ritually or as a performance for others, it conveys a powerful communication about the nature of relationships within the broader communities.

Background

Earlier research misidentified many of these massacres and executions as anthropophagy (cannibalism) (Turner and Turner 1999), but reanalysis of many of these assemblages have suggested that the reduction and annihilation of the body was the goal and that this had more to do with symbolism and cultural ideologies that dictated particular

forms of violence. Kuckelman and colleagues (2000) coined the term "extreme processing" (or, EP) for these skeletal assemblages because beyond the execution of individuals, the bodies were dismembered, disarticulated, broken and crushed using blades that left cut marks and anvils that left abrasions. Often, body parts were burned, or whole bodies were burned along with structures that bodies were placed in (Kuckelman et al. 2000).

These kinds of disarticulated human bone assemblages have been found throughout the occupation in the northern Southwest, from AD 800 and into the late 1400s continuing through the colonial period into the 1700s (Table 7.1). These assemblages do not fit neatly into the temporal, spatial, or binary categories of war and peace, and they do not directly correlate with droughts, resource depletion, migration, or other push–pull factors often discussed by archaeologists to pinpoint when the use of violence may have been used (Lekson 2002). But clearly some of these stressors may have helped to shape or create situations where violence may have been used to ameliorate perceived problems. We have argued elsewhere that violence that includes small-scale massacres and executions was likely tied to deeply hold cosmological beliefs in addition to political, economic, and cultural practices that endured over time (Martin et al. 2013: 223).

While many archaeologists have focused on the PIII period as the pinnacle of warfare punctuated by massacres in places such as Mancos Canyon (White 1992), Castle Rock (Kuckelman et al. 2002), and Cowboy Wash (Billman et al. 2000), large-scale massacres also occurred much earlier (AD 800 at Sacred Ridge) and much later (1700s at Awat'ovi) (Table 7.1). And, as stated earlier, the assemblages and burials found at these sites are not composed simply of dead bodies struck down while fighting. These assemblages are made up of men, women, children, and infants, and there

Table 7.1 Archaeological sites that have disarticulated remains with minimum number of individuals (MNI) estimated to be 10 or over and the demographic features of those assemblages (taken from Turner and Turner 1999)

Site	Time	Total	Newborn	Child	Male	Female	unknown
Cave 7	Pre PI	61		9	34	9	9
Sacred Ridge	PrePI/PI	33	4	8	10	7	4
Rattlesnake Ruin	PII	20	2	9	2	4	3
Sambrito Village	PII	14		5	1	4	4
Aztec Wash	PII/PIII	13	1	6	3	3	
Yellow Jacket	PII/PIII	10	2	2	2	1	3
Mancos	PIII	29		14			15
Salmon Ruin	PIII	30		30			
Largo-Gallina	PIII	16		1	7	4	4
Cowboy Wash	PIII	12		6	4	2	
Leroux Wash	PIII/PIV	35		14			21
Te'ewi	PIV	30		6			24
Awat'ovi/Polacca	Historic	30	2	12	1	2	13
Total		333	11	122	64	36	100

is both continuity and some variability in the kinds of corpse treatment when each is analyzed within its own unique cultural context. The underlying causal relationships that are generally advanced to underscore these assemblages include food shortage (Haas and Creamer 1996; White 1992), warfare and competition (Wilcox and Haas 1994), warfare and social stratification (LeBlanc 1999), and intimidation and dominance (Turner and Turner 1999). Osterholtz (2016) and Martin (2016) have countered these narratives with ideas about the nature of massacres that include not only executions but also annihilation of the bodies and therefore the identities of individuals and/or whole villages.

Klusemann (2012) studied massacres as a process (versus a discrete event) and he suggests that all massacres are preceded by political–economic and cultural events that shape the ideas of the perpetrators that a massacre would solve a perceived problem. Local dynamics shape the how, why, when, and where of any given massacre, so context and history are crucial to examine when trying to understand the broader implications and effects of mass killing. Klusemann (2010: 272) also suggests that the "sequential unfolding of micro-interactions and emotional dynamics" is important for understanding both the symbolic and actual meanings attached to massacres by the perpetrators and by those who witnessed and/or participated in the killings and in the annihilation of the bodies. This is why each massacre has different mortality rates and demographic profiles as well as differences in the ways that individuals, families, groups, or communities are stripped of their identities and are essentially annihilated through body reduction (Nahoum-Grappe 2002). Defleshing and dismembering a corpse is a difficult and time-consuming process that yields a great deal of blood. It would be a spectacle with powerful ideological and symbolic overtones (Pérez 2002).

Massacre theory tends to emphasize that massacres are not aberrations or outside of the logical and rational narratives of the groups involved (Dwyer and Ryan 2012). Quite the opposite, massacres are seen as processes that rely on intentionality and group sanctions before, during and after the killings. In general, massacres today fall into two major categories, those that are to facilitate the manipulation of power or to maintain the balance of power between one group and another (Semelin 2001). Genocides are often similar to or conflated with massacres, but while genocides cannot occur without massacres, massacres can occur without genocidal motivations. In a similar sense, massacres sometimes occur in the context of ongoing warfare, but warfare can occur without massacres.

Semelin (2007: 4) defines massacres as a collective activity whose primary objective is to destroy noncombatants. In this sense then, massacres are actually focused upon infants, children, women, the elderly, and other vulnerable groups within a community and so this type of extreme violence is perhaps unique in this way. The key to distinguishing among different types of violence involving aspects of warfare is that if it specifically targets civilians and noncombatants it falls into the category of being a massacre (Semelin 2003). A defining feature of massacres is that it is not important who the individuals in the group are that are killed are because the individual identities of that group is not important. This distinguishes massacre then from homicide, murders, lynchings, and other acts of violence because in these

cases, the identities of the individuals do matter. Thus, the defining feature of a massacre is not that it is a large number of people. Many scholars suggest that the collective killing of as few as three or as many as hundreds all constitute a massacre if they comprise noncombatants and if individual identities of people being killed is not important (Dwyer and Ryan 2012).

A final aspect of massacres is that they often include extreme violence to the bodies. Torture and mutilation around the time of death and dismembering, fracturing, cutting, and even burning the bodies after death constitutes a common activity. In a study of published data from 15 archaeological human skeletal samples that were interpreted to have resulted from massacres, 73 % (11 out of 15) showed evidence for torture and/or mutilation of the victims (Anderson and Martin 2016). "When killers mutilate the body of their victims, either before or after the killing takes place, the type of mutilation carried out can often contain a symbolic dimension," and it is this symbolism (which is readily understood by the survivors and any witnesses) that gives it so much power (Dwyer and Ryan 2012: xvii). Docker (2012: 4) suggests that in the collective act of killing, the perpetrators experience a heightened sense of identity with the others in their group and that this too has a powerful effect on the survivors and witnesses. Thus, massacres can be understood as a type of public theater for which there is multiple benefits both for the perpetrators and the audience (witnesses and survivors). The annihilation of the victim's bodies through mutilation and reduction symbolically communicates the destruction of the victim's individual identities, the victim's kith and kin, the victim's villages, and the victim's humanity.

The remainder of this chapter focuses on three major massacre sites representing a temporal span of hundreds of years from AD 800 to AD 1700 (Sacred Ridge, Mancos Canyon and Awat'ovi). In each case, men, women, children, and infants were killed, and in each case the bodies showed various forms of mutilation and annihilation. While each of these massacres does highlight differences in demography and corpse treatment, there are also underlying commonalities suggesting persistence in cultural ideology and codes of conduct that cross cut these temporally and spatially distinctive communities.

Evidence for the Massacre of Women and Children

Sacred Ridge

Sacred Ridge is a large, complex Pueblo I (circa AD 800) period site in southwestern Colorado near the Animas River. Excavations at Sacred Ridge were conducted as part of a long-term CRM project preparatory to the construction of Lake Nighthorse. Excavations and analysis of remains were conducted by archaeologists and bioarchaeologists employed by SWCA Environmental Consultants. The site has been interpreted as a large regional ritual center with public architecture including a

probable tower kiva (Potter and Chuipka 2007, 2010). Feasting has been interpreted based on the faunal and ground stone assemblages (Potter and Chuipka 2007, 2010), suggesting that the site may have acted as a focal point for regional activities at a time when communities were beginning to aggregate (Potter 2000).

The Sacred Ridge bone assemblage is drawn from two pit structures. Characteristic of the assemblage were perimortem fractures, cut marks, anvil abrasions, and burning. The bones were completely disarticulated and commingled and the damage and mutilation of the bones was done by perpetrators likely using locally available lithic blades and hammer stone-type tools. The largest pit structure contained the majority of fragments (over 13,000 bone pieces) though over a 1000 fragments more were recovered from the smaller pit structure. There was no substantive difference in the processing of individuals from one pit structure versus the other, nor were there differences in demography between the two structures (Stodder et al. 2010). For these reasons, the samples were combined for the discussions below.

The two pit structures were mapped using a total station to provide X, Y, and Z coordinates. In all, over 9000 point locations were made, allowing for the exact mapping of individual fragments and the analysis of dispersal of those elements throughout the assemblages. There is no visible spatial patterning of the elements based on age at death or sex. Both pit structures also contained flaked stone, cooking pots, and ground stone that tested positive for human hemoglobin and myoglobin. Individuals were processed into bone fragments in both locations though the majority of fragments were disposed of in larger pit structure, Feature 104. Given the presence of artifacts associated with active habitation (including ground stone, cooking pots, and other small artifacts), the remains appear to have been deposited into a pit structure that had been in use at the time of the massacre.

Demography and Violence

The minimum number of individuals killed in this massacre is 33. Approximately 36% of individuals were under the age of 18 years at death. Of these subadults, individuals under the age of 12 years at death make up 58% (or 21% of the total population) (Osterholtz 2016). While sex could not be estimated for all individuals considered to be of at least 18 years of age at death, at least 10 males and 7 females were identified based on dimorphic cranial and/or pelvic characteristics. The demography represented in the Sacred Ridge remains is that of a typical clan or large family unit. Douglas and Stodder (2010) conducted statistical analyses of cranial nonmetrics and found that the individuals in the massacre assemblage are more closely related to each other than to individuals buried elsewhere within the region. Overall, the assemblage at Sacred Ridge is consistent with a large family or clan group and their domestic animals (at least six dogs were also included in the massacre assemblage).

The extreme violence and mutilation of the bodies perpetrated at Sacred Ridge was extensive and left no part of the human body untouched. There was no difference in processing, fracture patterning, or burning based on sex or age at death of

the individuals. In effect, female or male, adult or child, processing occurred at the same rates and in the same manner (Osterholtz 2012, 2013; Stodder et al. 2010). The remains from Sacred Ridge show fracturing of every major bone in the body, from the top of the head to the phalanges of the feet. Fracturing, burning, and processing (e.g., cut and scrape marks) is systematic and indicative of patterned behavior and a formulaic approach to the complete destruction of the individual. Refitting analysis shows that individual cranial and other elements were broken and completely intermixed with those of others. Due to the detailed mapping, reconstructed elements could be analyzed for distance and dispersal. As noted above, there is no spatial patterning visible at Sacred Ridge. The refitting analysis provided evidence for burning both before and after fragmentation. A long-term study of the conjoined bones was also conducted to understand how the body was disassembled.

Other studies revealed that prior to death at least some of the adults were tortured by being severely beaten on the bottoms of their feet which caused them to be hobbled but not immediately killed (Osterholtz 2012). The crania of many of the adults show that systematic blows to the head may have been part of the execution performance, where each adult in turn was struck multiple times on the head sustaining lethal blunt force trauma. The bodies were defleshed and dismembered, some were burned, and diagnostic cut marks in particular places strongly suggest trophy-taking of body parts and scalping. The reduction of the corporeal body to small fragments and the collection of blood in ceramic pots found to have human hemoglobin traces all point to a ritualized public performance underwritten by complex symbolic manipulation of the bodies.

The terminal radiocarbon dates from Sacred Ridge were obtained using materials from the massacre assemblage. The site was abandoned after the violent episode, never to be inhabited again. Given the probable ritual association prior to the massacre (as evidenced by feasting and public architecture), the massacre may have carried heavily ritualized overtones. The entire Ridges Basin area may have been cosmologically uninhabitable after the massacre. Prior to the massacre, crops were cultivated in the valley, and there were relatively healthy populations present throughout the Basin.

Mancos Canyon

The site of Mancos is located approximately 10 km south of the southern border of Mesa Verde National Park, near the modern ton of Mancos, Colorado (and approximately 65 km from the site of Sacred Ridge). The site dates to around AD 1100–1150 (late Pueblo II/early Pueblo III). Excavations were conducted in 1973. Nordby (1974) noted the presence of multiroom pueblos superimposing each other in an L-shaped manner. Nordby argues that the superpositioning indicates two habitation phases. Earlier habitation units were superimposed by later pueblo rooms. Two kivas (ceremonial pit structures) are also present, one of which is associated with

the early occupation. Articulated and intentional burials were recovered within refuse pits.

Disarticulated and processed bones, about 2200 total, were recovered from rooms from the earlier occupation. This indicates that even after the massacre the site continued to be inhabited. In some cases, rooms were built on top of the remains from the massacre. Various *bone beds* were recovered from the habitation units, clearly separated from the typical burials. These bone beds were assigned "burial" numbers during excavations (Nickens 1975) though no one considered them to be discrete individuals at the time of excavation or later.

The disposal of some of the remains may have occurred in already abandoned structures since there is fill between the floors and depositions. Other rooms had deposits of bones directly on the floor. White (1992) notes that these assemblages had different preservation from the bone beds found in the abandoned structures. The bone beds in contact with floors lacked the staining and weathering seen on bones from abandoned rooms. Nordby (1974) and later White (1992) argue that the deposition of the bone beds must have occurred during the second occupation of the site, sometime around AD 1150.

Some indications of differential disposal based on age at death are present. In Room 15, children under the age of 6 years (based on dental development) are over-represented when the fragment counts are compared. Within these two rooms, there is "an inverse relationship between the ages of children from the two units, with children of 6 years and younger being highly overrepresented in Room 15" (White 1992: 81). Room 14 contained a floor-based assemblage, while Room 15 and 23 had been abandoned by the time of bone deposition. Room 14 contributed 40 % of the overall assemblage, with Rooms 15 and 23 contributing another 40 %. The remaining 20 % were found in additional rooms.

The human remains, in general, appear to have been moved after processing, with numerous refits occurring between "burials" in different rooms. White (1992: 79) reports that 16.7 % of refitting in conjoin sets occurred between "burials," this percentage is large enough to say with certainty that either the deposits are all related to a single activity or that they were moved after processing (possibly by later inhabitants during site clearing activities).

Demography and Violence

The minimum number of individuals was determined by White (1992) using dental representation. Fundamentally, the methodological approach used by White was a faunal model. Elsewhere, the current authors have argued for a similar approach to the recording of individual bones for calculating the minimum number of individuals (Osterholtz 2015; Osterholtz et al. 2012, 2014; Osterholtz and Stodder 2010) but not for the use of dentition as the primary indicator. Teeth can be lost during life without detriment to the individual and in the case of deciduous teeth it can be unclear in a commingled context whether the tooth was lost ante-, peri-, or postmortem.

White (1992) demonstrates the presence of at least 29 individuals, with the majority of individuals found in Rooms 14 and 15. Age at death was estimated using dental development and was broken into three categories: less than 6 years, 6–18 years, and adult. All in all, 5 individuals less than 6 years of age at death were identified, 8 individuals between 6 and 18 years of age at death, and 15 adults, as well as one individual of unknown age. Four of the five individuals under 6 years of age at death were recovered from Room 14, with one coming from Room 15 and none from any other context. Individuals aged 6–18 years at death were more likely to be found either in Room 15 ($n=5$) or in another context ($n=3$). Adults were more evenly split between Room 14 ($n=6$) and Room 15 ($n=7$), with two coming from additional contexts.

Estimation of sex is complex in any commingled assemblage. For the Mancos assemblage, sex was estimated based on cranial and pelvic dimorphism. One definite male, two probable males, two probable females, and one definite female were identified by White (1992: 93). Both males and females are present in the assemblage in equal proportions. This equal representation indicates that not only were males and females both treated the same, but that they were processed at the same time in the same place and disposed of in the same context. This mortuary equality suggests that the aggressors did not distinguish between individuals based on sex. This is consistent with massacre theory which suggests that individual identities are not what are important but rather that the individuals represent some larger group, clan or village that needs to be annihilated.

Violence at Mancos appears to be similar to that at Sacred Ridge in several respects. In both sites, there is complete destruction of the individual, with intentional crushing, dismemberment, disarticulation, and commingling of fragments. How this destruction was accomplished varied from Sacred Ridge in the method of processing (Osterholtz 2014a), disposal of the remains, and the use of the site after the creation of the bone assemblages. The pueblo continued to be inhabited after the massacre. Later, inhabitants may have disturbed the bone beds by constructing walls over the depositions or in some cases moving the remains out of the way. Nordby (1974: 239) interpreted the distribution of the remains to suggest that the bones were "thrown out by the inhabitants of the later Pueblo." This nonchalance is not uncommon. Dwyer and Ryan (2012) suggest that massacres prior to modern times were not necessarily hidden or covered up, or thought of as places of danger and caution.

Awat'ovi/Polacca Wash

Malotki (1993) and Brooks (2016) present detailed accounts of the destruction of the Hopi village called Awat'ovi in 1700 by several nearby Hopi village warriors. Because this is a historic period massacre, there are ample ethnohistoric, archival and published oral accounts from eyewitnesses and interviews with survivors that provide documentation not normally available. Additionally, there was excavation of the village in the late 1800s by Jesse Fewkes and J. O. Brew in the early 1900s (Turner and

Turner 1999: 67). The general arc of the witness accounts and narratives about the destruction of Awat'ovi is that the inhabitants of that village strayed from traditional practices and beliefs and were considered to be causing large-scale problems for other Hopi villages due to their acts of malfeasance and sorcery. In the Hopi world view, these are extremely serious transgressions that called for extreme violence.

In the oral history of the Hopi, it can be seen that the decision to destroy a village (essentially neighbors and individuals with shared ancestry and beliefs) was both intentional and very carefully considered. While some Hopi leaders initially refused to consider destroying Awat'ovi on the grounds that they were fellow Hopi (Malotki 1993: 393), eventually Awat'ovi was destroyed and every person in the village was either executed and killed or taken captive. The reasons given for the necessity of this brutal attack and massacre was that Awat'ovi as a community had committed acts of malfeasance that included straying from the traditional Hopi ideology and experimenting with the Christian religion imposed by the Spanish colonists. This was considered so evil and fowl that there was no other option but to annihilate the offending village in order to purify the remaining Hopi villages. Brooks (2016) presents a detailed history of the massacre at Awat'ovi, and he shows that the people at Awat'ovi were straying from Hopi ideology by building a "Christianized" kiva and burying some Hopi in the mission church. The explanation for why the village needed to be massacred in another interpretation was that it was deemed that the entire community was consumed by witchcraft (Malotki 1993: 275–95). Either way, Awat'ovi was seen to be causing the Hopi world to be out of balance.

The attack was started at night by the men from neighboring villages when many of the Awat'ovi males in the community were in the kiva performing a ritual ceremony. The only entrance into and escape from a kiva is via a ladder leading to a single entrance/exit. The warriors pulled the ladder out and then set the inside of the kiva on fire, killing all of the males. Women, children, and other males were taken captive and were enroute to the village of the perpetrators, when they were attacked by some Awat'ovi males who had escaped during the raid. The Awat'ovi men were overwhelmed and killed, and it was then decided that the women and children should be executed and this happened at a wash not far from Awat'ovi called Polacca Wash (Turner and Turner 1999: 188–200).

Demography and Violence

Although there was never a thorough excavation of the human remains as there was for the previous two sites (Sacred Ridge and Mancos Canyon), a minimum number of 30 individuals were represented in the assemblage from the partially excavated Polacca Wash site. This included 2 infants, 12 children, 1 male, 2 females, and 13 other adult individuals. Children and infants represented 46 % of this assemblage. Clearly, males and females are underrepresented in this assemblage, as there may have been as many as 700 people executed and dismembered according to eye witness accounts (Turner and Turner 1999: 67–78). The bones show breakage, cut

marks, burning, and perimortem trauma (largely blows to the face and head), and these are included on the bones of individual of all ages and both sexes.

The mass grave at Polacca Wash resulting from the Awat'ovi massacre was similar in processing to the Sacred Ridge and Mancos Canyon massacres. There were dismembered bodies and annihilation of individual bodies. The processed human remains, based on the evidence cited above, are most likely the result of a long standing Puebloan belief in the need to destroy and annihilate villages causing imbalance that if not stopped would have been catastrophic for the world. In addition, Brooks (2016: 163) writes about the notion of "purification through obliteration" and the strong belief that Hopi people have that when the world is out of balance ("*koyaanisquatsi*"), violent acts such as massacres link the ancient and contemporary people as well as the natural and supernatural in order to realign and balance their world.

Massacres are Different from Warfare

Puebloan people sustained their social identities and their communities not only through many layers of cosmology and beliefs, but also through the sustained use of particular forms of violence that included massacre and annihilation of bodies, identities, and whole villages. Over long periods of time and many generations, similarities were cross-cut with differences suggesting nuance in the ways that different perpetrators and practitioners carried out the task of killing and annihilating. Ritualized processing of the corpses and dismemberment of the bodies provided outlets to realign the ancestors with their descendants. Body parts placed in sacred places such as kivas likely had memory-making components. The endurance of distinctly Puebloan forms of violence suggests that it was part of the tool kit for negotiating social change and navigating environmental uncertainties. The complexity and symbolic force of violence speaks to its importance on an everyday level. The events that archaeologists think of as discrete historical moments, such as massacres or migration, are better realized as long-term processual events with a distinctive cultural logic underlying its shape and form.

For example, Mancos Canyon is suggestive of the possibility of multiple interments or the use of abandoned structures as burial locations for processed individuals. Given the fill between the deposits and the floors, the reuse of abandoned structures is likely. At Sacred Ridge, the massacre act seemed to signal the end of use and occupation of the area and the bones were all put together in a single deposition. At Awat'ovi, male were burned in a kiva and the remainder of the village were marched away from the site and killed. The density of the bone beds varied at Mancos as well. In effect, the depositional history of the human remains at Mancos is more complex than that seen at Sacred Ridge. This suggests that even though individuals were heavily processed at three sites, this processing may have been viewed differently by the perpetrators and any witnesses.

These massacres, occurring at AD 800, AD 1100, and AD 1700, are similar enough in the manner of execution and body annihilation to suggest a deeply embedded memory regarding the appropriate way to carry out massacres and the manner in which bodies needed to be processed and essentially annihilated. The processing of the bodies follows such similar forms in all three sites that it begs the question regarding trained practitioners or ritualized reduction of the body that was passed on generation after generation. Comparing the element by element accounts of the processing at Mancos (White 1992) to that of Sacred Ridge, it became clear that while the ends were identical (i.e., the annihilation of the bodies) there were nuanced differences in how different body parts were processed. For example, the shoulder joint was disarticulated and dismembered in slightly different ways when comparing Mancos with Sacred ridge (Osterholtz 2014a). Both assemblages provide evidence of systematic destruction of the body, but small differences in how the joints were dismembered indicate regional specialization or personal preferences in processing. Looking at these assemblages through a temporal lens, it appears that the social function of massacres and annihilation of the bodies may have been motivated by different cultural forces. This is seen, for example, in the fact that Sacred Ridge was abandoned and never reoccupied after the massacre, but at Mancos, the bones were places in buildings that were later built over and lived upon.

Conclusions

The sites discussed here represent a variety of different subsistence bases, time periods, and geographical regions. The inclusion of females and juveniles as victims of massacre indicate complex social processes at the root of this violence. It is expected that if the goal of violence leading to massacre were the acquisition of slaves or women (see Maschner and Reedy-Maschner 1998 for examples from Northwestern North America), then women and children old enough to work would be lacking from the assemblages. Assemblages such as those at Sacred Ridge and Mancos suggest that this could not have been the underlying motivation for the violent activity. Clearly, a more nuanced understanding of the social role of these heavily processed and violent assemblages must be used. Turner and his collaborators (e.g., Flinn et al. 1976; Turner 1993; Turner and Turner 1992, 1999; Turner and Morris 1970) did not take demography into account when interpreting extreme processing, but we believe that this is an important feature of the assemblages and denotes a fundamental annihilation of individuals and a dehumanization of all individuals ultimately making up the massacre assemblage. As with most massacres, using the parlance of modern violence theory, it was the civilians and noncombatants that were targeted. The perpetrators made no distinction between sex and age as important categories when processing affirming the notion that those being killed were not important because of who they personally were, but because of who they represented. At Sacred Ridge, this conglomeration of

individuals into a single deposition also included the remains of at least six dogs who were also processed (Potter and Chuipka 2010).

Dwyer and Ryan (2012) suggest that in most cases, massacres are designed to either maintain or to manipulate the balance of power. The massacres at Sacred Ridge, Mancos, and Awat'ovi fit this notion to the degree that instead of waging war on the males within the villages, whole families, or clans within villages were targeted. This suggests a perceived imbalance of power that could only be rectified by annihilation of whole groups that represented danger to the world order.

Massacres need not be performative though the examples given in this chapter all have significant performative elements. The performative nature of Sacred Ridge has been thoroughly detailed (e.g., Osterholtz 2012, 2014b). When the role of performance is counted into the overall importance of the assemblage, we must be careful to understand how performance is identified in archaeological assemblages. Osterholtz and Harrod (2013) examined the role of practice and repetition in the creation and negotiation of group membership in a cross-cultural manner. We found that cross-culturally, the repetition of the same act over and over again is often used to indoctrinate individuals and to reinforce group identity. The development of routine and rituals such as drilling, training, and repetitive activity were instrumental to forming cohesive military units or groups that would be capable of group-level violence, including the dehumanization of entire groups like that see at Sacred Ridge.

Violence such as that seen at Sacred Ridge, Mancos, and Awat'ovi appears to have been socially sanctioned, meaning that it held both a social purpose and social ramifications (along the lines of Pérez 2006). Violent acts, annihilation of bodies and identities, and the witnessing of violent acts can also be used as a mechanism for the creation of social control of one group by another, more dominant group. This can be accomplished through a judicious use of pain, particularly in a performative context. The ability to cause or alleviate/not cause pain is important in the creation of power relationships. Clinical and historical evidence regarding the witnessing of pain and torture are also illustrative here (Linton 2005). Witnesses to violence experience a decreased sense of belonging, creating a vacuum into which a powerful group may be able to take a firm hold (i.e., present a situation in which social control by the aggressors is more successful over those witnessing violence and pain). Thus, the acceptance of social control by those in power is facilitated by the violence.

Witnesses may experience the pain of others as a form of violence to themselves as well. New research shows that both pain and memory of pain are triggered by the same synaptic activity in the central nervous system (Tsagareli 2013). The human experience of pain is socially and culturally embedded, and "ethnographies of pain" are uncovering the complexity of how pain is experienced and its relationship to broader cultural processes and ideologies (Gooberman-Hill 2014: 2). Pain is something universal to all humans, but the experience of pain is modulated by the interplay of biology and culture. The psychological impacts upon the perpetrators and other witnesses in a massacre can also be inferred by examining empathetic responses to witnessing or inflicting pain. Physicians in clinical settings, particularly where effective medical treatment involved the infliction of pain upon the

patients revealed that with time and practice, health care providers were able to down-regulate their empathetic response to provide effective treatment regardless of pain (Butler and Egloff 2003; Decety et al. 2010). Perhaps these same mechanisms for physicians are at work for those carrying out or witnessing massacres and anni-hilation of bodies.

For assemblages exhibiting extreme processing, it can be assumed that the vio-lence was on some level socially sanctioned. This is based on the persistence of massacre and annihilation across hundreds of years and scores of generations of Ancestral Pueblo people living in the ancient Southwest. If this form of violence did not fulfill a social need, it would not have persisted in both time and space for over 900 years. It can be assumed, therefore, to have cultural meaning. As noted before, those conducting the massacre would have needed to downregulate their empathetic response to pain, death, and body destruction leading to the ability to carry out the preordained parts of the performance. If the infliction of pain in this way is consid-ered necessary, it can be culturally sanctioned without ostracizing those inflicting pain or causing the death of a portion of the community.

The social role of those conducting the massacre was likely as leaders but the decision-making process may have been consensual as indicated by Brooks (2016) in his overview of the historic massacre at Awat'ovi. Warfare throughout the Americas prior to contact was likely used to communicate with ancestors and the supernatural deities, while also communicating specific kinds of social doctrines to those that participated and/or witnessed the massacres. It is difficult to know if the leaders of the massacres were looked to as elites or as unique individuals trained to do difficult tasks. For example, in the Pacific Northwest those who were responsible for warfare activities held a unique social role. They were considered to be impor-tant members of society but not necessarily respected or applauded (Boas 1967). They were, in effect, *othered* by their inclusion in such activities. While seen as socially necessary, they may have been a culturally or religiously dangerous group. This *othering* may have made it easier to perform in massacre settings as well.

In summary, massacres are deeply symbolic and are performed through ritual or passed on in codes of conduct in indigenous systems such as those discussed here. To study and understand massacres then is to not focus on the warriors or soldiers because in some of these contexts it is seen that there is no demarcation between adult males and other members of the society. Violence is necessarily relational and dynamic. Killing a particular demographic (e.g., women and children) or destroying bodies becomes all the more powerful because the symbolic nature of these acts are communicated and form social memories carried over hundreds of years. Study of the Ancestral Puebloan groups during these dynamic and tumultuous periods (circa AD 700 through European contact) offers important insights into how humans make strategic responses to perceived problems and how out of destruction and mayhem can come purification and renewal. How cultures use and react to violence and who is protected or at risk are global concerns with potentially dire consequences for the world's populations today. It would be helpful for more scholars to understand non-western forms of violence and warfare in order to make sense of the kinds of things regularly written about in the media today such as the horrific executions by the

Islamic State in the Near East or the rape and murder of young girls by the Boko Haram in Africa. Simply identifying the death of males in warfare is but the tip of the iceberg to the problem of warfare. It is perhaps even more important to understand how forms of violence such as massacres target women and children.

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Chapter 8
Army Health Care for Sable Soldiers During the American Civil War

Carlina de la Cova

Introduction

This volume has focused on the impact of war on the health of mostly women and children through cross-disciplinary approaches that have integrated bioarchaeological research with documentary, ethnohistorical, and sociocultural analyses. As the scope of this book and previous chapters have emphasized, war comes not only with physical wounds and deaths associated with battle, but disruption of people's lives, including access to the basic resources needed for survival. Combined with this is the psychological impact war has, which affects how one interacts with their environment, and thus their biological health (see Clarkin in this volume).

This chapter differs from all the others. It focuses on the American Civil War and examines the impact federal military policies had on the health of African American soldiers. Few large-scale bioarchaeological studies have examined Civil War soldiers, let alone those of African descent, as collections containing the *complete* skeletal remains of these veterans are minimal or reburied with military honors (Rathbun and Smith 1997; Sledzik and Sandberg 2002; Wols and Baker 2004). This period of the nation's history is extremely important in comprehending the biological transition from enslavement to emancipation amongst African Americans regarding salubrity, systemic stress, and health disparities. Furthermore, knowledge about health outcomes during this era can shed new light on health disparities that persist today, despite modernization and improved health care.

Therefore, instead of examining the health of African American Civil War soldiers through the lens of bioarchaeology due to the unavailability of skeletal remains,

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I have analyzed historical documentation to reveal how medical treatment of Black soldiers, especially those that were enslaved in the South, differed from white and free-born African American troops from the North. This study of the 33rd United States Colored Troops (USCT), the volunteer 54th Massachusetts, 6th Connecticut, and 9th Maine infantry regiments relies on historical documents drawn from numerous sources, including medical records, newspapers, and first-person manuscripts. Despite an absence of skeletal data, analyses of these historical documents can shed light on the health and treatment of these soldiers. This documentary data also demonstrates how the Black Civil War experience was plagued with discriminatory federal government policies. When combined with social beliefs about Black inferiority and biological differences, this triggered biological stress amongst African American soldiers that had resonating health effects for generations to come.

The American Civil War: Background and Attitudes Toward African Americans

The Civil War brought battle directly into people's residences and lives. As the divided nation engaged in a 4-year conflict that centered on preserving the Union or defending states' rights, daily activities became disrupted, especially in the South, as military units swept through civilian farms and cities, leaving disorder and death in their wake from skirmishes, battles, foraging, and thievery. Any resources that were valuable, edible, or assisted the Union cause, were appropriated according to the federal Confiscation Acts of 1861 and 1862, which allowed the Union Army to seize land, weapons, property, and the slaves of Confederate sympathizers. Historians aptly point out that the South was in rebellion. Therefore, seceded states no longer had constitutional protection, which allowed for the taking of personal property (Wise et al. 2015).

As the federal military moved into the South, many slaveholders fled their lands after unsuccessfully coaxing their slaves to follow (Wise et al. 2015). Under the Confiscation Acts, these slaves without masters, referred to as contrabands by the US government, were utilized by the Union Army for manual labor to build fortifications, grow crops, and perform duties as servants, cooks, washers, grave diggers, and groomsmen (Nolen 2001; McPherson 2003; Wise et al. 2015). The government classification of contraband for these bondspeople implies that they were not considered free and were regarded as property by some federals until 1863. Historian Stephen R. Wise and colleagues (2015) argue this point, referring to these runaway slaves as refugees or defacto-free, as the 1st Confiscation Act indicated that slaveholders forfeited all rights to their property, including their chattel. Regardless, of their status, the federal government paid these former slaves wages (Wise et al. 2015). This was especially true for refugees on the South Carolina Sea Islands; skilled workers were paid "eight to twelve dollars a month" and manual laborers "four to twelve dollars" (Wise et al. 2015:68). Men who worked for the Union Army's Quartermaster Department received five to eight dollars per month (Wise et al. 2015). They were also fed, uniformed, armed, and officered.

Shortly after the Emancipation Proclamation (EP) went into effect on January 1, 1863, President Abraham Lincoln ordered the enlistment and conscription of African American males into combat regiments. Many volunteered, but for former slaves, emancipation was concurrent with forced impression (Rose 1976). An estimated 180,000 sable soldiers, a term used to describe Black troops, served in the US Army from 1863 to 1865 (McPherson 2003). Despite their eager enlistment by the Union, they did not receive the same treatment, combat action, and medical care as white soldiers (Higginson 1984; Wilson 2002).

Attitudes toward sable soldiers were further complicated by their origins. Emancipated slaves turned soldiers were more vulnerable to discrimination, especially in regard to health care and family support (Reid 2002). At the war's onset, many began their military journey as slaves that fled their masters and sought refuge with the Union Army. Hundreds of runaways entered federal encampments daily, forcing the ill-prepared military to establish contraband camps for these refugees. The army assigned able-bodied men to fatigue detail or service as cooks, servants, groomsmen, launderers, and gravediggers (Nolen 2001). After Lincoln approved their enlistment, all capable Black males either volunteered or were drafted into the service.

Once inducted, regardless of race, Union soldiers lived in grueling camp conditions that were not conducive to positive health outcomes. Disease was responsible for two-thirds of the war-related deaths (Bollet 2002). Military camp life, with its poor diet, exposure to the elements, and bad sanitation, encouraged illnesses (Bollet 2002). Rural recruits never exposed to communicable childhood ailments like measles, mumps, chicken pox, or whooping cough succumbed to epidemics in the crowded military camps of up to more than 100,000 men. Poor camp sanitation caused dysentery, typhoid fever, jaundice, and typhus. Warm weather and insect vectors exposed soldiers to fevers and malaria. Colds, pneumonia, bronchitis, and tuberculosis were also common.

There is a broad scholarship, mostly from the disciplines of history and medicine, that has examined health amongst Civil War troops, including African American recruits (Bollet 2002; Freemon 1998; Steiner 1968; Humphries 2008, 2013; Meier 2015). This literature has addressed how poor camp conditions and germ theory ignorance was detrimental to Civil War health from a biological, environmental, and surgical perspective. In recent years, historians have addressed the impact the war had on Black troops, especially within the context of federal military policies (McPherson 2003; Humphries 2008). However, little research has examined health differences amongst regiments comprised of northern free-born African Americans and recently emancipated southern slaves. These men would have had differential access to resources and support networks. Northern-born African Americans had stronger community support, with state, political, and financial backing from abolitionists to assist them and their families in buffering the stress and structural violence inherent in federal military policies (Reid 2002). Furthermore, their families were not in contraband camps, or enslaved. Former slaves lacked the strong infrastructural or community support that northern free-born African Americans of social position had. Most former bondsmen had little state, political, or family backing as their needy relations remained in contraband camps.

This study will address these issues by focusing on the impact war and federal policies had on the health of African American Civil War soldiers that served in the Department of the South from 1862 to 1865. Health care and illness amongst two African American regiments, the 54th Massachusetts, comprised primarily free-born males from the North, and the 33rd USCT, composed of emancipated southern slaves, and two European-descended regiments, the 6th Connecticut and the 9th Maine, were analyzed to determine if salubrity and access to health care contrasted amongst the units. I hypothesize that differences in health will exist between these white and African American regiments, with the latter having a higher prevalence of sickness. Furthermore, there will be more reported illnesses among the 33rd USCT when compared to the 54th Massachusetts. I argue that these differences exist due to the inherent structural violence present in the federal army that centered on notions of mental and biological inferiority, which affected federal policy and the attitudes of military officials toward Black bodies.

Materials and Methods

This study is based on the examination of Civil War medical records curated at the National Archives and Records Administration (NARA) in Washington, DC. The Carded Civil War Medical Records (Record Group 94, Records of the Adjutant General's Office, 1780s–1917, entry 534, NARA) of four Union Army regiments that served in the same locale, and thus environment, and fought in similar battles were analyzed. This is one of the first studies to examine the health of these regiments through the statistical analysis of their carded medical records. The federal government kept documents related to every aspect of warfare, including medical records and prescription books for all units that fought in the conflict. According to NARA (Plante 2002: http://www.archives.gov/publications/prologue/2002/fall/military-records-overview.html) these carded records:

> …relate to volunteers admitted to hospitals for treatment and may include information such as name; rank; organization; complaint; date of admission; hospital to which admitted; and date returned to duty, deserted, discharged, sent to general hospital, furloughed, or died. This series is arranged by state, then by the number of the regiment (cavalry, infantry, and artillery are filed together under the common regiment number) and then by initial letter of surname.

The Regiments

The 54th Massachusetts Volunteer Infantry (Colored) was primarily comprised free-born African Americans predominantly from the northern states (Massachusetts, New York, Indiana, Ohio), some of whom comprised the educated Black middle and upper classes, including Frederick Douglass' sons Lewis and Charles. The unit was commissioned in February 1863 by the abolitionist and Massachusetts Governor John A. Andrew (Emilio 1984). Its commander, Colonel Robert Gould Shaw, was the son of wealthy Bostonian abolitionist Francis George Shaw.

The 54th was stationed in Beaufort, South Carolina, at the start of its military campaign in May 1863. The regiment participated in the raid on Darien, Georgia, and the battle of Grimball's Landing on James Island, S.C., on July 16, 1863. Two days later, the 54th reached its pinnacle of glory when it spearheaded the second assault on Battery Wagner at Morris Island, S.C. The Union Army shelled the battery from land and sea for one week prior to the attack. As a result, according to Sergeant Charles Caldwell (1875:71) of the 6th Connecticut, many thought an "easy victory was within reach." Col. Shaw requested and received permission for his regiment to lead the charge as he "wanted the black troops to distinguish themselves" to prove they could fight bravely with white soldiers (Caldwell 1875:71). It was assumed that the 54th would meet minimal resistance after the massive bombardment. This would prompt an easy triumph for African American troops and a political victory that would encourage Black recruitment. It would also simultaneously notify the Confederacy that their enemy was utilizing Blacks in warfare. The federals had not anticipated that the defenders of Battery Wagner protected themselves and their artillery in bombproof bunkers during the shelling (Wise 1994). Furthermore, the Confederate chief of artillery for the Department of South Carolina, Georgia and Florida, Cuban-born Colonel Ambrosio José Gonzales, ordered shotguns for close combat and a mine field deployed at Battery Wagner (de la Cova 2003). The 54th ran into the unexpected mines and overwhelming artillery and rifle fire that prevented their victory. Col. Shaw died and over 31 % of the regiment were killed, injured, or missing. Despite its losses, the unit went on to fight the following year in the battles at Olustee, Fla., and Honey Hill, S.C., with further significant casualties (Dyer 1908). Their last skirmish took place at Boykin's Mill, S.C., in 1865 (Dyer 1908).

The 33rd USCT, comprised former slaves, was one of the earliest Black regiments raised by the Union Army, and the first composed of liberated bondsmen. In 1862, the commanding officer of the Department of the South, abolitionist Major General David Hunter, declared martial law in the region and freed all slaves. He began recruiting contrabands in 1862 and quickly organized them into the 1st Regiment South Carolina Volunteer Infantry (African Descent). Lincoln rescinded Hunter's proclamation, but did not order the unit disbanded (Hunter's and Lincoln's actions are examined in the discussion section). Hunter never received official federal support for his regiment and declared it disbanded in a personal letter to Secretary of War Edwin Stanton in August of 1862 (Wise et al. 2015:119). However, the major general did not completely dissolve the unit. He gave the men leave to visit their families, whilst others served as laborers on Hilton Head Island, S.C. (Wise et al. 2015). Additionally, two of its companies were deployed to St. Simon's Island, Georgia, to protect a colony of slaves from Confederate sympathizers (Wise et al. 2015). The 1st South Carolina was eventually authorized by the War Department in August 1862, sworn in on November of the same year, and mustered into service when the EP went into effect. Colonel Thomas Wentworth Higginson, "a radical abolitionist and Unitarian minister," was selected to command the regiment, later renamed the 33rd USCT (Wise et al. 2015:154). Medical records reveal that the War Department had to screen and dismiss many unfit men from the unit's ranks. Hunter

had inflated the 33rd to regimental capacity with individuals up to age 80 who were lame, had malformed limbs, and missing teeth, the latter crucial to loading a weapon. The unit saw little combat, with the exception of raids in South Carolina, Georgia, and Florida (Higginson 1984; Wise et al. 2015). It mostly performed picket duty in the South Carolina Lowcountry (Higginson 1984).

The 6th Connecticut Volunteer Infantry Regiment, comprised of native-born whites and Europeans from the northern states, was organized in September 1861 at New Haven (Caldwell 1875). From 1861 to 1863, they were stationed in South Carolina and participated in the battles of Fort Pulaski, Secessionville, and Pocotaligo (Caldwell 1875; Dyer 1908). The 6th Connecticut fought with the 54th Massachusetts in the second assault on Battery Wagner and also lost its commanding officer (Caldwell 1875). They had 35 % casualties and recuperated at Hilton Head until sent to Virginia in 1864 (Caldwell 1875). The 6th Connecticut then participated in the conflict at Drewry's Bluff and the siege of Petersburg (Dyer 1908). The regiment spent the rest of the war in North Carolina.

The 9th Maine Volunteer Infantry Regiment, raised in September 1861 in Augusta, Maine, had a similar composition as the 6th Connecticut. Enlistees were native-born whites or Europeans from northern states, especially Maine. Like the 54th Massachusetts and the 6th Connecticut, the 9th Maine was part of the second assault on Battery Wagner. They had earlier participated in the expeditions to Port Royal, S.C., Warsaw Sound, Ga., and Florida (Dyer 1908). The regiment remained on the South Carolina Sea Islands for most of 1863 (Dyer 1908). In mid-1864, the unit was sent to fight at Cold Harbor and Petersburg, Virginia, and afterward served in the final North Carolina campaign (Dyer 1908).

These four regiments were analyzed because they served in the Department of the South, fought in similar battles, and camped near each other during 1863–1864. Furthermore, the two African American regiments studied are renowned and have been the most studied by scholars. They also represent opposite ends of the Black social condition being freedmen and former slaves.

The carded medical records of these four units were scrutinized; each card was recorded in an SPSS database that included name, age, regiment, company, illness, hospital, date of illness, transfer information, type of record (prescription, hospital, or transfer), and notes. There are far more carded records for the African American troops than the white soldiers, which may result in error of the findings, but frequencies can provide specific information about the health of these soldiers.

The sample was statistically examined using χ^2 analyses according to the race, regiment, and illness categories presented in Table 8.1. Illnesses were diagnosed based on information provided in the carded records and followed definitions described by previous Civil War medicine scholars (Freemon 1998; Bollet 2002). Disorders that could not be attributed to corresponding modern illnesses, such as typhomalaria fever were placed in a separate category, or excluded from analysis. Only annotated cards with clear definitions of diseases were analyzed. Battlefield trauma was excluded from this study due to the heavy losses sustained during the assault on Battery Wagner.

Table 8.1 Race, regiment, and illness cohort/categories

Race	Illness (disease or disorder)
Black Regiments	Diarrheas, Dysenteries, and Cholera
White Regiments	Malaria
	Typhomalaria Fever (malarial and typhoid-like symptoms)
	Typhoid Fever
Regiment	Respiratory Disorders
54th Mass. Infantry	Tuberculosis
33rd USCT	STDs
6th Conn.	Crowd/Childhood illnesses (Measles, Mumps, Smallpox, Diphtheria)
9th Maine	Dietary-related disorders (Scurvy, Anemia, Night blindness)

Results

Results indicated that ancestry-related differences, and in the case of African Americans, place of origin and status (northern versus southern and free-born versus formerly enslaved) were present in the regiments examined. Ancestry analyses (Table 8.2) indicated that white regiments had the highest reports of diarrheas (25.1 %), malaria (20.2 %), typhoid fever (7.7 %), and tuberculosis (3.7 %). Black regiments differed, with significantly more cases of respiratory disorders (12.1 %), STDs (4.4 %), typhomalarial fever (2.2 %), and dietary disorders (1.0 %).

Further examination by military units (Table 8.3) revealed that all were significantly different, but varied according to regiment, with the 33rd USCT having more reported cases of the illnesses examined when compared to the other regiments studied. The newly liberated slaves that comprised the 33rd reported significantly more bouts with malaria (23.6 %), STDs (6.5 %), the childhood infectious diseases of measles, mumps, smallpox, and diphtheria (5.2 %), and typhomalarial fever (3.2 %). Free-born Black soldiers in the 54th only had significantly more reported cases of diarrheas and dysenteries (27.7 %). White soldiers in the 9th Maine had greater reported instances of tuberculosis (4.9 %), whereas those in the 6th Connecticut suffered from significantly higher rates of typhoid fever (10.1 %) and respiratory disorders (6.7 %).

The Effects of War, Federal Policy, and Structural Violence on Sable Soldiers in the Civil War

Results indicated that the troops studied suffered from debilitating illnesses during the Civil War. However, differences in the cases of reported sicknesses are visible when the sample is studied according to race, birth status, and regimental units.

Table 8.2 Chi-Squared results of race illness cohorts

Regiment	Absent (%)	Present (%)	Total	Sig.	Absent (%)	Present (%)	Total	Sig.
	Diarrheas, dysenteries, and cholera				STDs			
Black Regiments	4281 (79.3)	1118 (20.7)	5399	**0.002**	**5163 (95.6)**	**236 (4.4)**	**5399**	**0.000**
White Regiments	**745 (74.9)**	**250 (25.1)**	**995**		982 (98.7)	13 (1.3)	995	
Total	5026 (78.6)	1368 (21.4)	6394		6145 (78.7)	249 (21.3)	6394	
	Respiratory Disorders				Malaria			
Black Regiments	**4745 (87.9)**	**654 (12.1)**	**5399**	**0.000**	4534 (84.0)	865 (16.0)	5399	**0.001**
White Regiments	941 (94.6)	54 (5.4)	995		**794 (79.8)**	**201 (20.2)**	**995**	
Total	5686 (88.9)	708 (11.1)	6394		5328 (83.3)	1066 (16.7)	6394	
	Measles, Mumps, Smallpox, Diphtheria				Typhoid Fever			
Black Regiments	5229 (96.9)	170 (3.1)	5399	0.956	5346 (99.0)	53 (1.0)	5399	**0.000**
White Regiments	964 (96.9)	31 (3.1)	995		**918 (92.3)**	**77 (7.7)**	**995**	
Total	6193 (96.9)	201 (3.1)	6394		6264 (98.0)	130 (2.0)	6394	
	Typhomalarial fever				Tuberculosis			
Black Regiments	**5281 (97.8)**	**118 (2.2)**	**5399**	**0.000**	5347 (99.0)	52 (1.0)	5399	**0.000**
White Regiments	994 (99.9)	1 (0.1)	995		**958 (96.3)**	**37 (3.7)**	**995**	
Total	6275 (98.1)	119 (1.9)	6394		6305 (98.6)	89 (1.4)	6394	
	Dietary-related disorders							
Black Regiments	**5343 (99.0)**	**56 (1.0)**	**5399**	**0.001**				
White Regiments	994 (99.9)	1 (0.1)	995					
Total	6337 (99.1)	57 (0.9)	6394					

Table 8.3 Chi-Squared results of race illness cohorts

Regiment	Absent (%)	Present (%)	Total	Sig.	Absent (%)	Present (%)	Total	Sig.
	Tuberculosis				Diarrheas, Dysenteries, and Cholera			
54th Mass. Infantry	**2589 (99.2)**	**21 (0.8)**	**2610**	0.000	1887 (72.3)	723 (27.7)	2610	0.000
33rd USCT	2758 (98.9)	31 (1.1)	2789		**2394 (85.8)**	**395 (14.2)**	2789	
6th Conn.	398 (98)	8 (2.0)	406		307 (75.6)	99 (24.4)	406	
9th Maine	**560 (95.1 %)**	**29 (4.9)**	**589**		438 (74.4)	151 (25.6)	589	
Total	6305 (98.6)	89 (1.4)	6394		5026 (78.6)	1368 (21.4)	6394	
	Malaria				STDs			
54th Mass. Infantry	2404 (92.1)	**206 (7.9)**	**2610**	0.000	2555 (97.9)	55 (2.1)	2610	0.000
33rd USCT	**2130 (76.4)**	**659 (23.6)**	**2789**		**2608 (93.5)**	**181 (6.5)**	2789	
6th Conn.	335 (82.5)	71 (17.5)	406		399 (98.3)	7 (1.7)	406	
9th Maine	459 (77.9)	130 (22.1)	589		**583 (99.0)**	**6 (1.0)**	**589**	
	5328 (83.3)	1066 (16.7)	6394		6145 (96.1)	249 (3.9)	6394	
	Measles, Mumps, Smallpox, Diphtheria				Respiratory Disorders (excl TB)			
54th Mass. Infantry	**2586 (99.1)**	**24 (0.9)**	**2610**	0.000	**2279 (87.3)**	**331 (12.7)**	**2610**	0.000
33rd USCT	**2643 (94.8)**	**146 (5.2)**	**2789**		2466 (88.4)	323 (11.6)	2789	
6th Conn.	402 (99.0)	4 (1.0)	406		379 (93.3)	27 (6.7)	406	
9th Maine	562 (95.4)	27 (4.6)	589		**562 (95.4)**	**27 (4.6)**	**589**	
	6193 (96.9)	201 (3.1)	6394		5686 (88.9)	708 (11.1)	6394	
	Typhomalarial Fever				Typhoid Fever			
54th Mass. Infantry	2581 (98.9)	29 (1.1)	2610	0.000	2585 (99.0)	25 (1.0)	2610	0.000
33rd USCT	**2700 (96.8)**	**89 (3.2)**	**2789**		2761 (99.0)	28 (1.0)	2789	
6th Conn.	406 (100)	**0 (0.0)**	**406**		**365 (89.9)**	**41 (10.1)**	**406**	
9th Maine	588 (99.8)	1 (0.2)	589		553 (93.9)	36 (6.1)	589	

(continued)

Table 8.3 (continued)

Regiment	Absent (%)	Present (%)	Total	Sig.	Absent (%)	Present (%)	Total	Sig.
	6275 (97.5)	119 (2.5)	6394		6264 (98.0)	130 (2.0)	6394	

These findings support the research hypotheses and agree with health data published after the war by the U.S. Surgeon General's Office (1870) indicating that African Americans had higher mortality rates (white volunteers—94.32 per 1000 versus the sharp contrast of 157.50 per 1000 in USCTs), despite only serving from 1863 to 1865 (United States Army Surgeon General's Office 1870; Aptheker 1947; Black 1994). Statistics indicate these sable soldiers suffered more from smallpox, upper respiratory complaints, scrofula, measles, mumps, intestinal parasites, anemia, and dietary ailments caused by lack of vitamins A and C (United States Army Surgeon General's Office 1870; Aptheker 1947; Black 1994; Bollet 2002). These combined illnesses took their toll on African American troops. The 32 African American regiments that served in the Civil War proportionately lost the most men, with the majority of deaths caused by disease (Bollet 2002). The 5th USCT, for example, had the most casualties of all Union regiments with 829 deaths out of 1053 enlistments. Only 128 perished in battle and the remainder died of disease.

Although the 33rd USCT, 54th Mass., 6th Conn., and 9th Maine camped in the same region and were exposed to the same environmental stressors, their patterns of health differed. When analyzed by race, Black units had significantly more documented cases of respiratory disorders, typhomalarial fever, dietary-related deficiencies, and STDs (Table 8.1). White regiments, however, reported higher rates of diarrhea-based illnesses, malaria, typhoid fever, and tuberculosis (Table 8.1). These patterns became clearer when the medical data was examined by regiment, as illustrated in Table 8.2. The 33rd USCT, comprised former slaves, had higher rates of reported diseases and disorders when compared to the other regiments, including their own free brethren in the 54th Mass. The 33rd had significantly more cases of malaria, STDs, and childhood illnesses, but the least reports of diarrhea-related illnesses. Soldiers of the 54th Mass had higher rates of the latter ailments and respiratory disorders, but the lowest reports of tuberculosis, malaria, and childhood communicable illnesses. Amongst the white regiments, the 9th Maine had more diagnoses of TB, but the lowest data of other respiratory disorders and STDs. The 6th Connecticut had significantly higher reports of typhoid fever, but no cases of typhomalarial fever.

Many factors such as social environment, living conditions, and War Department policies could explain these differences in illnesses, and more importantly, why the 33rd USCT had the highest rates of reported sicknesses. On a basic level, the poor diet and crowded, unsanitary conditions of military life likely encouraged many of the illnesses found in this study. These soldiers lived in grueling military camp conditions when knowledge of germs and microbes were nonexistent. In consequence, health, malnutrition, battle wounds, and infectious diseases were major problems, not just for

the regiments studied, but for all Civil War troops. In fact, it was malnutrition and disease, not conflict-related injuries, which caused two-thirds of war deaths (Bollet 2002). A soldier's diet, despite being army regulated and approved by Congress, often lacked essential nutrients. In 1861, the daily ration per soldier was "Twelve ounces of pork or bacon, or one pound and four ounces of salt or fresh beef; one pound and six ounces of soft bread or flour, or one pound of hard bread, or one pound and four ounces of corn-meal" (United States Army Surgeon General's Office 1990:711–712). In addition, Congress approved rationing of "fifteen pounds of beans or peas, and ten pounds or rice or hominy; ten pounds of green coffee or eight pounds of roasted (or roasted and ground) coffee, or one pound eight ounces of tea" with extra rations of sugar, vinegar, candies, salt, pepper, "thirty pounds of potatoes, when practicable, and one quart of molasses" to be divided amongst groups of 100 men (United States Army Surgeon General's Office 1990:711–712). However, this supply system never materialized. Field troops rarely obtained fresh fruits or vegetables due to inadequate preservation (Bollet 2002). Beef and pork was also a rarity unless it was foraged (federally sanctioned stealing, looting, or appropriation from a civilian or slave abode legalized by the Confiscation Acts of 1861 and 1862). A soldier's staple diet consisted of hard tack, which was a rigid, thick flour cracker often worm-ridden and referred to as "teeth dullers," salt pork, dried beans, corn bread, and desiccated vegetables, which troops called "desecrated vegetables" (Bollet 2002). Edibles needed for a balanced diet competed for the same transport space with war supplies that were deemed more important. Thus, the rations provided to soldiers often prompted nutritional deficiencies.

Malnutrition would have resulted in immunosuppression amongst many soldiers. This, combined with exposure to the elements, and unhygienic, overcrowded camp conditions, made troops more susceptible to bacteria, viruses, and other communicable illnesses such as those observed in this study, including dysentery, typhoid fever, tuberculosis, smallpox, measles, mumps, and diphtheria (Bollet 2002; Meier 2015). High-density encampments were optimal breeding grounds for flies, mosquitoes, fleas, lice, and other insect vectors of disease, encouraging the transmission of malaria, cholera, and typhus. Camp life caused the accumulation of animal offal, garbage, and human waste, all prized by flies, parasites, and other bacteria. Disrupting drainage systems whilst setting up camps created malaria-carrying mosquito breeding grounds (Steiner 1968). Water sources, shared by launderers, cooks, animals, bathers, drinkers, flies, mosquitoes, and soldiers who neglected to use the designated latrines outside of camp at night to relieve themselves, became infected with bacteria. (Bollet 2002). Lack of refrigeration, inadequate handling of food, and bad culinary practices resulted in dysentery, typhoid fever, cholera, and other bacterial-related ailments (Steiner 1968; Freemon 1998).

Seasonal weather changes and poor camp conditions also exposed troops to illnesses (Meier 2015). Warm weather brought an increase in mosquitoes and flies, which made soldiers vulnerable to fevers and malaria (Steiner 1968; Meier 2015). Colds, coughs, pneumonia, bronchitis, and tuberculosis were common during damp and winter seasons (Bollet 2002). Rural recruits never exposed to communicable childhood ailments like measles, mumps, chicken pox, and whooping cough were

present in both armies, which sparked epidemics in crowded regimental camps (Steiner 1968; Bollet 2002).

There is no doubt that this unsanitary environment contributed to the rates of illnesses observed in this analysis. However, it is interesting to note the overall lower prevalence of recorded sicknesses in the 54th Massachusetts when compared to the 33rd USCT. At the beginning of this study, it was believed that if discrimination played a role in federal health care, then both Black regiments would have recorded evidence of unequal access to medical treatment. Given the differences that arose between the 33rd USCT and the 54th Massachusetts, further analyses were performed. Their regimental records were examined for prescriptions, transfers to northern hospitals, furloughs to improve health, or individuals that were mustered out or discharged due to illness, to ascertain if differential treatment existed that could further explain the observed health outcomes (Table 8.4). Prescription data was only present for the 54th and 33rd, with the former having the most records. The absence of prescription cards in the white regiments is probably the result of recording error and lack of record preservation. These troops received medical treatment, but the archivist transcribing the records decades later failed to document the prescriptions. The 54th Massachusetts had an overwhelming higher number of prescription cards when compared to those of the 33rd USCT. Does this mean that 54th had better access to medicines? This data is probably not representative and should be viewed with caution. The 54th participated on the assault at Battery Wagner in 1863 along with the 6th Connecticut. Both regiments experienced heavy casualties so it is possible that some of the reported prescription records of the 54th may be reflecting the long-term effects of battlefield trauma, including fevers, infections, and ulcerations.

The transfer, furlough, and mustered out findings are more reliable, as these events have multiple recorded entries. Patients discharged or transferred from army hospitals in the South to northern medical institutions were transported on military hospital steamers that documented passenger names, ailments, treatment, and destination. The records revealed that white soldiers were evacuated, furloughed, and discharged to the north at significantly higher rates than Black troops, with the 6th

Table 8.4 Chi-squared analysis of health care estimates

	Prescription mention				Transferred to North, Furloughed, or Mustered out due to illness			
Regiment	No (%)	Yes (%)	Total	Sig.	No (%)	Yes (%)	Total	Sig.
54th Mass. Infantry	1403 (53.8)	1207 (46.2)	2610	0.000	2510 (96.2)	100 (3.8)	2610	0.000
33rd USCT	**2755 (98.8)**	**34 (1.2)**	**2789**		2727 (97.8)	62 (2.2)	2789	
6th Conn.	406 (100)	0 (0.0)	406		**316 (77.8)**	**90 (22.2)**	**406**	
9th Maine	589 (100)	0 (0.0)	589		563 (95.6)	26 (6.4)	589	
	5153 (80.6)	1241 (19.4)	6394		6116 (95.7)	278 (4.3)	6394	

Connecticut having the greatest number of medically evacuated troops (Table 8.4). Amongst the African American regiments, the 54th Massachusetts still had higher frequencies of illness-related northern transfers, furloughs, and discharges when compared to the 33rd USCT. These findings imply that the War Department expressed greater concern over the health of white troops versus those of color. In some respects, the health care the 54th received was better than the 33rd and was more comparable to the white 6th Conn. and 9th Maine. The medical records indicate that when the salubrity of soldiers in all three regiments did not soon improve they were sent north to convalesce. This was especially true for those that contracted malaria, fevers, chronic dysentery, and other debilitating illnesses. The 33rd USCT did not have this benefit and few were transferred north to recuperate. Thus African Americans, especially former slaves, faced a dual dilemma in health care that centered not only race and the racism that was inherent in nineteenth-century culture and science, but social class. Few white surgeons volunteered to serve in Black regiments, making it difficult for many USCT units to have the required minimum of three surgeons. Col. Higginson (1984:246), commander of the 33rd USCT, addressed the larger issues tied to medical care in his regiment when he indicated that his troops had been:

> …injured throughout the army by an undue share of fatigue duty, which is not only exhausting but demoralizing to a soldier; by the unsuitableness of the rations, which gave them salt meat instead of rice and hominy; and by the lack of good medical attendance…[They] needed prompt and efficient surgical care; but almost all the colored troops were enlisted late in the war, when it was hard to get good surgeons…

The 33rd USCT also experienced difficulties obtaining basic medical supplies as some medical purveyors refused to fill orders for Black regiments. Dr. Seth Rogers (1863b), an abolitionist who was the unit's surgeon, expressed in January 9, 1863, that he had to travel to Hilton Head to "test the honesty of a certain medical purveyor, who does not incline to honor the requisitions of the surgeon of the 1st Reg. S.C. Vol's. He has not yet heard of the popularity of black regiments, but Uncle Samuel will teach him that…" Apparently, Rogers did not convince the purveyor, who continued to deny the surgeon supplies. When this was reported to abolitionist General Rufus Saxton, military governor of the Department of the South, Saxon told Rogers told to draw what he needed from New York City (Rogers 1863b).

It could be argued that the social class, or lack thereof, of most of the 33rd USCT also made them powerless to advocate for better health care. The regiment was mostly comprised of illiterate former slaves. Whilst they had family, they did not have the benefit of class, education, or influential social networks due to the structurally violent nature of slavery (Reid 2002). This was a stark contrast to the 54th Massachusetts, who had strong family support networks, educated elite members of the Black middle class, and political clout, including staunch backing from the state governor (Reid 2002). These connections were influential in buffering poor military policies as the 54th had surgeons and powerful supporters in Massachusetts that would have denounced deficient medical treatment.

The 54th Massachusetts' higher rates of northern transfers, furloughs, and discharges attest to this and imply that the regiment had access to slightly better health care when compared to their recently emancipated brethren in the 33rd USCT

(Table 8.2). Only a few of these contraband soldiers received the benefit of a northern relocation, away from the heat, humidity, and pestilence of the South, to recuperate from the fevers and other illnesses endemic to the southern states. Most remained in the Lowcounty, convalescing in Beaufort or Charleston post hospitals, where the possibility for reinfection or coinfection with malaria, or other insect-vector-based viruses (yellow fever) and illnesses, remained high. Thus, the federal army did not provide equal medical care to all troops and were the least concerned with regiments comprised of recently emancipated slaves.

These indifferent attitudes toward African American soldiers, especially former slaves, were tied to larger beliefs about Black biological differences and disease susceptibilities (Savitt 1978). Many whites thought Blacks were resistant to fevers, and better adapted to hot, humid climates, with a higher tolerance for pain and manual labor, but were more susceptible to respiratory ailments, scrofula, and smallpox (Savitt 1978). This was especially true for former slaves who were regarded as being "seasoned" or adapted to the harsh southern climate and its respective diseases. These ideologies influenced how army officers and surgeons treated their troops and would have impacted diagnoses as well as the amount and types of medical intervention given. For example, sable soldiers consistently had higher death rates from smallpox, which became epidemic in some regiments. Army physicians believed Blacks possessed an innate susceptibility to smallpox and were destined to die from the illness; even treatment could not prevent their demise (Humphries 2008; Downs 2010). Dr. Seth Rogers (1863a), surgeon of the 33rd USCT, also ascribed to these biological "differences," indicating that: "The difference in physiognomy among them [33rd USCT] now seems to me quite as marked as among the whites and the physiognomy of their diseases is quite apparent to me."

Apart from differential access to medical care and perceived biological differences, the prior experiences of the 33rd USCT as slaves and contrabands likely contributed to their poor health. Whilst enslaved, they received weekly rations of corn, molasses, salted pork, fatback, or fish, with additional vegetables grown in allotted garden plots, and a small pen for an edible mammal or fowl (Stampp 1965; Genovese 1974; Savitt 1978). Clothing was rationed at least twice year, depending upon the slaveholder (Washington 1901; Douglass 1845; Savitt 1978). Living conditions were crowded as five to ten slaves shared a cabin (Savitt 1978). These structures stood in close proximity to each other, constituting their own urbanized environment (Savitt 1978). Most lacked insulation, possessed dirt floors, and had a minimum of one widow with no glass (Washington 1901; Savitt 1978). These living quarters, combined with poor sanitation, lack of germ knowledge, and the physical exertion required of slavery resulted in enslaved bodies performing a careful physiological balance to maintain homeostasis for vitality. Diets lacking adequate nutrition made slaves susceptible to dietary deficiencies. Nonexistent sanitation, outdoor labor, lack of proper clothing, and crowded living conditions resulted in exposure to insects, parasites, and bacteria, and encouraged the transmission of illnesses, ultimately wreaking havoc on a slave's immune system prior to military enlistment.

The federal army, desperate to keep enlistments up, were often indifferent to health issues amongst Black recruits. Union physician Ira Russell observed, "little discrimination was used in the selection of Negro soldiers," especially the large

numbers of former slaves "in feeble health, with impaired constitutions, broken down by exposure and privation while escaping from their masters, or from overcrowding in contraband camps and bad and insufficient diet, [that] were enlisted more with a view of filling up companies than promoting the efficiency of the service" (Humphries 2008:9–10).

This sentiment was not unique to Russell. Early militia and enrollment acts were initially restricted to native and foreign-born whites as federal law prohibited Blacks from serving in state militias, despite their service in the Revolutionary War (McPherson 2003). However, two Union generals, John C. Frémont and David Hunter, both abolitionists, attempted to liberate and enlist slaves prior to 1863. Frémont, commanding general of the Department of the West, declared "martial law throughout the State of Missouri" on August 30, 1861, and indicated that property of Missourians who took up arms against the United States would be confiscated and their slaves liberated (United States War Department 1894:221). Lincoln, concerned over losing Missouri to the Confederacy, requested Frémont amend his declaration to reflect the federal Confiscation Act of 1861, which only liberated slaves utilized by Confederates in their war effort (Faust 1986:291). Frémont refused and was relieved of duty.

Hunter, commanding the Department of the South, issued his General Order No. 11 in May of 1862, declaring his department "under martial law" and granting slaves their freedom (United States War Department 1894:818). Congress initially approved Hunter's order but Lincoln rescinded it stating that Hunter "nor any other…person has been authorized by the Government of the United States to make proclamations declaring the slaves of any State free, and that the supposed proclamation now in question…is altogether void…" (United States War Department 1894:818).

Lincoln considered Frémont and Hunter's actions as "an ill-conceived attempt to turn the war to save the Union into a war to abolish slavery" (Faust 1986:291). He excluded from the EP the neutral border states of Delaware, Maryland, West Virginia, Kentucky, and Missouri so that they would not join the Confederacy in order to preserve their chattels. These states had strategic importance for transporting federal supplies and troops into the southern and western fronts. Furthermore, the Union Army utilized the slave population in these states as servants, carriage drivers, groomsmen, and laborers whilst financially recompensing their masters until the war's end (Berlin et al. 1992).

The EP signaled the official mustering in of African Americans in the Union Army. For southern defacto-free males, the July 1862 Second Confiscation Act, passed prior to the EP, allowed for the enlistment of former slaves (Wise et al. 2015). African American men, regardless of their location, had mixed attitudes about service. Some northern Black males eagerly volunteered, whilst others objected due to disillusionment with the existing racial inequality in the North and lack of civil and voting rights. Former southern slaves also had reservations about the federals. Many "did not want to fight in a cause that did not promise them freedom" (Wise et al. 2015:108). African American recruitment rapidly increased after the Military Draft Act of March 3, 1863. Two months later, the government established the Bureau of Colored Troops, which kept military service segregated by race and almost all Black regiments had white commanders.

Many unionists hoped that emancipated slaves would eagerly enlist, especially abolitionists who had travelled south to educate and encourage freedmen to volunteer for military service (Rose 1976). However, they experienced resistance, especially on the South Carolina Sea Islands, home to the 33rd USCT (Rose 1976). Abolitionists complained that the former bondsmen were "apathetic" to the war effort and the concept of patriotism (Rose 1976:266). They were more interested in remaining on their former master's lands, growing their own sustenance, and providing for their families (Rose 1976). Major General Hunter began recruiting Black males on the islands as early as April of 1862. In May, federals in Beaufort began gathering all able-bodied contrabands between the ages of 18 and 45 years old capable of bearing arms. Men were informed that they had to go with the soldiers, but no one would be impressed into service (Wise et al. 2015). Some had previously been forewarned by federal authorities and went without protest. However, amongst those that had not been notified, soldiers "were forced to sweep through the fields seizing workers before they had time to gather up any belongings or say good-bye to their families" (Wise et al. 2015:110). When they arrived at processing camps, Hunter true to his word, allowed the men to choose their fate.

However, by 1863 the federal military needed high enlistment numbers to replenish the daily losses of soldiers from disease and combat. Thus, liberation and conscription went hand in hand as the federal government began to impress former slaves into USCT regiments (Rose 1976). According to historian Willie Lee Rose (1976:267), when the men "did not come voluntarily, squads of [Union] soldiers forcibly herded them into the [military] camps. Surprise encirclements by day and sudden seizures by night became ordinary occurrences" on the Sea Islands. The troops utilized for these missions were "black soldiers already in the 'contraband' regiments" who were "not overly nice in their methods and shot at random" frequently injuring people (Rose 1976:267). In one instance, a man legally excused from conscription "was killed by a Negro press-gang that attempted to bring him in against his will" (Rose 1976:267). Another account described how former female slaves defended their male relatives against a nighttime impressment raid by attacking Black soldiers from the 54th Massachusetts "with their hoes and were in turn fired upon" (Rose 1976: 267).

Seizure of former bondsmen for the federal war effort continued into 1864, when Congress allowed state governments to fill their draft quotes in the occupied South (Rose 1976). Officials now lured African Americans to enlist with a $300 bounty. Rose describes how recruitment officers quickly "descended upon the [sea] islands like the plagues of Egypt, seized men at random, and as often as not pocketed the bounty money themselves" (Rose 1976:269). The appearance of a military uniform in African American Sea Island communities "was enough to break up a church service, send the schoolchildren scurrying away, or cause the men to drop their hoes in the field and make for the woods" (Rose 1976:268).

Not all former slaves avoided enlistment. Volunteers took advantage of the educational opportunities offered by abolitionists in regimental camps that built new identities, created cultural values, and defined their citizenship (Wilson 2002). Many also, through federal assistance, legally married their wives and claimed their children (Wilson 2002).

The use of African Americans to fill the ranks, by voluntary enlistment or conscription, continued throughout the war as did attitudes about biological differences and inferiorities. Apart from receiving unequal access to medical care, African American troops were often relegated to humiliating fatigue duty instead of active combat (Higginson 1984; Wilson 2002). Many white federal officers believed these men were incapable of performing as soldiers and were hesitant to command and arm Blacks troops (McPherson 2003). These underlying attitudes were summed up by Corporal Felix Brannigan, of the 74th New York, when he stated that "we don't want to fight side and side with the nigger…We think we are a too superior race for that" (McPherson 2003:165). Others felt emancipated slaves were "too servile and cowardly" to be efficient troops (McPherson 2003:166). These beliefs prompted the government to use Black soldiers mostly for noncombative labor detail and reserved white troops for battle (McPherson 2003; Hargrove 1988). Biological beliefs about Black bodies being better "adapted" to heavy labor, hot weather, malaria, and other endemic fevers prevalent in the occupied South further justified the use of Black regiments for arduous fatigue duty, including the creation of defensive trenches, earthen fortifications, and railroads. These troops were also forced to do gang labor, load and unload vessels, and harvest cotton, corn, and other crops (Hargrove 1988; McPherson 2003). After commanders of African American regiments complained about the toll fatigue duty had on their forces, Secretary of War Stanton announced in June 1864 that the practice of using Black troops "to perform most of the labor on fortifications…and fatigue duties of permanent stations and camps will cease and they will only be required to take their fair share of fatigue duty with the white troops" (United States War Department 1900:431). That same month, Congress passed an act stating that "all persons of color" that had been mustered into the military "shall receive the same uniform, clothing, arms, equipments, camp equipage, rations, medical and hospital attendance, pay and emoluments, other than bounty, as other soldiers of the regular or volunteer forces of the United States of like arm of the service, from and after the first day of January, eighteen hundred and sixty-four…" (United States War Department 1900:448). Whilst these laws were meant to equalize the treatment of Black troops physically, medically, and biologically, sable soldiers, later turned Buffalo Soldiers, still struggled in regard to health and equality due to perceived disease ideologies and beliefs about Black susceptibilities and resistance. The US military was not completely desegregated until President Harry S. Truman issued Executive Order 9981 in July of 1948.

Conclusion

The findings of this study clearly illustrate that sable soldiers received differential medical care due to a lack of surgeons eager to treat African American troops and white beliefs centered on Black biology and inferiority. The stresses of slavery and contraband camps also resulted in poor health amongst sable soldiers that had been slaves, as illustrated by the 33rd USCT. Military life further compromised

their immune systems, resulting in increased susceptibility to illness. Northern free-born African Americans comprised of the Black middle class, like the 54th Massachusetts, had access to political connections and social networks, which positively impacted their health outcomes and protected their families from destitution. Former slave soldiers did not have this luxury. Their loved ones remained destitute in crowded, pestilential contraband camps where many perished from malnutrition and disease.

The Civil War had lasting health impacts for African Americans, especially those from the South, for generations to come. The Freedman's Bureau assisted former bondsmen and soldiers to some extent, providing rations and basic medical care. The Bureau also helped them find jobs through the implementation of enforced annual work contracts, many with former slave masters, which eventually lead to the southern sharecropping system prevalent in the twentieth century. Housing, a corn and pork-based diet, and minimal access to resources and medical care in a segregated South where pellagra and hookworm was endemic did little to improve the salubrity of African Americans. Many chose to migrate north in the late nineteenth and early twentieth centuries. This great migration further exacerbated health issues amongst African Americans, many of whom were malnourished and unprepared for the cold northern climate and crowded urban living conditions (Giffin 2005). Historical statistics indicate that from 1870 until the early-twentieth century, African Americans had higher rates of infant mortality, infectious diseases, and nutritional deficiencies (Billings 1885, 1986; King 1902). Osteological research has also confirmed this. Studies by Rose (1989), Rathbun and Steckel (2002), and myself (de la Cova 2011, 2014) have demonstrated that post-Civil War African Americans from the South suffered from high frequencies of infectious diseases. These trends continue to affect African Americans, who have higher rates of infant mortality, tuberculosis, heart disease, hypertension, and other illnesses. Thus, the Civil War resulted in historical events that triggered continued biological stress and poor health amongst African Americans that medical care providers and the Black community continue to combat.

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Chapter 9

Potential Applications of Public Health Tools to Bioarchaeological Data Sets: The "Dirty War Index" and the Biological Costs of Armed Conflict for Children

Molly K. Zuckerman and Petra Banks

Introduction

Involvement within and exposure to armed conflict can be extremely detrimental for the health and well-being of individuals and their communities, whether combatants or civilians. Civilian, or noncombatant, mortality and morbidity occurs during active armed conflict, but also as civilians flee war zones, becoming displaced refugees (Toole and Waldman 1990). The biosocial effects of armed conflict are increasingly well documented for modern combatants (DeBruyne and Leland 2015), but epidemiological data on civilian mortality and morbidity are not as comprehensive or well understood (Lacina and Gleditsch 2005). This is despite the fact that documenting, analyzing, and ultimately preventing the harmful effects of armed conflict on civilian populations is one of the foremost goals for public health (Cobey and Raymond 2001; Krug et al. 2002; Murray et al. 2002; Coupland 2007; Human Security Report Project 2013).

What is increasingly appreciated is that civilian populations, particularly during the twentieth and early twenty-first centuries, experience high rates of morbidity and mortality associated with both active conflict and displacement (Bunton and Wills 2005; Toole and Waldman 1990). These rising rates are largely due to concurrent increases in intra-nation, or civil armed conflict, rather than inter-nation armed conflict (Pedersen 2002). Intra-nation conflict blurs the lines between civilians and combatants, and allows for more paramilitary and guerilla soldiers, who kill civilians at higher rates (Hicks and Spagat 2008); combatants who blur distinctions between themselves and civilians, such as when guerilla forces hide among civilians, transfer their risk of harm to these civilians. Intra-nation conflict is also not

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limited to war zones, but seeps into surrounding communities, resulting in greater civilian deaths and greater destruction of public and economic infrastructure (American Public Health Association 2009; Westing 2008). Most civilian mortality, as well as morbidity, is experienced by children (Barbara 2008), specifically those under 5 years of age. This is partially due to the great social, economic, and biological vulnerability of children and subadults (≤18 years of age) in any given population, especially relative to their risk for morbidity and mortality from infectious disease, trauma, and malnutrition (Toole and Waldman 1990). However, it is also due to their relatively greater vulnerability to direct violence, whether nondeliberate exposure to violence in their communities or deliberate exposure to violence, such as rape, torture, and killing for the purposes of demoralizing their communities, or genocide (Krug et al. 2002). This violence spreads far past isolated violent events, as many children are indoctrinated to become child soldiers, child sex slaves, or the "wives" of soldiers in the conflict (Krug et al. 2002).

Armed conflict in past populations likely had somewhat similar effects on the health of civilians, including children. However, in most historical contexts, there is little documentation of any such dynamic, in part because of the complexities associated with identifying civilian deaths indirectly or directly associated with armed conflict (Roberts 2010). For the prehistoric period, researchers must rely upon archeological, skeletal, and to a limited extent, ethnographic data for identifying the effects of armed conflict on civilian health (see Walker 2001:574). However, it can be difficult to distinguish noncombatants from combatants in some contexts. This is especially true in cultural contexts where informal conflict, such as raiding, could make temporary combatants out of many community members (Kleffner 2007), or where "third" or "fourth" gender "women warriors" may have existed (Hollimon 2015). This means that many individuals, such as women or the elderly—and the skeletons that they leave behind in the archaeological record—cannot be de facto excluded as combatants in many settings.

Here, we propose the application of a modified public health and human rights tool to the bioarchaeological record for assessing some of the biosocial costs of armed conflict on civilians, particularly for children. While many adults (≥18 years) may have been combatants, and even older subadult (≥c. 5 years) individuals may have filled this role, such as in the instance of child soldiers, in various contexts in the past, younger subadults—under the age of approximately five—are highly unlikely to have done so. Simultaneously, they also constitute the subpopulation most likely to have borne the brunt of harm from armed conflict. With a focus on children, we propose the use of a modified "Dirty War Index." The DWI is a data-driven public health and human rights tool based on contemporary laws of war that is used for systematically identifying rates of particularly undesirable or prohibited, i.e., "dirty," outcomes inflicted on civilian populations during armed conflict (Hicks and Spagat 2008). These outcomes are diverse, including injuries to civilians (vs. combatants), mortality to civilians; torture, mutilation, summary execution, or rape of civilians; child mortality or injury; and elderly civilian mortality or injury, among other variables (see Tables 9.1 and 9.2). Importantly, they are also based on

Table 9.1 DWIs suggested for measuring rates of undesirable or prohibited outcomes from aggression in armed conflict (adapted from Hicks and Spagat 2008)

DWI	Pertinent laws of war	Example DWI calculations (Numerator/Denominator) × 100
Mortality to civilians versus combatants	Fourth Geneva Convention and APs I & II.	No. civilians killed/Total no. civilians and combatants killed
Injuries to civilians versus combatants	As above	No. civilians injured/Total no. civilians and combatants injured
Lethality to civilians	As above	No. civilians killed by weapon(s)/Total no. civilians killed or injured by weapon(s)
Torture of civilians or combatants	Prohibited by Fourth Geneva Convention (re: civilians), APs I & II.	No. captured combatants tortured/Total no. captured combatants
Rape of civilians or combatants	As above	No. raped by combatant group/Total no. having face-to-face contact with combatant group
Sexual humiliation or indecent assault of civilians or combatants	As above	No. captured civilians/combatants sexually assaulted or humiliated/Total no. captured civilians/combatants
Mutilation of civilians or combatants	As above	No. mutilated by combatant group/Total no. having face-to-face contact with combatant group
Kidnapping or hostage-taking	As above	No. kidnapped/Total relevant population
Disappearances	As above	No. households with disappeared member/Total no. households
Summary execution of captured prisoners	Third & Fourth Geneva Conventions and Aps I & II.	No. captured combatants executed/Total no. captured combatants
Terrorist attacks	Prohibited by Fourth Geneva Convention, APs I & II.	No. terrorist attacks/Total no. attacks
Assassination of civilian leaders (e.g., union leaders, mayors, teachers, religious leaders)	As above	No. civilian leaders killed/Total no. civilian leaders
Attacks on medical and religious personnel and on medical units	Prohibited by the four Geneva Conventions, Aps I & II.	No. attacked personnel and units/Total no. personnel and units

(continued)

Table 9.1 (continued)

DWI	Pertinent laws of war	Example DWI calculations (Numerator/Denominator) × 100
Use of particularly undesirable (e.g., indiscriminate) weapons or prohibited weapons	AP I prohibits weapons of a nature to cause superfluous injury or unnecessary suffering [48]; Convention on the Use of Certain Conventional Weapons; Protocol I, II, & III to the Convention on Conventional Weapons; 1925 Geneva Protocol; 1972 Convention; 1997 Ottawa Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on their Destruction [5]; 2008 Dublin Convention on Cluster Munitions.	No. child deaths from a weapon type/Total no. deaths from the weapon type; or No. casualties from a prohibited weapon/Total no. casualties
Suicide bombers disguised as civilians	AP I	No. casualties by disguised suicide bombs/Total no. casualties
Child mortality or injury	Third and Fourth Geneva Conventions and Aps I & II	No. child casualties/Total no. casualties
Female civilian mortality or injury	Fourth Geneva Convention and APs I & II	No. female civilians killed or injured/Total no. all adults killed or injured
Elderly civilian mortality or injury	Elderly civilians may be vulnerable. High rates of direct elderly civilian mortality suggest indiscriminate warfare or targeting; both prohibited	No. elderly civilians killed or injured/Total no. all civilians killed or injured
Violence to noncombatant indigenous groups	Can be a targeted or vulnerable group in conflict	No. indigenous group member casualties/Total indigenous population

contemporary laws of war, specifically the Geneva Convention and International Humanitarian Law (International Committee of the Red Cross 2016). Conceptions of what counts as undesirable, prohibited, and "dirty" during armed conflict are flexible and highly culturally contingent (Farrell 2005), but the DWI index is highly flexible and modifiable. The outcomes listed by Hicks and Spagat are merely "suggested": any outcome that archaeological, historical, or ethnographic evidence indicates would have been considered undesirable, prohibited, or "dirty" in a given culture, time period, or armed conflict can be added as an outcome, and a specialized DWI can be calculated for that particular conflict. Importantly, the DWI is also extremely straightforward to use, facilitating interdisciplinary communication and the comparability of results from various armed conflicts across time, space, and researchers.

Here, we describe the DWI and how it is calculated, and discuss critiques that have been raised against the DWI. We also present two case studies, both based on

Table 9.2 DWIs suggested for measuring rates of unacceptable endangerment in armed conflict (adapted from Hicks and Spagat 2008)

DWIs	Pertinent laws of war	Example DWI calculations (Numerator/Denominator) × 100
Use of child soldiers	APs I & II; 1989 Convention on the Rights of the Child; 1990 African Charter on the Rights and Welfare of the Child; 1998 Rome Statute of the International Criminal Court; Optional Protocol to the Convention on the Rights of the Child	No. child combatants/Total no. child and adult combatants
Use of human shields	Prohibited by AP I	No. events using human shields/Total no. events
Initiating weapons fire from among civilians	AP I	No. events where combatant group attacks from among civilians/Total no. attacks
Locating headquarter or weapons storage among civilians	AP I	No. military sites located among civilians/Total no. military sites; or No. households near military sites/Total no. households
Combatants taking civilian appearance during military operations (not wearing uniforms)	AP I	No. combat events where combatants do not wear uniforms or distinguishing marks/Total no. combat events
Combatants disguised as humanitarian, peacekeeping, or medical workers	AP I	No. of events of disguise/Total no. events
Leaving landmines or UXO	Protocol V to the Convention on Conventional Weapons and Explosive Remnants of War; 1997 Ottawa Convention; 2008 Dublin Convention on Cluster Munitions	Meters-squared of land with UXO/Total meters-squared of land; or No. households with landmine injury/Total no. households
Destroying infrastructure essential for civilian survival (e.g., food, water sources, hospitals)	Prohibited by Fourth Geneva Convention, APs I & II	No. households with destroyed food source/total no. households

our reevaluation of established data, in which we generate and interpret novel DWIs to understand how the insights generated by DWIs on the biological costs of war for civilians, specifically children, compare to those generated through epidemiological and biocultural analyses. The first focuses on civilian deaths in a present-day conflict, the Syrian Civil War (2011–ongoing). The second case study focuses on the biological costs of a past conflict, the nineteenth-century Mountain Meadows

Massacre, to demonstrate how a modified DWI can be applied to the bioarchaeological record. We also explore several of the material, methodological, and theoretical issues that are involved in calculating, interpreting, and applying the DWI in bioarchaeology and paleopathology.

Background

The Biological Costs of War for Civilians

While humans have engaged in armed conflict for thousands of years, with attendant costs for combatants and civilians, attempts to document these effects only began in the modern era. International attention to mortality and morbidity suffered by combatants started in the mid-nineteenth century during the second war of Italian independence, leading to eventual establishment of the Geneva Conventions and the International Red Cross (Bennett 2013). Public attention to combatant health during conflict greatly expanded during the large-scale internation and intra-nation wars of the twentieth century, which also marked the first attention to the effects of conflict on civilian health. However, until the 1950s and 1960s, large-scale civilian casualties, such as from aerial bombardment, were often treated by political and military leaders as unfortunate but often unavoidable collateral damage (Muggah 2011). Public, military, and political attitudes towards civilian morbidity and mortality during conflict only really profoundly shifted at the end of the Cold War, due in large part to the growing influence of global media coverage. Since the 1990s, awareness of the causes and effects of armed conflict, especially for civilian health, has increased dramatically, and numerous researchers the globe now track the incidence of mortality and morbidity experienced by civilian populations affected by conflict (Muggah 2011).

The methods employed by these researchers span a fairly broad spectrum, with substantial controversy revolving around which are most appropriate for counting "conflict deaths" (Taback 2008; Hoover et al. 2009; Spagat et al. 2009; Wikipedia 2010). However, they can be roughly divided into two categories (Muggah 2011). The first category consists of probabilistic sampling and survey-based approaches, which are employed in epidemiology and other public health fields. These approaches rely upon retrospective and prospective surveys, typically through randomly sampled households, to obtain basic data on family size, adult and child mortality rates, and causes of death relative to conflict. The second is incident reporting, which is typically employed by social scientists, and which documents incidents of death, injury, and other outcomes from armed conflict through official data, authoritative media reports, independent studies, morgues, hospitals, clinics, and a variety of other nongovernmental agency sources. These data can be affected by selection biases, missing data can distort findings, and censorship can cause underreporting of outcomes, among other issues, but incident reporting offers critical insights that can be missed by surveys (Muggah 2011). Here, we focus on one approach employed in incident reporting, the Dirty War Index.

$$DWI = \frac{\text{Number of ``dirty,'' i.e. undesirable or prohibited cases}}{\text{Total number of cases}} \times 100$$

Fig. 9.1 The Dirty War Index (adapted from Hicks and Spagat 2008)

The Dirty War Index

The DWI is an extremely flexible tool for measuring the rates of undesirable outcomes from a variety of methods employed by combatants in a given armed conflict. The outcomes originally proposed by Hicks and Spagat (2008) are diverse, but none are mandatory: a DWI can be calculated for any given outcome deemed undesirable, prohibited, or "dirty" for a given conflict. Those proposed by Hicks and Spagat are those deemed as undesirable or prohibited (Table 9.1) and those that are unacceptable (Table 9.2) by contemporary international humanitarian law. DWIs can measure rates of undesirable outcomes from legally accepted methods, such as aerial bombing of military targets, as well as rates of outcomes from prohibited, illegitimate methods, such as torture, or rates of outcomes from the application of illegitimate methods to especially vulnerable populations, such as torturing children, to describing rates of exceptional atrocity (Hicks and Spagat 2008:1659). Importantly, as Hicks and Spagat (2008:1659) emphasize, applying DWI analysis to a given combatant group does not label them as "dirty"; the ratio only identifies whether and how often a given group has been associated with a particular undesirable outcome.

Calculating the Dirty War Index

The DWI for a given armed conflict is based on a range of potential outcomes. After choosing a particular outcome to be measured, such as those presented in Tables 9.1 and 9.2, a DWI is calculated following the equation shown in Fig. 9.1:

Because they are ratios, DWIs for any given outcome complement the absolute numbers of fatalities, instances of torture, rapes, or other outcomes. This enables comparisons of armed conflicts, weapons, and even warring combatant groups across time and space (Hicks and Spagat 2008:1658). By facilitating straightforward and systematic comparisons between a number of variables related to armed conflicts, DWIs can be used to detect and analyze how combatants engage in armed conflict, and the effect of these actions on civilians, which can be used to better hold military and political leaders accountable for harm done.

DWI values fall on a spectrum. For a given armed conflict, the ideal DWI is 0, which signifies that there was no measurable rate of a given undesirable outcome. The highest DWI value for a given outcome is 100, which indicates that the undesirable outcome was identified in every single case measured (Hicks and Spagat 2008:1659). While any value higher than 0 is arguably a negative outcome, and a high DWI indicates that atrocities may have been involved, the interpretive value of

the DWI generated depends on the outcome. Specifically, whether the outcome is undesirable under international humanitarian law, or more severely, whether it is illegitimate or prohibited. This is because, in contemporary contexts, the highly undesirable outcome of civilian harm (e.g., collateral damage) is not prohibited by the laws of war if combatants engage in all feasible efforts to prevent such harm, such as distinguishing between civilian and military targets, if they minimize incidental harm to civilians, and if they intend to avoid causing harm to civilians in disproportionate excess of the military objectives that are anticipated (Hicks and Spagat 2008:1659). Additionally, harm to civilians must also be weighed against the "military necessity" of these objectives (Slim 2007; Hicks and Spagat 2008:1663), although interpretations of what is feasible, necessary, and disproportionate are highly contingent and subjective (Walzer 1977; Schmitt 2005; Slim 2007; Hicks and Spagat 2008:1663).

Calculation and analysis of DWIs for a given armed conflict can employ a variety of available data sources. In the modern era, these range from media reports to epidemiological surveys, coroner's reports, and hospital records, so long as the employed data are deemed adequately valid, accurate, and comprehensive as possible (Hicks and Spagat 2008:1661), though the quality of data on mortality and morbidity during armed conflict for civilians is highly variable (Working Group for Mortality Estimation in Emergencies 2008). Additionally, DWI analysis can be applied to a variety of phases of conflicts, from event-based data relevant to one particular raid, to aggregated data covering an entire war. Quantitative data on outcomes must also be balanced and integrated with qualitative data on the characteristics and context of a given armed conflict in order to apply and interpret the DWI values (Hicks and Spagat 2008:1661). This can be used to make sure that the "dirtiness" or "cleanness" of a given armed conflict is considered in as contingent, relativistic, and objective a manner as possible.

Issues Involved in the Use of the Dirty War Index

A number of issues surround the use of the Dirty War Index for calculating and interpreting the harm done to civilians in a given armed conflict. Some of these are specific to the Dirty War Index, others are common to the data and methods involved in incident reporting. One is that DWIs reflect local conditions, such as the proportion of children in a given population, which will influence the probability of their death or injury. However, to maintain comparability, and because combatants should be acquainted with local conditions and adjust for them to reduce civilian harm—and have a moral imperative to do so—Hicks and Spagat argue that the DWI should not be adjusted to incorporate these factors. Relative to moral issues, the DWI focuses on the morality of the practice of war—and its outcomes—not the morality of the justification of war, as the moral issue of justification of conflict is contingent, contestable, and can be used to legitimize a range of practices (Walzer 1977; Grossman 1995; Bugnion 2002; Appy 2006; Kalyvas 2006; Slim 2007; Hicks and

Spagat 2008). This focus on the morality of practical outcomes and cross-cultural comparisons of the "dirtiness" of conflicts, is premised on the existence of universal moral standards or precepts of humanity, which are provided in the twentieth and twenty-first centuries by international humanitarian law. Critically though, such universal precepts did not exist for premodern societies. The implications of this for bioarchaeological applications of the DWI are discussed below.

A variety of statistical issues are involved in calculation and interpretation of the DWI for a given conflict. These include selection biases related to the type of data employed, missing data, and the sampling bias of under- and overreporting (Taback 2008; Hoover et al. 2009). For the DWI, the potential selection biases relate to the use of secondary data sources, rather than uniformly primary ones, for incident reporting. As secondary sources employ different criteria than primary sources, selection biases can occur: civilian harm from armed conflict in a given sample is not representative of the harm experienced by the affected population as a whole, potentially leading to an inaccurate and non-generalizable DWI (Taback 2008). Data may also be missing for a particular civilian community or conflict event, though this can be accommodated through statistical adjustments and sensitivity analyses. Lastly, under- and overreporting is common in both primary and secondary sources on civilian harm, including mortality (Taback 2008), but particularly for highly stigmatized events like rape, torture, and sexual humiliation, creating potentially profound sampling biases for the DWI (Hoover et al. 2009). While Hicks and Spagat (2008) argue that over- and underreporting rates are likely comparable for similar events across conflicts, Taback and Hoover and colleagues argue that under- and overreporting rates are highly variable, leading to inaccurate, biased, and non-comparable DWIs for these outcomes. However, as Hicks and Spagat (2008) emphasize, although underreporting may affect DWI values, the use of ratios means that DWIs are relatively less affected by underreporting or overreporting than are absolute numbers. Importantly, as we discuss below, while these issues affect the accuracy of DWIs calculated for some modern armed conflicts, they are arguably less relevant for those in the past because of the nature of the biases inherent to archaeologically derived skeletal data.

Applications of the Dirty War Index to Modern Armed Conflict

The Syrian Civil War (2011–Ongoing)

To demonstrate the calculation and interpretation of the DWI for armed conflict and its effects on civilians, particularly children, we briefly apply the DWI to a contemporary conflict, the Syrian Civil War. The war, which started as a peaceful uprising in 2011 and quickly escalated to a highly complex armed conflict, has been devastating for civilians, with, as of 2016, more than 470,000 fatalities, and the internal

and external displacement of more than 11 million refugees, more than 45 % of Syria's prewar population (Rodgers et al. 2016; Syrian Centre for Policy Research 2016). By 2012, violent deaths directly caused by armed conflict emerged as the leading cause of death for Syrians (Guha-Sapir et al. 2015; World Health Organization 2015b), but displacement, poor sanitation, and severe disruptions to Syria's health care system have increased deaths indirectly related to the conflict (World Health Organization 2014, 2015a; Baker and Brown 2015). Accurate reports of violent deaths are very hard to generate in general and for this conflict in particular, as epidemiological population surveys can provide estimates of these deaths but are hindered by small sample sizes and a wide range of uncertainties (Guha-Sapir et al. 2015). Individual records of deaths and their causes are difficult to obtain from vital statistics systems as these lose functionality or become unreliable during conflict (Working Group for Mortality Estimation in Emergencies 2008; UN Office of the High Commissioner for Human Rights 2015) also tend to represent the minimum number of violent deaths for a given conflict, including the Syrian Civil War (Price et al. 2014).

Guha-Sapir and colleagues (2015) generated an epidemiological analysis of violent deaths, focusing on women and children, from the Syrian Civil War using data on verified individual deaths apply the DWI to the same data to assess the differential interpretations generated by these two different approaches. The data on verifiable and identifiable deaths, which distinguishes civilian from combatant (i.e. non-state armed groups (NSAG), Syrian Army members) deaths, comes from the Violations Documentation Center in Syria (VDC). This yields 78,769 civilian deaths from March 18th 2011 to January 21st 2015; of these nearly 25 % were of women and children. Focusing on the proportion of children's deaths, and breaking deaths down by region, into those which were controlled by the Syrian Army and those under NSAG control, they found that 16 % of civilian deaths were of children in NSAG-controlled regions, while 23 % were of children in Syrian Army-controlled regions (Guha-Sapir et al. 2015). Child deaths in NSAG regions were primarily (75 % of total) air bombardments and shelling by Army, while no child deaths from bombardments—NSAG forces—were reported in Army-controlled regions, but two-thirds of child deaths were from shelling alone (Guha-Sapir et al. 2015:e2). Importantly, whether it reflects intentional, disproportionate, or indiscriminate actions, this contradicts arguments by NSAG factions and the Syrian Army that bombs and shells are directed at enemy strongholds. Further, in NSAG regions, they found that while (captive) children ($n = 852$) were executed, they were less likely to experience this than were civilian men, but significantly more likely—as were women—to die from chemical (weapon) intoxication than were men. Overall, their findings reveal that while men constitute the largest portion of civilian deaths, children experienced higher odds of death from explosive and chemical weaponry (Guha-Sapir et al. 2015).

Does application of the DWI to the data on deaths generate different findings? Maintaining the regional focus in order to assess undesirable and prohibited outcomes perpetrated by NSAG and the Syrian Army, we selected three outcomes

from Hicks and Spagat's DWI to analyze relative to child civilians: the execution of captured children, child mortality or injury, and child deaths from particularly undesirable or prohibited weapons (i.e. chemical weapons) (Table 9.3). Calculation of the DWI values for these outcomes in the NSAG region yields a DWI of 5.42 for the execution of children, 13.2 for chemical weapons, and 16.1 for child deaths relative to overall civilian deaths. In Syrian Army-controlled regions, the DWI value is 0 for both executions and chemical weapons, but 23.5 for child deaths. While executions of captive children in a given region can largely be attributed to the combatants controlling the region, deaths from chemical weapons and overall mortality, which Guha-Sapir et al. demonstrated comes primarily from shelling and explosives, can generally be attributed to the opposing forces. The DWIs generate a different overall picture of harm to civilian children in the conflict than do the epidemiological findings as they de-sanitize Guha-Sapir and colleagues' categories, and enable direct comparison of the scale of undesirable, "dirty" acts attributable to different combatant groups. While overall child civilian deaths are disproportionately high in Army-controlled regions, which is largely attributable to NSAG combatants, the emphasize that the disproportionately high mortality from arguably more morally unacceptable outcomes—individually targeted execution of children, including execution after torture—and use of chemical weapons against children are only found in the NSAG region. NSAG forces can largely be held responsible for the comparatively lower DWI value for executions, but Army forces must be held accountable for the high number of deaths from chemical weapons, whether these actions were the result of civilian targeting or sheer carelessness. These values demonstrate the moral unacceptability of the Syrian Civil War. They also highlight the differential practice of unacceptable activities between forces and can be directly translated into specific, targeted, and practical guidelines for reducing "dirty" acts and harm to child civilians in this particular conflict. They demonstrate the need for sanction of air bombardment—not just chemical weapons—by both combatant forces, more effective prevention of the use of chemical weapons by the Syrian Army, and increased scrutiny on the use of targeted executions—and torture—of children by NSAG forces.

Potential Applications of the Dirty War Index to Bioarchaeological Skeletal Samples and Data Sets

While developed for public health and human rights reporting of contemporary armed conflicts, we propose that the DWI is extremely well suited to quantitative analysis of harm to civilians, particularly young subadults or children, in the past. Here, we discuss implementation of the DWI in bioarchaeological and paleopathological analysis, as well as potential issues involved in this enterprise, and demonstrate the utility of the DWI through a case study of the nineteenth-century Mountain Meadows Massacre, employing established data.

Table 9.3 DWIs suggested for measuring rates of undesirable or prohibited outcomes from aggression in the Syrian Civil War (2011–ongoing)

DWI	Pertinent laws of war	Example DWI calculations (Numerator/Denominator) × 100	Calculation of Syrian conflict NSAG zones
Summary execution of captured children	Third & Fourth Geneva Conventions and Aps I & II	No. children executed/Total no. executed	852/15,730 × 100 = 5.42
Use of particularly undesirable (e.g., indiscriminate) weapons or prohibited weapons	AP I prohibits weapons of a nature to cause superfluous injury or unnecessary suffering [48]; Convention on the Use of Certain Conventional Weapons; Protocol I, II, & III to the Convention on Conventional Weapons; 1925 Geneva Protocol; 1972 Convention; 1997 Ottawa Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on their Destruction [5]; 2008 Dublin Convention on Cluster Munitions.	No. child deaths from a weapon type/Total no. deaths from the weapon type; or No. casualties from a prohibited weapon/Total no. casualties	No. of child deaths by chemical weapons/Total deaths by chemical weapons 128/969 × 100 = 13.2
Child mortality or injury	Third and Fourth Geneva Conventions and Aps I & II	No. child casualties/Total no. civilian casualties	12,484/77,647 × 100 = 16.1
DWI	*Pertinent laws of war*	*Example DWI calculations (Numerator/Denominator) × 100*	*Calculation of Syrian conflict government zones*
Summary execution of captured children	Third & Fourth Geneva Conventions and Aps I & II	No. children executed/Total no. executed	0/20 × 100 = 0

(continued)

Table 9.3 (continued)

DWI	Pertinent laws of war	Example DWI calculations (Numerator/Denominator) × 100	Calculation of Syrian conflict NSAG zones
Use of particularly undesirable (e.g., indiscriminate) weapons or prohibited weapons	AP I prohibits weapons of a nature to cause superfluous injury or unnecessary suffering [48]; Convention on the Use of Certain Conventional Weapons; Protocol I, II, & III to the Convention on Conventional Weapons; 1925 Geneva Protocol; 1972 Convention; 1997 Ottawa Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on their Destruction [5]; 2008 Dublin Convention on Cluster Munitions.	No. child deaths from a weapon type/Total no. deaths from the weapon type; or No. casualties from a prohibited weapon/Total no. casualties	No. of child deaths by chemical weapons/Total deaths by chemical weapons $0/0 \times 100 = 0$
Child mortality or injury	Third and Fourth Geneva Conventions and Aps I & II	No. child casualties/Total no. civilian casualties	$269/1143 \times 100 = 23.5$

Assessing Harm to Civilian Children in the Past

While the DWI is useful for calculating and interpreting harm against diverse types of civilians, from children to females, the elderly, and indigenous groups, within bioarchaeology, as mentioned above, it may be applied with the greatest accuracy to young subadults ($\geq$ c. 5 years of age), who are highly unlikely to have been combatants, yet highly likely to have been negatively affected by conflict. Subadults have been relatively neglected within bioarchaeological and paleopathological analyses up until recently, but empirical analyses of their health, lifeways, social identities, and economical and social roles within past populations have increased in number and scope over the past decade (Halcrow and Tayles 2008, 2011; Lewis 2007).

However, a number of material, methodological, and theoretical issues continue to complicate analyses of subadults in the past. Material issues include those such as the lesser degree of preservation and recovery of subadult skeletons from the archaeological record relative to adults (Bello et al. 2006; Chamberlain 2006; Halcrow and Tayles 2011; Milner et al. 2008). Methodological issues include persistent difficulties in estimating the sex of subadults (Akhlaghi et al. 2014; Blake 2011; Franklin et al. 2007; Mittler and Sheridan 1992; Sutter 2003). Theoretical issues include comprehension of and accommodation of selective mortality, the idea that skeletal samples are biased representations of original, once living populations (Wood et al. 1992; DeWitte and Stojanowski 2015). They also include estimation of the differential susceptibility of subadults to disease, stressors, and risk of death (i.e., heterogeneity in frailty) (see Bennike et al. 2005; Littleton 2011) relative to adults. In particular, these issues can complicate the estimation of demographic profiles for a given skeletal sample, including the mortality profiles of subadults—and subadults relative to adults. In paleoepidemiological analyses, they can complicate estimation of the frequencies of pathological conditions, including skeletal and oral markers of systemic stress and growth arrest and traumatic injuries. Cumulatively, these issues can also complicate estimations of how these profiles and frequencies reflect those present in the original living population from which the skeletal samples were derived (see DeWitte and Stojanowski 2015 for a review).

The most germane of these issues to calculating and interpreting DWI values for past conflicts are those of selective mortality and heterogeneity in frailty. In part, this is because the accuracy of DWIs can potentially vary based on the use of primary vs. secondary data due to the potential for under- or overreporting of cases and consequent sampling bias. Synergistically, it is also because of the variability inherent to skeletal samples in how representative they are of once living populations. As noted above, the use of secondary sources in the calculation of DWIs for modern conflicts leads to selection bias: the harm experienced by civilians in the sample does not reflect that of the whole civilian population (Taback 2008). In the same way, while Hicks and Spagat note that some outcomes, like rape, are underreported (Coupland and Meddings 1999) while others are overreported, they argue that ratios are less susceptible to this potential bias, that reporting rates are likely comparable across conflicts, and that this does not bias the comparison of rates between groups (but see Hoover et al. 2009). These same methodological and theoretical issues, and the biases that they may generate, are reflected in the effects of selective mortality and heterogeneity in frailty for skeletal samples. While skeletal samples are direct, rather than secondary sources of information about human biology and lived experience in the past, they do not represent the entire once living population but instead a typically nonrandom subsample of it (Wood et al. 1992). Applied to the effects of armed conflict, the result is that features of skeletal samples, such as subadult mortality rates and frequencies of traumatic injuries or evidence of perimortem mutilation, may not represent the same rates and frequencies found in the once living population. This is especially true for subadults recovered from mass-graves resulting from armed conflicts. These two features are active areas of bioarchaeological, paleoepidemiological, and paleodemographic scholarship focused on better

comprehending relationships between early life stress, survival, and mortality (e.g., Cucina 2011) few works have examined relationships between the profiles and prevalence of mortality and injury from armed conflict reflected in a skeletal sample and that experienced by the once living population. This potentially paradoxical relationship is perhaps simplified in samples from sites where there were likely no survivors of a given conflict, leading to a representative assemblage, but complicated in contexts where survivors likely existed, such as the prehistoric massacre assemblage of Crow Creek in South Dakota (Willey and Emerson 1993), or the extreme processing event represented by the prehispanic Sacred Ridge site in Colorado (Osterholtz 2012). Modified versions of multistate models that assess relationships between variables such as sex, age, social status, and mortality (see DeWitte 2010; Redfern and DeWitte 2011) may be useful for empirically addressing relationships between rates and frequencies of mortality and traumatic injury from armed conflict evident in subadults in the archaeological record, and those of their overall once living population. Additionally, as we demonstrate below, using multiple lines of evidence, namely historical, ethnographic, and archaeological data, to assess the representativeness of a given skeletal sample—and the DWIs it generates—to the original living population affected by the armed conflict, can be used to address issues of selective mortality, hidden heterogeneity of frailty relative to trauma, and the accuracy of DWIs generated for a given armed conflict in the past (see Saunders et al. 1995 for a demonstration of this type of approach).

Three final issues, one methodological, one material, and one theoretical, are also relevant to the calculation and interpretation of DWIs in bioarchaeology and paleopathology. Methodologically, one of the primary merits of applying a DWI to the archaeological record is that it directly facilitates comparison of the outcomes of conflicts across time and space. Comparability, as with many aspects of research in osteology, can be hindered by the methods employed by different researchers. A lack of transparency about methods used to generate the minimum number of individuals (MNI) for a given site, for instance, reduce the accuracy of the denominator needed to calculate a DWI for a given outcome. Also, opacity in regard to aging methods for subadults, or sex and age if adults are included, as well as in the criteria used to identify different types of traumatic skeletal lesions greatly interfere with the accuracy of the DWI in bioarchaeological and paleopathological analysis. This potentially generate selection and sampling biases. However, recent improvements in the standardization of skeletal data collection (e.g., Buikstra and Ubelaker 1994), including for subadult remains (e.g., Baker et al. 2005), as well as for the identification and interpretation of trauma (e.g., Ortner 2003), are making great strides in the comparability of osteological data. Researchers employing the DWI to compare skeletal samples relating to different armed conflicts should consider striving to attain methodological consistency, even if it requires independent reevaluation of the material using a consistent set of methods. Materially, a number of the outcomes listed by Hicks and Spagat (2008), all based on international humanitarian law, are likely largely archaeologically invisible, like rape, sexual humiliation, or the use of civilians as human shields. Because of this, many of Hicks and Spagat's suggested outcomes are not suitable for bioarchaeological and paleopathological applications.

However, this does not limit the use of the DWI; as we note above and demonstrate below, DWIs can be generated for any outcome deemed undesirable, prohibited, or unacceptable in a given cultural context the potency of the approach for bioarchaeology and paleopathology is focused and strengthened—not attenuated—by employing outcomes that are skeletally, archaeologically, ethnographically, and/ or historically identifiable, such as scalping, exposure of bodies to the elements after death, or execution. Lastly, and in complement, the theoretical issue is that international humanitarian laws—and what they deem "dirty"—are a contemporary phenomenon, and are not applicable to armed conflict in diverse contexts in the past. However, again rather than limiting the analytical power of the DWI for bioarchaeology and paleopathology, as we demonstrate below, the method's flexibility means that values can be generated for whichever acts met equivalent moral criteria in past societies, whether the torture of children or the removal of appendages as trophies.

Case Study: Bioarchaeological Applications of the DWI

The Mountain Meadows Massacre

Background

The Mountain Meadows Massacre, a mid-nineteenth century armed conflict, serves as our bioarchaeological case study for the DWI because of its excellent documentation through archaeological, skeletal, historical, and ethnographic evidence. Additionally, as the subject of several historical works and biocultural bioarchaeological analyses, it can be used to highlight the unique insights that the DWI can generate into the scope and extent of civilian harm from armed conflict, particularly for children. It can also be used to higlight the issues involved in the application and interpretation of this tool. The Mountain Meadows Massacre constituted a series of armed attacks on the Baker–Fancher emigrant wagon train at Mountain Meadows, in Southern Utah, in 1857. Evidence of these events comes largely from accounts provided by survivors and combatants who were interviewed during the course of investigations into the attack during the late 1850s–1870s. The wagon train, composed of approximately 137 emigrants travelling from Arkansas to California, was attacked over the course of several days (September 7th to 11th 1857), culminating in the massacre of most of the party on the 11th. The attacking combatants were members of the Utah Territorial Militia (i.e., Nauvoo Legion), which was composed of Mormon settlers, and were accompanied by their allies, several members of the Paiute nation. Identification of the combatants at the time of the massacre was complicated by admissions from the militia members that they disguised themselves as Native Americans in order to generate the appearance of indigenous aggression (Bigler 1998:169). The party was besieged for several days, but surrendered on the 11th with the understanding that, low on resources, the

immigrants would sacrifice much of their property to the combatants but be escorted to Cedar City for protection (Novak and Kopp 2003:86). The combatants escorted the immigrants from their camp, dividing them into categories of civilians—men, women and older children (7 years of age and above), and children younger than 7. However, fearful that their true identities as militia members—vs. Native Americans—had been discovered by members of the immigrant party, the combatants attacked the civilians. The men were killed with small weapons fire while the women and older children were bludgeoned to death; the younger children, approximately 17 in number, were deemed too young to provide accurate accounts of the event and were spared. They were subsequently placed with local families (Novak and Kopp 2003). The combatants hastily buried the civilian casualties in shallow graves, leaving them largely exposed to the elements and scavengers, and either claimed or later auctioned off many of the party's possessions remains were reburied 18 months after the conflict by a U.S. Army division (Novak and Kopp 2003).

The motivations for the massacre and the identity of the combatants responsible for the 120 civilian deaths remain controversial (Novak 2008). However, a series of osteological and historical analyses focused on a subset ($n = 28$) of individuals killed in the conflict (Novak and Kopp 2003; Novak 2008) strongly indicate that it involved acts that, following contemporary cultural and moral standards on the desirability, legitimacy, and acceptability of outcomes in armed conflict (Novak and Kopp 2003; Novak 2008), were conceptualized as "dirty" by the combatants, the civilian victims, and their surrounding society. This and the involvement of young children make the conflict highly amenable to analysis using the DWI.

Materials and Methods

A historical bioarchaeological approach is critical for examining the diverse evidence surrounding the armed conflicts that constituted the Mountain Meadows Massacre. Skeletal remains from casualties of the conflict can yield insights into demographic profiles of the dead and the type of weapons employed, based on types and patterns of antemortem trauma (Martin and Frayer 1997). However, the relatively small number of individuals represented by the remains compared to the recorded total fatalities creates a clear potential for sampling biases (Novak 2008:59). Instead, integration of indirect historical data, direct archaeological data, and direct biological data from the skeletal evidence, and interrogation of these lines of evidence against each other–as Novak (2008) performed–can generate far greater information than the independent analysis of just one of these types of data (Swedlund and Herring 2003). This is particularly true for applying the DWI to the Mountain Meadows Massacre. This is because an accurate denominator is needed for calculation of the DWI for a given outcome; this means that historical, archaeological, and skeletal data must be brought into play to generate accurate denominators for the number of civilians in the immigrant party and the number ultimately

killed during the armed conflicts which constituted the massacre. Additionally, integration and interrogation of historical and, when available, ethnographic data is critical for identifying which outcomes of a given armed conflict would have been considered to be undesirable, illegitimate, unacceptable, and "dirty" in a given cultural context, which is the core of the DWI as a human rights tool.

Generating an accurate DWI requires accurate reporting of the denominator representing the total number of cases in the affected population, such as the number of casualties, as well as the total number of cases representing a particular outcome, such as the number of child casualties (see Table 9.1). As discussed above, under- and overreporting are particularly common for contemporary armed conflict. When the DWI is applied to the archaeological record, particularly when it used to compare "dirty" outcomes across conflicts, this requires methodological and analytical estimation of and accommodation for the degree of sampling bias present in the skeletal sample(s) representing a given armed conflict. This is facilitated by archaeological and historical and/or ethnographic data on the number, portion, and type of combatants and civilians present in the sample vs. the original living population. The DWIs that we calculated for the Mountain Meadows Massacre using established data are presented in Tables 9.4 and 9.5. To unpack issues of sampling bias, we calculated DWIs based on combined archaeological, historical, skeletal, and ethnographic data from the Mountain Meadows Massacre (Table 9.4), and, separately, based on skeletal data for the subsample of available skeletons from the site ($n = 28$). The skeletal sample, analyzed by Novak and Kopp (2003), comprises 2600 bone fragments which represent at least 28 of the victims of the massacre. Importantly, Novak and Kopp (2003:102) state that while this number represents "less than one quarter of the number reported killed, the demographic profile of the [skeletal sample] appears to be a representative sample of the Baker-Fancher company." Calculating a separate DWI for this skeletal sample relative to the combined data enables a second, independent test of this finding. For both data sets, we included a DWI, child mortality, to maintain our focus on child civilians, but also included female civilian mortality, elderly civilian mortality, and the practice of leaving the dead unburied, as these outcomes could be ascertained and quantified from the available data and were considered to be unacceptable following contemporary mores. As humanitarian law from the twentieth and twenty-first centuries is not applicable to a mid-nineteenth century American armed conflict, we provide pertinent contemporary norms for armed conflict and mortuary protocols. These were deeply anchored in Christian biblical law, Christian mores, and Victorian mortuary norms in the mid-nineteenth century (Reus-Smit 1999: 94) (Tables 9.4 and 9.5).

Data for calculating the DWIs in Tables 9.4 and 9.5 all generated from established data. Data on mortality (child, women, civilian) generated from the historical and ethnographic evidence, including accounts from survivors and combatants, genealogical data, and US Census data, compiled by Novak (2008), as well as skeletal data, presented by Novak and Kopp (2003) and Novak (2008). Here, we define civilians as women in the historical data, and as female skeletons in the skeletal data, as women were generally not conceptualized as potential combatants

Table 9.4 DWIs suggested for measuring rates of undesirable or prohibited outcomes from aggression in armed conflict in the Mountain Meadows Massacre based on combined data

DWI	Pertinent norms of time period	Example DWI Calculations (Numerator/Denominator) × 100	Mountain Meadows calculation
Mortality to civilians versus combatants	Biblical Law (Exodus 20:13, Romans 13:9 KJV) Biblical Reference to evils of killing innocents (Proverbs 6:16–17 KJV)	No. civilians killed/Total no. civilians and combatants killed	31/120 × 100 = 25.83
Kidnapping or hostage-taking	Biblical Law (Exodus 21:16, Deuteronomy 24:7 KJV)	No. kidnapped/Total relevant population	125/137 × 100 = 91.24
Summary execution of captured individuals	Biblical Law (Exodus 20:13, Romans 13:9 KJV) Biblical Reference to evils of killing innocents (Proverbs 6:16–17 KJV)	No. captured individuals executed/Total no. captured individuals	108/125 × 100 = 86.40
Child mortality	Biblical Law (Exodus 20:13, Romans 13:9 KJV) Biblical References to evils of killing innocents (Proverbs 6:16–17 KJV)	No. children killed/Total no. killed	1/120 × 100 = 0.83
Female civilian mortality	Biblical Law (Exodus 20:13, Romans 13:9 KJV)	No. females killed/Total no. all adults killed	30/119 × 100 = 25.21
Elderly civilian mortality	Biblical Law (Exodus 20:13, Romans 13:9 KJV)	No. elderly (50+) civilians killed/Total no. all civilians killed	3/120 × 100 = 2.50
Leaving Dead Unburied	Victorian and Emigrant importance of burial and remembrance (Novak 2008; 148–151)	No. dead left unburied/Total no. all civilians killed	120/120 × 100 = 100

KJV King James Version

following contemporary norms (Smith-Rosenberg and Rosenberg 1973:337–8) Civilians are also defined as children under the age of 5 in both skeletal and historical data. In the skeletal and historical data, deaths of females and women respectively were considered relative to deaths of all adults, making no attempt to distinguish whether some women acted as (defensive) combatants, as this could not be distinguished from the available evidence. Hostages are defined as those taken hostage or kidnapped by combatants, and summary execution as those killed while hostages, following historical and ethnographic data. For child mortality, in both skeletal and historical data, children were defined as those under 5 years of age. Following historical and ethnographic data, children over that age, approximately 7 and older, were considered by the militia combatants to have been viable potential actors

Table 9.5 DWIs suggested for measuring rates of undesirable or prohibited outcomes from aggression in armed conflict in the Mountain Meadows Massacre based on skeletal data

DWI	Pertinent norms of time period	Example DWI calculations (Numerator/Denominator) × 100	Mountain Meadows calculation
Mortality to civilians versus combatants	Biblical Law (Exodus 20:13, Romans 13:9) Biblical Reference to evils of killing innocents (Proverbs 6:16–17 KJV)	No. civilians killed/Total no. civilians and combatants killed	5/28 × 100 = 17.85
Child mortality	Biblical Law (Exodus 20:13, Romans 13:9) Biblical Reference to evils of killing innocents (Proverbs 6:16–17 KJV)	No. children killed/Total no. killed	1/28 × 100 = 3.57
Female civilian mortality	Biblical Law (Exodus 20:13, Romans 13:9)	No. women civilians killed/ Total no. all adults killed	4/28 × 100 = 14.29
Elderly civilian mortality	Biblical Law (Exodus 20:13, Romans 13:9)	No. elderly (50+) civilians killed/Total no. all civilians killed	1/28 × 100 = 3.57
Leaving dead unburied	Victorian and Emigrant importance of burial and remembrance (Novak 2008; 148–151)	No. dead left unburied/Total no. all civilians killed	28/28 × 100 = 100

KJV King James Version

within reprisals. Additionally, historical accounts indicate that some members of the immigrant party had married and begun childbearing by the age of 14 (Novak 2008:48), which is consistent with contemporary nineteenth-century reproductive patterns for lower status women, requiring a very low age cutoff for the category of "child." Elderly was defined as over 50 years of age within the historical data. Leaving the dead unburied was defined as primary deposition of human remains on the surface or in grave shaft less than 1 m deep, following Manhein (1996:469–481), and based on archaeological, ethnographic, and historical data for the Massacre.

Results and Discussion

Overall, the Mountain Meadows Massacre generates several very high DWI values for many of the outcomes measured, both in the combined and skeletal data sets. This is particularly true for two of the outcomes. These are the non-burial or exposure of human remains, which occurred in all cases, yielding a DWI of 100 for both data sets, and the execution of captured individuals, which yielded a DWI of 86.4 in the combined data set. This latter outcome could not be evaluated in the skeletal

data alone. Relative to questions of selection and sampling bias, it is germane to note that both data sets yielded the same DWI. This indicates that the skeletal sample is representative of the larger "population," corroborating Novak and Kopp (2003). Importantly, even without consideration of the value for this outcome in the context of contemporary mores about conflict, this value indicates that the Mountain Meadows Massacre could not have been "dirtier" or more unacceptable in the combatants' treatment of the remains, including those of children. When embedded within the cultural context of mid-nineteenth moral beliefs about the importance of Christian mortuary traditions, the interpretive power of the DWI for analyzing past conflicts is highlighted. Much of the media coverage of the Mountain Meadows Massacre in the mid-1850s and again in the 1870s focused on the lack of culturally appropriate burial for the civilian victims, and less so on the demographics of the victims. For instance, an issue of *Harper's Weekly*, a highly influential nineteenth-century magazine, provided coverage of the event. It characterized the area of the massacre, as reported by the U.S. Army division sent to rebury the remains, as "one too horrible and sickening for language to describe. Human skeletons, disjointed bones, ghastly skulls, and the hair of women were scattered in frightful profusion over a distance of two miles" (NA 1859). This coverage is in part a reflection of the sociopolitical and religious conflicts involved in the armed conflict, debates over which continue to roil (Novak 2008). The combat featured two ethnic groups that were conceptualized as religious and social "outsiders" relative to mainstream society—Mormons, who were at the time a marginal minority community involved in political and armed conflicts with the U.S. Federal government, and Native Americans, who were historically marginalized and politically and economically persecuted (Novak 2008)—perpetrating violence against members of more mainstream American Christian faiths.

The DWIs for several other outcomes, specifically kidnapping or hostage taking, and execution of captured individuals were high, while others, such as child mortality and elderly civilian mortality, were comparably very low. Hostage taking, including child hostages, and execution of hostages could only be evaluated in the combined data set, specifically using historical and ethnographic data. These outcomes yielded DWIs of 91.24 and 86.4, respectively indicate that they occurred for nearly all members of the "population" of the immigrant party only those already dead by the day of the massacre were excluded (Novak 2008:144). These findings suggest an extremely high practice of this culturally unacceptable activity in the conflict. Child mortality yielded a very low DWI, 0.83 in the combined sample and 3.57 in the skeletal. The differing DWIs were produced by a differential denominator: the smaller number of individuals in the skeletal sample amplifies this single death, generating a sampling artifact of a "dirtier" conflict in this evidence type. This provides a more objective counterpoint to some contemporary coverage of the event, which emphasized the "brutal murders" of women and children in the party (e.g., NA 1859). Whereas in fact only one young child was killed, reducing the "dirtiness" of the conflict dramatically. Countering this, children also play a role in the DWI generated for hostage taking, as 17 of them were taken hostage and

ultimately spared by the combatants. This amplifies the unacceptability of this practice within this particular armed conflict; indeed, nineteenth-century media coverage surrounding the event portrayed "children" caught up in the event as "innocents" to emphasize the brutality of the conflict (NA 1859). Notably however, this particularly "dirty" aspect of hostage taking for the massacre is not reflected in the DWI for this outcome. This indicates that more generic DWIs, such as those generated by Hicks and Spagat (2008) and employed here, may need to be further refined for some conflicts, especially for outcomes relating to child civilians.

Many of the other relatively low DWI values for the conflict, namely mortality of women and females (25.2 combined data; 14.2 skeletal data) and the elderly (2.5 combined data; 3.5 skeletal data), as well as civilian mortality (25.8 combined data; 17.8 skeletal data), are low as a result of their small presence within the demographic profile of the immigrant party and because of the nature of the conflict. Historical records indicate that the party was largely composed of young males, with a disproportionately small number of women, children, and the elderly (Novak and Kopp 2003; Novak 2008). For example, all of the women present were killed, yet their DWI is merely 25.21. This is because of the unbalanced distribution of women to men in the population, not because women were spared. This points to a similar analytical weakness within the DWI and indicates the need for a higher resolution of outcomes for a given conflict and complementary changes in the denominator; adjusting the denominator "female civilian mortality" to "all females present" would produce a different, yet arguably more accurate DWI for this outcome for the conflict. Another fairly low DWI value was found for civilian mortality. This low DWI is counterintuitive: as all but 17 small children were killed, the value seems as though it should be higher. The relatively low DWI reflects only the outcomes of the massacre, the mortality from the last day, which is the only conflict evident in the skeletal sample. It also reflects only the mortality of women and children in the historical and ethnographic data and female skeletons and subadult skeletons under the age 5 in the skeletal data, those which we categorized as civilians following contemporary mores and gender norms. It does not include immigrant men and males, who occupy a more ambiguous status as civilians and/or combatants in the defensive situation created by the massacre. While the low DWI therefore reflects the demographics of the immigrant party, it also reduces the "dirtiness" of conflict. This demonstrates the potential for ambiguity within the relatively generic DWI categories proposed by Hicks and Spagat (2008) and the need for more culturally specific outcomes for past conflicts.

Notably, for all of the DWIs, those generated from the skeletal data set are extremely similar to those generated from the combined data set. This corroborates Novak and Kopp's (2003) assertion that the skeletal sample is highly representative of the original living "population" of the immigrant party. It also demonstrates how multiple lines of evidence, including historical, ethnographic, and archaeological, can be brought to bear on assessing the representativeness of a skeletal sample, here representing an armed conflict, to the original living civilian population that experienced the conflict.

Conclusion

The DWI was developed as a public health and human rights tool for evaluating and comparing the incidence of outcomes and actions deemed undesirable, illegitimate, unacceptable, and "dirty" within contemporary armed conflict, particularly given the rise in harm to civilians from internation warfare during the twentieth and twenty-first centuries. Importantly, the DWI does not focus on the moral justifications given for actions in armed conflict and the collateral damage to civilians that these actions so often bring. This is because the moral justification of armed conflict is culturally contingent, highly contestable, and can be used to legitimize and sanitize a great range of different actions, ranging from torture to genocide. Instead, the DWI was developed to evaluate the morality of the practice of war, and do so in an objective, quantitative manner that is highly amenable to comparison between conflicts and, as we show here, across time and space. For these reasons, as we have proposed and demonstrated here, the DWI could be used as a powerful interpretive tool for evaluating and comparing the biological costs of armed conflict, particularly for children, in past conflicts in the archaeological record. Our Mountain Meadows Massacre case study demonstrates the need to estimate and accommodate for selection and sampling biases, as well as the need for culturally specific outcomes for past conflict. It also demonstrates that the DWI represents a powerful tool for evaluating the biological costs of conflict in the past in an empirical and quantitative, yet moral and culturally contingent light, and for evaluating these costs comparatively across conflicts.

Rather than replacing the biocultural approach so well employed by Novak (2008) and Novak and Kopp (2003) in their analyses of historical, ethnographic, archaeological, and skeletal evidence from the Mountain Meadows Massacre, we suggest that the DWI be employed in complement to existing interpretive approaches for analyzing the biological costs of armed conflict in the past. Among other implications, the DWI is a quantitative tool. While qualitative data on civilian harm from armed conflict generates valuable insights, quantitative data about mortality, morbidity, pain, and suffering can lead to objective, empirical, replicable, and comparable knowledge about many of the contexts of violence in the present (Taback 2008) as well as the past. Therefore, developing—and applying—quantitative tools for this domain is deeply important. Through the DWI, in complement with other approaches, bioarchaeologists and paleopathologists could potentially better realize the political potential of human remains for providing direct, physical evidence of past harm and suffering, particularly that experienced by children. They might also better utilize the remains for challenging historical accounts as well as popular and even "official" accounts of past conflicts and their consequences, and acting as a counter to politically and historically revisionist accounts of past conflicts. Potentially, recognizing the costs of armed conflict for civilians, especially child civilians in the past, can increase moral outrage surrounding these outcomes. This may both inform and encourage more effective preventative strategies for avoiding harm to civilians in present-day as well as future conflicts.

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Chapter 10
Conclusion: The Deeper You Dig, the Dirtier It Gets

Debra L. Martin and Caryn E. Tegtmeyer

In investigating the links between terror, violence, increasing inequalities, and poverty, anthropologist Michael Taussig emphasizes the words of a social working trying to deal with the escalating violences he sees people trying to live within. He (the social worker) stated that the "…deeper you dig, the dirtier it gets; the web of connections, the tangled family histories of failure, abuse and neglect spread out in awesomely unmanageable proportions" (Taussig 2004:269). Any reader of the vast literature on home front violence and state-level warfare will understand why this quote is so prescient and important—violence is everywhere, it was always everywhere, and people have always suffered at the hands of others. We were reminded of this quote while doing research on the effects of warfare on women and children in the last several years, and our research led us to literature on the Syrian civil war that began escalating in 2011 and by 2017 had created one of the largest migrations of humans fleeing to save their lives in recorded history (Erlich 2014) with over 6.6 million internally displaced refugees with little but what they can carry on their backs. Women and children make up the bulk of these numbers (UN Refugee Agency (UNHCR) 2016). These war refugees are going to be at risk for poverty, hunger, exposure to the elements and to violence in the form of rape, murder, and abduction. Thus, to see reports of the numbers of soldiers that died is but the tip of the iceberg—the bigger problem is the displacement of women and children, elderly, and disabled men who cannot stay back and fight.

It would be difficult to imagine that the effects of warfare were somehow different for groups living hundreds of years ago in what is now the United States. The chapters in this book ask that question and have found that in the empirical data derived from archaeological reconstruction and analysis of human remains, war had profound effects on those not normally associated with fighting. Although a small

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slice of humanity and different cultures are presented, what we learn is that warfare always creates death, disease, and disability for everyone involved. Indeed, the deeper we dig into this topic in the archaeological record with future sites spanning broader time frames, it will get dirtier.

Bioarchaeologists must frame these kinds of questions and do this kind of work. Reading the bones for signs of trauma, poor health, and early age at death offers insights into the study of warfare and violence that is unique and distinctive. Cross-cultural information and data from the long ago past extends our historical knowledge about what humans have endured and what they were up against. Because, as these chapters reveal, there is information on many different segments of the population, some inferences can be made but more importantly, these studies raised more questions than they answered. Hopefully, this volume will act as a catalyst to spur others to take these questions and find ways to look anew at older data on warfare.

Why else might this be important? Despite the best efforts of anthropologists to undue the years of questioning if violence and warfare were solely shaped by nature (genetics) or nurture (cultural practices), or if early humans were instinctively more Hobbesian (violent) or Rousseauian (peaceful), these binaries still foreshadow popular books and popular thinking (e.g., Pinker 2011; Chagnon 2013; Diamond 2012; Wade 2014). This is especially apparent when lay people or media pundits discuss the origin and evolution of warfare and violence using archaeological data. As we were writing this conclusion to the volume, a Washington Post article entitled "A Study of Ancient Japanese Bones Might Challenge our Ideas about Human Nature" (Kaplan 2016) noted that there appears to be a lack of evidence for warfare for a 10,000 year stretch for the Jomon culture. The absence of archaeological evidence for weapons and skeletons that show evidence of warfare as those in the chapters in this book do was thought to be something so miraculous that it may rewrite what we know about the origin and history of violence in human groups. In other words, this is astonishing precisely because most lay readers of the Washington Post assume that humans are *by nature* a violent species. Over and over again bioarchaeological data have revealed (as they do in this volume) that the way that violence is enacted, carried out, used to manipulate resources or people and used to kill some people and not others shows infinite variety (see a large review of forms of violence from the past in Martin and Harrod (2015)). This strongly suggests there is no gene for violence because if there was violence would look more similar across cultures and across time spans. In fact, violence is so varied from culture to culture that what one culture calls violence another may not.

Thus, bioarchaeological data provides strong evidence that speak against violence and warfare being under genetic or biological control in humans precisely because it is so variable in expression within and between societies. The studies in this volume demonstrate that to understand why warfare occurs there needs to be a focus on historical contingency, agency, symbolism, ideology, cosmology, and other social and cultural institutions because these better explain the presence of violence and warfare. What is seen from this small sample of case studies from the Americas is that the expression and use of violence is highly variable from culture

to culture, in fact, it seems to have an almost infinite number of working parts to it that make it difficult to generalize about. If indeed warfare and violence were under genetic control, there would be more similarities across time and cultures, and that is simply not the case.

Anthropologists assiduously avoid making general statements about violent cultures or warring people in part because they do not see violence and warfare as a "discrete phenomenon" and because they are more focused on patterns, nuance, history, and cultural context (Whitehead 2004:55–56). Fry (1998:81) provides an overview of violence and argues that there is "…tremendous cross-cultural variation in aggression…nonviolent cultures exist, as do a range of more violent ones" and that viewed temporally, violence and nonviolence can dramatically change over time. For example, it has been argued that cooperation often trumps conflict in problem solving in small-scale societies, so it is unlikely that evolutionary forces acted to shape a particular predilection for violence (Fuentes 2004, 2012) and Roscoe (2007:488) has even argued that there is ample data to demonstrate that humans instinctively show a disinclination and aversion to conspecific killing.

The development of the biocultural approach in biological anthropology has greatly benefitted bioarchaeology by providing an integrating framework for inclusion of cultural and environmental context (see Martin et al. 2013:10–18 for an in depth review of the biocultural framework applied to bioarchaeological studies). What has developed is a body of work in bioarchaeology that examines the interaction between ancient biology, environment and cultural innovation and change over time. Researchers using this paradigm demonstrate that violence is best understood as a social behavior that is shaped by biology, culture, and environment (Eibl-Eibesfeldt 1979; Wood 2007; Boehm 2013). Research into the origin and long history of violence in human groups relies on biological evidence of trauma but equally on reconstructing the cultural milieu and social relationships using a variety of sources such as ethnology, the Human Relations Area Files (HRAF), and other sources (Gat 2006; Guilaine and Zammit 2005; Keeley 1996; Martin and Frayer 1997; Pinker 2011; Potts and Hayden 2008). What these studies have revealed is that violence is part of the human behavioral repertoire but that the variable expression and use of violence cross-culturally cannot be explained by biological propensities alone.

Focusing on what has come to be called cultural or social violence is one useful way to approach it because the evolutionary approach is too limiting and narrow to accommodate the wide range of expressions. The expressions of violence that are found in small-scale early human groups includes, for example, feuds, raids and warfare, captivity and enslavement, massacres and ethnocide, intragroup violence, gendered violence and rape, ritualized violence and trophy taking, performance violence such as sacrifice and public executions, and structural violence aimed at subordinating targeted subgroups. These are largely institutionalized and culturally sanctioned forms of violence (Farmer 2004; Parsons 2007). That is, these activities use both nonlethal and lethal violence motivated by a wide range of ideologically based behaviors that operationalize and reproduce violence (through coercion,

rituals, rules, symbolism, and economic forces) to produce certain kinds of outcomes (Galtung and Höivik 1971).

Violence is highly symbolic and cultural in nature, and the chapters in this volume have shown that warfare in the past is much more complex than previous researchers have suggested. They have all revealed very different pictures of how violence has been used in the past and how situating violence within the culture can help us make sense of its meaning and begin to reconstruct past events. Bioarchaeology is particularly useful in this reconstruction because what happens to us during the course of our lives gets recorded on our bones. Trauma, violence, illness, and diseases are all told in a story on our bones and through these stories, the past becomes illuminated. It is how we interpret these stories that help us gain a better understanding of how individuals in the past experienced their world and the role that violence played within it. However, we have only begun to scratch the surface when questioning our understanding of the social role and meaning of violence for past cultures and the agents that act within this context. There is still much to learn about the nature of warfare, violence, and who is being affected.

When we set about bringing together researchers for the American Anthropological Association symposium in 2014, it was with the hope to challenge an established status quo that women and children were passive actors within their given environments during times of prolonged violence and warfare, sheltered from the worst of the violence and suffering less due to their distance from the battlefield (physical or symbolic). With civilians the targets of such violence during warfare today, it seems shortsighted to not assume that they were similarly affected in the past. It is important for researchers to broaden their definition of violence to include not only the direct physical violence that comes from hand-to-hand (or armed) combat, but also the effects of malnutrition, disease and illness, collateral damage, sexual violence, and disability. These issues disproportionately affect those individuals who may not be involved in direct battle, but are still affected by warfare. Being a civilian does not mean being immune and it is imperative that violence researchers understand that when documenting trauma and illness within skeletal assemblages that come from populations involved in warfare.

The chapters in this volume have demonstrated that during periods of warfare, women and children are affected and these effects are important to reveal. They experience malnutrition, disease, antemortem nonlethal and perimortem lethal trauma. In some cases, women and children, and civilians in general, were the targets of violence (Tegtmeyer and Harrod, Chap. 5; Zuckerman and Banks, Chap. 9), or they were indistinguishable from their male counterparts in instances of warfare and massacres (Bengtson and O'Gorman, Chap. 3; Osterholtz and Martin, Chap. 7), but in all cases, women and children experienced some form of violence and trauma (Koziol, Chap. 2; Hatch, Chap. 4). The trauma was not limited to women and children either, but included other vulnerable populations as well, including those which are otherwise classified as combatants but who held marginalized and even targeted places within the ranks of the fighters (de la Cova, Chap. 8). The ubiquity of violence amongst women and children and other vulnerable groups in times of war is important to investigate even though, as we have found, the deeper we dig, the dirtier it gets.

Future Directions and Research

This volume is the first of its kind to explore the effects of warfare on women and children (and other vulnerable populations) in ancient societies; however, its scope is limited and its case studies are few. The chapters presented represent a limited view in time and space. How women and children as well as other vulnerable groups are affected by warfare may reveal important differences as studies from South America and all parts of the Old World come to light. We invite and encourage researchers who have access to data that encompasses periods of violence and warfare to interrogate the larger picture of warfare which would include other demographic and socially defined groups outside of the warriors and soldiers.

Understanding how roles may change throughout time is equally important. While this volume provides examples from various times in precontact history and American history, the snapshots provided suggest that there will be new ways to think about warfare as new studies come to light. The chapters in this volume have already established that violence and warfare is culturally nuanced, and thus it must be understood within the specific history and culture within which it is found. It is likely that the role that violence plays within a given community changes throughout time as cultures adapt, change, and sometimes collapse and reemerge (Kurin 2016).

New scholarship on this topic will hopefully build on these nascent studies and expand the methods and refine the approaches. It is hoped that in some small way, this volume has paved the way for a new wave of scholarship focused on women and children and other vulnerable groups during times of war. May future bioarchaeologists dig deeper and probe more intensively into this topic because it is clear that even today we struggle with how to understand warfare.

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