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The Dehumanizing Violence Index: an Old World/new World Comparison of Overkill in Archaeological Contexts

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THE DEHUMANIZING VIOLENCE INDEX: AN OLD WORLD/NEW WORLD COMPARISON OF OVERKILL IN ARCHAEOLOGICAL CONTEXTS

by

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ABSTRACT

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Extreme forms of violent behavior appear in various cultural contexts throughout human history. This study compares so-called "overkill" sites from the late Central European Neolithic and the Pueblo Period of the American Southwest to develop a systematic approach to distinguishing between the levels of violence exhibited in overkill assemblages, compare and define possible motivations and choices for extreme violent behavior, and determine whether the purposeful use of extreme violence in temporally and spatially distant cultures has predictive value today. The skeletal data from six overkill sites, three from each geographic context, were compared by means of an ordinal index, the Dehumanizing Violence Index (DVI), that incorporates variables across age and sex categories, including injury and trauma types and locations, evidence for perimortem torture and mutilation, and systematic extreme processing of the body. Although some overkill sites in the geographically and temporally distant contexts compared here appear similar in the treatment of victims, there are clear distinctions in local expression. Resource unpredictability during times of climatic instability was revealed as a strong predictive indicator for the manifestation of extreme violence, with outsider groups often serving as the main targets of such treatment.

Key words: LBK, Pueblo cultures, overkill, Dehumanizing Violence Index, poetics of violence

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This work is first of all dedicated to the two most beautiful lights in my life, my daughter Analisse and my son Benjamin. Their potential, their dreams, their beauty is worth every effort, and every bit of perseverance that it will take to create the world of peace, justice and opportunity we all wish to see, the world which every child deserves.

This work would not have been possible without the unwavering support of my wife Andrea. A simple thank you, however creatively written, could never be enough to express the gratitude I feel for her encouragement and confidence in me. I am continually inspired by the bravery, fortitude and love she expresses daily in support of our family, and in her chosen profession as a teacher. There is no more noble profession than sharing one's love of culture and language with the next generation. Her work is the foundation of connection and empathy, and by extension, creates the building blocks of future peace. Thank you.

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“The body is the brush and the canvas, operating in a social world with lines, borders, frames and constraints, while also expanding that world with novelty, diversity, creativity, negotiation, and subdued or outright resistance.”

-Tiffiny Tung – *Making and Marking Maleness and Valorizing Violence*

“Historically, pandemics have forced humans to break with the past and imagine their world anew. This one is no different. It is a portal, a gateway between one world and the next. We can choose to walk through it, dragging the carcasses of our prejudice and hatred, our avarice, our data banks and dead ideas, our dead rivers and smoky skies, behind us. Or we can walk through lightly, with little luggage, ready to imagine another world. And ready to fight for it.”

-Arundhati Roy – *The Pandemic is a Portal*

“There must be those among whom we can sit down and weep and still be counted as warriors.”

-Adrienne Rich

“We must humanize the world, so that it becomes impossible to pull the trigger.”

-J.N.

Chapter 1: Introduction

As a young mechanic in the United States Army in September of 1997, I sat in the driver's seat of my Armored Personal Carrier, waiting my turn to traverse what seemed a flimsy and treacherous bridge south over the Sava River into Bosnia-Herzegovina. I was deployed as part of the NATO peace stabilization mission SFOR. Waiting at this precipice, as it were, the Croatian city of Slavonski Brod now behind me, I was able to take in the view across the Sava River, looking over to the Bosnian side at the town of Brod. As an American I was steeped in the mythos of war. My culture had immersed me in its seeming necessity for freedom to exist, for the soldier to be honored and emulated. As a young man, still a child really, I chose to be trained and indoctrinated into the principles, methods, and needs of military culture. By the time I sat waiting on that bridge for my signal to cross I was well versed in its cynicism and disregard for human life. Though I had never actually experienced it, war stared back at me from Brod. For the moment or two I was waiting I perceived a broken and shattered human landscape, images I had only been shown in films of the World Wars. I was an American soldier deployed to a war zone in Europe, a scenario that from my upbringing and education seemed natural and inevitable. Brod looked destroyed, utterly, all its buildings in ruins, with no sign of human occupation.

The civil war in Bosnia-Herzegovina from 1991 to 1996, with its mass graves and clear ethnic divisions, shocked the Western world by showing us that areas of Europe thought to be generally peaceful after 1945 could descend into barbarous violence with little to no warning. This neighbor against neighbor war that encapsulated familiarity and intimacy in its violence confronted the world with questions that asked whether people with diverse ethnicities and cultures can coexist peacefully, and whether violence is an innate and inevitable core trait of

human behavior. Although it has been argued that the 20th century appeared to be more peaceful than previous time periods (Pinker 2011), this interpretation of human violence has been criticized for decontextualizing the "complex human behaviors and social praxis" (Tung 2021:9) that shape the forms and features of any particular violent episode. Specific circumstances, pressures and stressors, especially those exacerbated by negative rhetoric on the part of people in political, religious and economic power, have the potential to drive individuals and groups to commit acts of physical and psychological violence. Based on our modern-day observations and experiences, and viewed through the lens of prehistoric archaeological research, the difficult reality, it seems, is that all of us, under the right conditions, frame of mind, intentional training, environmental, economic or social conditions, can become perpetrators of violence.

In *War Before Civilization*, Lawrence Keeley (1997:75) writes that, "Primitive warfare consists of war stripped to its essentials: the murder of enemies, the theft or destruction of their sustenance, wealth, and essential resources; and the inducement in them of insecurity and terror". Indeed, the archaeological record contains many examples of contexts in which violence is clearly evident in the damage to human bodies and the destruction of human settlements. Mass violence sites, also known as overkill sites, are an extreme form of this manifestation and as such have the potential to reveal possible commonalities, and potentially explanations, for the persistence of this kind of behavior in human societies. Overkill sites contain evidence of massacres, torture, mutilation and destruction of human bodies to an extent that makes them unrecognizable (Osterholtz 2016, 2018). Keeley's description of human warfare encompasses not just prehistoric warfare, but also the modern deployment of violence, from actual war between parties on the ground, to the violent hierarchical systems of modern day, class and caste based, capitalist states.

This study will compare known archaeological assemblages of mass violence, or overkill, from the late European Neolithic of west-central Europe and the Pueblo Period of the American Southwest. The contexts and timeframes were chosen deliberately to test whether two temporally and geographically distant contexts exhibit similarities in the forms and degree of violence that might reveal insights into why humans engage in this kind of behavior. The case study sites in both contexts provide evidence-rich skeletal data sets that exhibit varying levels of extreme violent behavior. The goal was to identify and compare distinctions between the levels of violence exhibited by these assemblages to define the possible motivations and choices underlying such extremes of violent behavior. Ultimately this project aims to contribute insights into the conditions under which the body, both culturally and materially, becomes the object of such atrocities by providing a novel comparative approach to analyzing overkill contexts.

Research Questions

Research questions for this study were designed to: 1) provide a novel method of comparing overkill sites in spite of temporal and geographic differences, 2) identify distinctions between the various participants and victims in the overkill performances, 3) ascertain, if possible, the motivations behind extreme violence and 4) attempt to understand how bodies become the focus for violent social production. An archaeological approach to understanding violence needs to have a grounding in material culture as well as an understanding of violence as a process in social reproduction and reconstruction and as a contributor to the construction of a social hierarchy (Harrell 2022). The primary questions outlined below are concerned with the comparative aspects of overkill sites and exploring the underlying motivations for their performance. The secondary questions inquire into how bodies are recreated and repositioned

within overkill events, and how current interpretations of overkill sites might be influenced by these installations/exhibitions of human remains.

Primary Questions

• To what extent are overkill sites from temporally and geographically distant cultural contexts comparable, and can they be categorized into types?

• Can differences in how bodies are treated, formed, and reworked at overkill sites be categorized by age, gender or other factors?

• Is it possible based on the material and mortuary evidence to ascertain the motivations and perceptions of social roles and their reorganization between perpetrators and victims through the acts of violence?

• What, if any, conclusions can be drawn from the results of comparative analyses such as this one about the human tendency toward violent responses to stress, whether internal or external, to their societies?

These primary research questions reflect a need to understand the phenomenon and prevalence of overkill sites in culturally and temporally distinct societies more broadly to ascertain the common denominators, if any, of this seemingly shared human behavior.

Secondary Questions

• How are bodies reworked and reshaped as foci and loci of overkill performances, and are there determining factors in who becomes a victim of such actions?

• How can a cross-cultural and trans-temporal comparative study influence previous interpretations of overkill sites, and deepen our understanding of the body as the focus of violent performances as well as the way in which dehumanization is implemented in such contexts?

• What are some of the future applications of the proposed methodological approaches to the study of overkill sites in archaeology?

These secondary questions are more generally concerned with how the body is acted upon as part of the violent performative process within overkill contexts, and how archaeological interpretations of overkill assemblages may be influenced by viewing the body as the loci of those performances.

Literature Review

Anthropology seeks to expose the human element in the reality and prevalence of violent human behavior. As Ferguson (1984:5) writes, "war, by any definition, is a social activity, carried out by groups of people." Past behavior is written in the material culture and sites of human activity that people have left behind, while the "consequences of their actions are manifest in their bones after death" (Sofaer 2006:39). As a field that analyzes patterns of human behavior, anthropology is uniquely suited and situated to shed light on why we fight, as well as providing possible alternatives for violent courses of action.

Whether we are explicitly aware of the reasons for violence or not, it has proven to be an effective tool for achieving desired outcomes, while also sending social messages to groups towards which the violence is directed. Violent human behavior is usually accompanied by attempts to rationalize or justify the behavior engaged in by the perpetrators (Kim and Kissel, 2018:16), based on cultural or social reasoning that supports and encourages the implementation of such actions (Kelly 2003). Though debate continues regarding whether violence is an inherent part of our biology, it can certainly be demonstrated that culturally and socially violence serves a practical and indispensable role in the human drive to achieve certain goals (Martin 2020:1).

This chapter will cover definitions of violence, warfare and the anthropological understandings of the meaning of violent actions in social construction and reconstruction.

Defining Violence and Warfare

Anthropological definitions of warfare and mass violence are broadly characterized as arising from, "an institutionalization of practices governed by a distinctive social logic" (Kelly 2000) that is carried out by organized groups of people against other distinct or different groups of people (Christensen 2004; Ferguson 1984; Meyer et al. 2018). These general definitions make little distinction between the actual lethal enactment of violence and the psychological threat of its imminent enaction that is meant to assert will or control. Understanding violence and warfare as institutionalized frameworks embedded in social structures helps to explain its prevalence and our tolerance of it. A particular society's attitude towards war and violence contributes to its dominant ideologies, defines the "character" of its style of warfare, and determines the level of "psychological accommodation" needed to persuade the general population of its use (Christensen 2004:132-133).

Violence and intergroup warfare can create, "a societal and economic atmosphere of warfare" (Kuckelman et al. 2017:98) that is physically documented in the landscape as well as in the skeletal remains of victims. A "socialization for mistrust" based on histories of struggle or conflict between groups contributes significantly to this atmosphere of perpetual readiness for warfare (Ember and Ember 1992). Warfare on the landscape manifests in aggregated populations with defensive architecture in more defensible locations, the creation of buffer zones between communities, evidence of destroyed settlements usually through burning, and the use of everyday tools as weapons or the development of specialized weapons (Christensen 2004; Cordell and McBrinn 2015; Kuckelman 2002; Kuckelman et al. 2017). Warfare and violence are

inscribed on the body through blunt and sharp force trauma, trophy taking such as scalping, along with evidence for cutting and scraping bodies and bones caused by the various weapons and tools utilized as weapons (Cordell and McBrinn 2015; Kuckelman 2002; 2020). It also appears in skeletal assemblages in the form of evidence of nutritional stress, with the resulting increase in morbidities, evidence of increased ante-mortem injuries, and workload stress due to possible inequalities in the social hierarchies (Cordell and McBrinn 2015; Harrod et al. 2017; Kuckelman 2002; Martin 2010).

The impact of past violence and warfare on the geographical landscape and on human bodies is relatively visible. What is not always clear is why such violence occurred. As Ferguson (2008) and Haas (1999) have pointed out, people make violent choices for practical reasons. Violence is carried out by individuals, and an individual's acts of violence are executed in the larger performance of violence connected to their particular social underpinnings. Acts of extreme violence carry meaning that reinforces or redefines social relationships following the violent event (Ferguson, 2008:380). Violence and warfare against others are defining acts that shape the character of any future cooperation or social performances with members of the groups involved.

Violence as Cooperation and Social Performance

Pain is instructive at both the individual and the group level (Osterholtz 2020:221), and human violence, in its myriad forms, represents a purposeful and functional, culturally sanctioned method of inflicting pain as a form of social communication (Osterholtz 2016:134). Violence can take physical and psychological forms. It can be intimate and personal, between individuals or within small familiar groups. It can also be ambivalent and impersonal, as in modern warfare, which employs weapons that devastate and impact the lives of individuals

unseen and unknown to their operators. Whatever form it takes, human violence creates a setting where "power relationships are negotiated and formalized" (Osterholtz 2020:215) in cultural ideations of what acceptable forms violence can take within and between individuals and groups of people.

Cooperative groups create and make up the cultural spaces in which "people affiliate with one another, how they recognize descent, ancestry, and lineage," along with the creation of one's identity within, and commitments to, the group (Kim and Kissel 2018:47). Cooperative violence on the scale of warfare, the threat of, or actual deployment of lethal group violence against another group (Ferguson 1984), includes this "inter-community dimension" (Kim and Kissel 2018:9) that defines one's in group and out group. Making war arises from a perceived or actual outside threat to the group, cultural understandings and strategies of resolving disputes, rhetoric from self-interested individuals responsible for making decisions about war, and the perceived (in)humanity of enemy groups (Ferguson 2011).

These war-making factors can come together in a concatenation of violence that can produce scenes of terrifying spectacle. The case study sites included in this thesis were chosen because they can be considered examples of overkill, sites of violence that include massacres and mass graves, mutilation and torture, the systematic disassembly of the human body, and/or the further processing of those disassembled pieces through smashing, burning or even eating. The case study sites include examples of all these types of violent behaviors, and overkill is a useful umbrella term as a starting point for analysis. It must be acknowledged though that important distinctions exist between different forms of violent behaviors, which can occur suddenly or as the result of thoughtful premeditation, in the contexts of emotional passion, or as the result of ritual or other specific cultural logics. The participants, victims, perpetrators, and observers may

have had many contextually embedded reasons for being present when particular bodies became subject to violent manipulation, whether willingly or unwillingly. The goal of this thesis was to create a method of revealing these distinctions, even in contexts where the motivations or intent of the violence seems straightforward.

Because warfare is a social act with social consequences the evidence of mutilated remains and overkill also suggests an extreme form of social control (Potter and Chuipka 2010). What appears to be horrifying chaos in fact is driven by cultural logic that should be theoretically accessible via comparative analysis of the remains of this performative destruction of other human beings. Events at overkill sites can be interpreted as performances that, "become critical social facts, defining relationships and playing a major role in shaping future actions" (Ferguson 2008:36). Violent acts, including warfare and overkill, are essentially performances enacted by culturally justified perpetrators that are intimately borne by victims, with intended lessons for the willing or unwilling observers. Deploying violence as a tool is not an aberrant or irrational choice. It can be culturally justified and understood by all parties involved (Kim and Kissel 2018).

To be an intrinsic element of cultural logic, the violent performance needs a language comprised of the actions inflicted upon the bodies of the victims (Osterholtz 2018:164). In acts of performative violence, "the actors become their roles and are produced by them" (Sofaer 2006:67). Violent performances require perpetrators, victims and observers. The language articulated in the overkill sites included in this thesis is the vocabulary of bodily disarticulation, dismemberment, careless post-mortem treatment and systematic extreme processing. Overkill settings communicate systematized violence, where pain is inflicted to maintain social control, and where "witnessing provides a stronger psychological motive for submitting to the social

authority of the aggressor group" (Osterholtz 2020:215). In times of increased warfare, aggregated populations provide a wider audience for violent spectacles (Kuckelman 2020), while the repetition of violent acts becomes "inherent in the system" (Osterholtz 2020:219).

Dehumanization and Structural Violence

What allows for the spectacle of violent social control to become systematized is the widespread dehumanization of other groups, and the structural violence embedded within the social system that denies certain portions of the society the same opportunities as others. Dehumanization is a central process in what Bandura et al. (1996) call "moral disengagement", the process by which human beings can turn off normal moral safeguards that restrain us from engaging in physically violent acts. Dehumanization unlocks the restraints of "self-censure from injurious conduct" and "divests people of human qualities or attributes bestial qualities to them" (Bandura et al. 1996:366). Of the several processes Bandura et al. (2996) highlight that are central to moral disengagement, dehumanization is the most likely to involve a change in the image one person has of another. This process creates an Other that is no longer viewed as a fellow human being, or part of one's group. This changing of one's category, in or out group, human or not human, exposes the person(s) on the outside of this re-classification process to potential physical harm. This situation, as it grows into part of the social framework contributing to human suffering, can become "patterned, purposeful and operationalized" (Martin and Harrod 2015), until it works unnoticed in the background of a society. Societal actors with an interest in dehumanizing an out group can readily utilize this strategy to organize violence against them.

Training soldiers to dehumanize the perceived enemy has long been a core tenet of modern military indoctrination. The development of "efficient soldiers involves habituating them to disengage morally so that killing becomes routine" (Trivigno 2013:89). Modern militaries

want to arrest the soldiers' innate moral aversion to killing, or even the thought of killing, turning it into an action of efficient routine (Trivigno 2013:87). Trivigno, arguing from a virtue ethical standpoint, suggests that our ingrained moral sense of right and wrong, and the desire to live a life of productive human engagement in peace, is gravely injured by participating in acts of killing, even when justified in war. Militaristic propaganda and military training teach the practice of "morally categorizing enemies" (Ferguson 2011:261), which allows the latent violence built up within the soldier to manifest itself against a defined enemy, regardless of the mental and social consequences for the soldier or the society once the overt violence has abated.

Violence inherent in a social system that limits the potential of certain individuals or groups of people is what Galtung (1969) termed structural violence. Galtung argued that human beings have, depending on the resources available to them, a certain level of potential, which includes violent behavior. Violence is structural within a social system when resources and knowledge are controlled so that an individual's actual level of achievement is lower than their potential if given access to the necessary information or resources required to achieve it (Galtung 1969:110-111). The reduction of an individual's actual achievement from their potential achievement is considered violence whether the reduction is due to overt physical violence or psychological violence that is intended to make life as difficult as possible (Galtung 1969:111-112). Galtung (1969:114) writes that, "The violence is built into the structure and shows up as unequal power and consequently as unequal life chances." The violence experienced at the overkill sites chosen as case studies in this thesis resulted from situations that may have included long periods of structural violence embedded within the local social systems that erupted in this particular form as the result of some trigger or change. One of the goals of this thesis was to

determine whether the triggering mechanisms, like the forms taken by the performative violence at these sites, may have common features.

A word about standpoint theory as applied to my situation seems appropriate here (Rolin 2009). The conceptualization of the violence at the case study sites as dehumanization is drawn directly from my experiences as a United States soldier witnessing the aftermath of extreme ethnic violence in 21st century Europe. What this thesis attempts to formulate is an etic strategy to approach violent practices that had emic, or internal cultural logics that we cannot reconstruct from available archaeological evidence or techniques. Dehumanization as defined by Bandura et al. (1996) above, the divestment of human qualities, is an effective descriptor applied to the process of overkill manifested in the case study site evidence. Human bodies were changed through deeply local and contextual cultural logics into something different from their original form and meaning within those societies, literally becoming trans-human/dehumanized in the process.

Overkill in Practice

Osterholtz (2020a:5) writes that, "Mortuary processes are at the heart of identity in many if not most societies. Mortuary treatment is indicative of social beliefs about social order, an afterlife, and the overall relationship between the living and the dead". Depending on the interpretation, remains at overkill sites suggest that the perpetrators of violence may have disregarded the beliefs of the people they hurt, or sought some way to deepen that relationship and social order. Setting the intent aside, the reality is that for the case study sites included in this study many of the victims were subjected by means of extreme transformative processing from human beings into something else, something literally Other.

The case studies included in this thesis are the mass violence sites of Herxheim, Asparn-Schletz and Talheim, all dating to the late central European Neolithic in Germany (Table 1.1), and Sacred Ridge, Cowboy Wash and Sand Canyon Pueblo from the Pueblo period of the American Southwest (Table 2.2). Treatment of the dead at these sites includes a range of activities, including: 1) co-mingling and piling victims together into a pit, 2) leaving them where they died scattered across the landscape, 3) depositing them haphazardly within structures, and 4) butchering and disarticulating bodies into pieces then making piles of specific body parts or scattering the pieces around the site.

Table 1.1 Date ranges for the late central Neolithic European sites (Haack 2016; Teschler-Nicola 2012; Wahl and Trautman 2012)

Talheim	5100 – 5090 BCE
Asparn/Schletz	5210 – 4950 BCE
Herxheim	5210 – 5050 BCE

Table 1.2 Date ranges of the American Southwest case study sites (Billman et al. 2000; Cordell and McBrinn 2015; Kuckelman 2010; Potter and Perry 2011)

Pueblo I	AD 750-900
Sacred Ridge	AD 700 - 810
Pueblo II	AD 900-1150
Cowboy Wash	AD 1125 – 1150s
Pueblo III	AD 1150 – 1400
Sand Canyon Pueblo	AD 1150 - 1280

Treatment of the dead at these sites was clearly exceptional as most people during the Neolithic and Pueblo periods were buried following normative disposal practices that could include grave goods. Typical burials during the European Neolithic were single inhumations, on the left side, flexed, with the head to the east within settlements or cemeteries (Meyer et al., 2014:311-312). Typical Pueblo period burials were flexed or semi-flexed, on the left side, with

the remains mostly intact (Potter and Chuipka 2010:511). Kuckelman (2010:501) defines formal burials as including steps showing a consideration for the dead that included "careful positioning, protection from weathering and carnivores, or the inclusion of grave goods". A lack of careful internment, grave goods or protection for the dead might indicate that violence or some other factor kept the dead from being treated formally.

Exceptional treatment of bodies at the case study sites included post-mortem disarticulation and extreme processing. Disarticulation is the sectioning of the body into its constituent parts, and extreme processing is the further destruction of those parts into still smaller, often unidentifiable pieces (Kuckelman et al. 2000; Osterholtz 2018). Processing the body in this manner, especially if it is done to groups of people, can take on a repetitive and systematized appearance. Evidence of extreme processing from Herxheim and Sacred Ridge illustrates the steps involved in the systematic disassembly of a human body (Boulestin et al. 2009; Osterholtz 2018; Zeeb-Lanz et al. 2016). A composite list of steps from both sites includes:

1. Beginning cuts at the frontal bone following the orbits; or beginning at the nape of the nose to the neck, then scraping off the scalp.
2. Removal of the mandible by cutting muscle attachments and smashing the zygomatic processes.
3. Removal of the calotte through precise and systematic hammering around the head.
4. Smashing of the remaining facial bones.
5. Cutting around the shoulders to the clavicle to detach the arms.
6. Ribs cut away from their spinal attachments.
7. Spinal column removed and disassembled.

8. Removal of legs from the pelvis.

9. Removal of all soft tissue through cutting and scraping.

10. Marrow from long bones possibly extracted.

11. Burning of certain areas to encourage easier breakage and removal of muscle and soft tissue.

12. Long bones generally hammered or smashed into small pieces.

13. Hands, feet, long bone epiphyses, and scalps removed and carried off site as trophies.

Regarding the site of Herxheim, Zeeb-Lanz et al. (2016:121) write that, "It is obvious that human beings were no longer regarded as 'whole individuals' after their treatment". Indeed, it is safe to assume that the processing steps listed above would have transformed the identity of the victims in the eyes of their community. Manipulation of human remains is a communicative exchange that takes local history and traditions into account, creating new social meaning among participants and witnesses (Osterholtz 2020a). Violence "is always enacted in a vernacular" (Hinton 2004:160); methods are approved through history, local to cooperative groups, typically within the boundaries of social norms, with the body as the locus of performance.

Theoretical Approach

This study is grounded in a phenomenological approach that synthesizes various anthropological theories around violence and the body as meaning-making events and objects. These theories include: 1. violence as a cooperative and organizing mechanism, de-emphasizing the nature of the acts themselves (Kim and Kissel 2018); 2. accepted forms of violence that are integral to identity and history, and when enacted reorganize or maintain social structures (Martin and Osterholtz 2020; Osterholtz 2020a; Whitehead 2004, 2007); 3. understanding the body as a physical object that is central to meaning-making processes as it is shaped by individuals and social norms, and is susceptible to manipulation (Perez, 2012; Sofaer, 2006).

Emphasis on Cooperation

Kim and Kissel (2018) discuss the human propensity for cooperation to achieve specific goals, whether in successfully waging war or engaged in peacemaking. The ability to cooperate was a "vital prerequisite for emergent human behavior" that allowed for flexibility in dealing with various situations that posed challenges needing to be overcome (Kim and Kissel 2018:186-187). Warfare from this perspective is one of several possible forms of cooperation meant to produce a desired result (ibid.: 160). Group identity, or to put it another way, those with whom we choose to cooperate, creates bonds and allegiances that tie us to culturally defined communities (ibid.: 47). Over time, cultural groups create their own conventional versions of how overt violence manifests itself in their communities (ibid.: 17), which includes institutionalized structural violence favoring one group over another (ibid.: 43). Accepted forms of violence become embedded in culture, identity and history. They build meaning, and their enaction contains the potential for cultural reinforcement or reformation.

Poetics of Violence

Culturally accepted forms of violence, constructed through collective historical experiences, are performed to bring about a reinforcement of values, or the reformulation of those values under shifting conditions of understanding (Martin and Osterholtz 2020:88). As Whitehead (2004:6) writes, violence is a "discursive" practice used, "to amplify and extend the cultural force of violent acts or how those violent acts themselves can generate a shared idiom". The collective understanding of the idiom is key, as it provides the needed legitimacy for performing the violent acts, and the context within which the intended outcomes arise in the minds of the participants (Whitehead 2007:40). Violent acts find meaning in the minds of the

participants through shared histories that provide the framework for legitimate responses to crisis management or deviations from norms.

Violence viewed through the lens of poetics, the discursive process between an action and its social meaning, "allows for any cultural activity to be seen as regenerative and meaningful" (Osterholtz 2020a:5). A poetics lens considers the cultural, emotive and historical context that allows violence to occur in any given moment, along with the actors that participate in such actions, who perpetrates them, who gets hurt, who observes, as well as the effect on socio-structural understandings that are reaffirmed or reorganized in response to the violence (Whitehead 2004a:62-63). The poetics of violence suggest that there is deep historical context for violent acts or structures experienced by people in any human society. The discovery of this context allows violence to be understood as a meaning-making activity for the people involved. Nordstrom (2004:239) writes that "The decisions a society makes as to how peace will take place literally construct the possibilities of that society's future". Substitute violence for peace, and the poetics lens suggests that our future is constructed by understanding violence's place within our societies.

The Body as Material Culture

In a volume on understanding extreme processing through the lens of poetics, Osterholtz (2020a:4) asks why manipulation of the body happens. Sofaer (2006) argues that living and dying bodies incorporate cultural norms, histories and expectations. Viewing the body as material culture, as something formed by cultural processes through time and space, means that "the social lives of people are implicated in the creation of their bodies" (Sofaer 2006:87). The body reflects societal beliefs around labor organization, acceptable forms of conflict resolution, standard reactions to environmental and outside group stressors through various outcomes in

child development, gender configurations and ideology, health and morbidity, causes of death, and post-mortem manipulations. The body in both life and death, "allows for the creation of identity and social memory" (Osterholtz 2020a:5). Bodies at all stages are infused with cultural meaning. They can be manipulated through violence to make political statements, cause psychological distress in the observers, remediate a perceived threat, repair a cultural infraction or establish changes that form new legitimate cultural expectations (Osterholtz 2020a; Perez 2012). The body in life and death is an active participant in both social life and social memory. Overkill sites are terrifying spectacles not only because of the extremely violent treatment of victims, but especially because their post-mortem manipulation and transformation was seared into the minds and collective memories of the observers.

Summary

The theoretical approach applied in this thesis assumes that overkill violence must be viewed as a socially sanctioned cooperative undertaking, with particular forms of violence occurring within specific social and historical contexts that exploit the bodies of victims in spectacles of social reinforcement or reimagination. Sofaer (2006:87) writes that bodies have "common material qualities, and broadly similar effects upon [them] will result from similar social arrangements". Bodies react similarly to malnutrition and stress, to injuries from attack, and to the ways they can be disarticulated and processed. Societies may react similarly to environmental stress or outside threat, aggregating their population, raiding, taking slaves, or making a statement with the bodies of their victims. The phenomenon of overkill sites lends itself to comparison because individuals and societies from different geographical regions and time periods react similarly to analogous social situations and employ violence upon the body in similar fashions.

The following chapters provide a detailed analysis of the violent events that occurred at the case study sites. Chapter 2 presents an overview of the Late Linearbandkeramik (LBK) of central Europe and the Pueblo I-III periods of the American Southwest. Chapter 3 presents detailed information for each of the case study sites and lays the groundwork for the comparative tool developed for this thesis, the Dehumanizing Violence Index (DVI). Chapter 4 presents the comparative results of the DVI analysis, while Chapter 5 utilizes those results to offer insights into the identity of the victims, perpetrators and audience, along with possible motivating factors for the violence and suggestions for future research.

Chapter 2: Archaeological Context

Central European Neolithic – Linearbandkeramik (LBK) Culture

Linearbandkeramik (LBK) farming and pastoralist peoples had settled in the rich loess soil areas of central Europe by at least 5600 BCE (Gronenborn and Dolukhanov 2015:197; Schier 2015:103). Their economy was based on the cultivation of various grains and domesticated animals in a cultural zone that stretched at its maximum extent from various locations in eastern Europe to the Paris Basin. LBK people were the first farming culture in Europe to produce pottery (Pechtl 2015:556). The culture complex was marked by a high degree of homogeneity in subsistence strategies, pottery production and design, and construction techniques until around 5350 BCE, when pottery styles began to change along regional lines (Gronenborn and Dolukhanov 2015:199). A major environmental shift occurred around 5150 BCE, resulting in a dryer climate (Gronenborn and Dolukhanov 2015:201). Evidence of mass violence events by 5100 BCE indicates increasing cultural and economic crises culminating towards the end of the LBK in the overkill sites included in this study, Talheim, Herxheim and Asparn/Schletz (Gronenborn and Dolukhanov 2015:199-201) (Figure 2.1). After 5000 BCE the LBK culture faded into more localized lifeways (Gronenborn and Dolukhanov 2015:201). The farming and animal economy of LBK peoples created a "fundamental transition in human lifestyle" (Wild et al. 2004:377) that spread new practices and ideas throughout the ancient European landscape and surviving Mesolithic communities.

Subsistence and Settlement

LBK communities employed a farming and animal husbandry subsistence strategy that adapted to local conditions throughout the geographic range of LBK settlements. Agriculture

focused on emmer and einkorn wheats, with lentils and peas in areas of fertile loess soils (Gronenborn and Dolukhanov 2015). Long term storage of these crops was essential for continued existence and expansion of the LBK way of life (Rowley-Conway and Legget 2015:430). Animal husbandry practices utilized domesticated sheep/goat, pig and cattle, depending on the local environments (Gronenborn and Dolukhanov 2015: 199; Rowley-Conway and Legget, 2015:434).

Figure 2.1 Locations of the central European Neolithic case study sites (adapted from Meyer et al. 2018:25).

LBK residents lived in permanent, small, dispersed villages of three to four longhouses (Bogaard et al. 2011:397; Rowley-Conway and Legget 2015:434). Bogaard et al. (2011) suggest that a system of land ownership existed between longhouse groups, including access rights to grow certain cultivars and use particular plots of land. Their research concluded that certain

households cultivated specific garden plots over long periods of time, at various distances from the village, suggesting social inequality existed at the site of Vaihingen (Bogaard et al. 2011:408). The relatively stable environmental conditions these practices were built upon shifted in Central Europe around 5150 BCE in response to a general cooling trend and reduction in precipitation (Gronenborn and Dolukhanov 2015). These environmental changes may have led to crop failures, resulting in a crisis in the late LBK that could have contributed to the use of extreme violence by some groups (Gronenborn 2006).

Longhouses and Enclosures

Similarities in LBK longhouse construction are documented throughout the known settlement areas from the Vistula River in Poland to the Paris Basin (Coudart 2015). Longhouse design was characterized by several distinctive features: (a) rectangular to trapezoidal shapes, (b) rows of posts creating divisions within the enclosed area, (c) pits along the outside of the walls, and (d) short use lives and non-reuse of previous building footprints (Last 2015:274). Coudart (2015) and Last (2015) both interpret this consistency in design as reflecting a shared culture, suggesting the important role that longhouse design may have played in the daily life and possibly the ideology and identity of LBK people.

In addition to consistency in longhouse construction, the design of enclosure earthworks appears to have been standardized as well. Enclosure earthworks consisted of U-shaped and V-shaped ditches that could include palisades, access walkways, structure footprints, cultural material or human remains in the fill. These features have been interpreted as defensive fortifications, animal enclosures, sacred areas or meeting places (Petrasch 2015:775). Ditched enclosures play a prominent role in two case studies from the late LBK included in this study, Herxheim and Asparn/Schletz. At Herxheim, human and cultural remains were deposited in

quickly excavated and filled V or U-shaped ditches, while at Asparn/Schletz, two intersecting ditches, one U-shaped and one V-shaped with earthen berm access bridges, included human remains in the fill.

Lithic Technology

European stone tool making traditions have generally been viewed as male dominated specialties (De Grooth 2015:488), with an uncritical generalization based mainly on the prevalence of these practical tools as status symbols in male graves during the Neolithic (Christensen 2004). A more inclusive view of who was involved in stone tool production has been proposed by experimental archaeologists who suggest that specialists in the production of lithics as well as other tools would have been any individuals who showed skill and aptitude in working with particular materials (De Grooth 2015:488). This broader understanding allows for female involvement in stone tool fabrication and use in home and village environments in prehistory (Gero 1991). Both men and women were certainly involved in making tools that were used for everyday work as well as weapons.

Tools as Weapons

The weapons utilized for violence and warfare during the Neolithic included practical tools designed for other purposes such as woodworking, farming and hunting, dubbed "tool-weapons" (Chapman 1999:108). These included axes, hatchets, daggers and other flint tools that may indicate evidence of use in household work or building that could also serve as effective weapons, along with spears and the bow and arrow (Chapman 1999:108; Christensen 2004:139-142). For example, the head trauma experienced by the 34 victims at Talheim resulted from a combination of bow and arrow, axe and hatchet strikes (Wahl et al. 2008). Dye and Fibiger

(2017) reproduced skull fractures suffered by the victims at Asparn/Schletz by testing a reproduction of wooden Neolithic club, dubbed the Thames beater, on fabricated skulls. The stacked calottes at Herxheim were created with hatchets, and the bodies were disarticulated with lithic knives and utilized flakes. The practical tools used in everyday tasks doubled as weapons when needed for defense, attack, or dehumanizing spectacle.

Mortuary Practices and Late Neolithic Violence

LBK people treated the dead in various ways depending on their particular mortuary practices. A single inhumation in a cemetery or settlement, where the body is crouched on the left side with the head to the east, has become the defining image of LBK burials (Hofmann and Orschiedt 2015:989; Meyer et al. 2014:311). When grave goods were included, they include personal adornment, pottery, stone tools, and animal bones that were "generally placed around the upper body" (Hofmann and Orschiedt 2015:989). Though a majority of excavated LBK burials conform to this general pattern, a significant range of alternative treatments also exists.

About 20% of LBK burials fall outside this 'normative' treatment of the body (Hofmann 2015). These include bodies laid out in diverse positions, heads oriented in different directions, without grave goods, and buried in more informal contexts such as middens. Bodies may be fragmented through human or animal actions, then added to commingled burials with other bodies in mass graves (Hofmann and Orschiedt 2015; Meyer et al. 2014). Hofmann (2015:119-121) points out that "themes of fragmentation and admixture", or what she considers the two foci of LBK treatments of the body, "presentation and fragmentation", are present at many LBK sites. She suggests that "cremation, defleshing or secondary burial are focused on fragmenting the human body, albeit at varying speeds and with greater or lesser control over the process"

(Hofmann 2015:120). What is stressed in LBK burial practice is the "repetition of ritual sequences" (Hofmann 2015:121) that is very evident at sites like Herxheim, which is included in this study. Among these themes of fragmentation and presentation, the extreme violence and overkill in evidence at certain LBK sites stand out.

Various studies of violent death and warfare in the late LBK provide numerous examples in the skeletal record of recurrent ante-mortem violence over the course of the lifespan of many of these individuals. Evidence for disabling, torture, extreme violence and a general atmosphere of violence includes extreme peri-mortem injuries focusing on the head, performative post-mortem processing and mutilation of the body, mass graves, bodies left to scavenging animals on the ground surface, building of defensive fortifications, and in some cases possible raiding for women while killing the majority of men, children and older women (Armit et al. 2006; Christensen 2004; Golitko and Keeley 2007; Meyer et al. 2014; Meyer et al. 2018; Wild et al. 2004). The LBK sites included in this study, Talheim, Herxheim and Asparn/Schletz, all emphasize fragmentation and presentation of the dismembered body, from the violent deaths of the victims, through the taphonomic processes that led to their burial, to the eventual condition of the remains found in excavations.

The social-structural reasons for these various treatments may be difficult to discern from the available skeletal material, but some clues are suggested by strontium isotope results. An analysis carried out by Bentley et al. (2002: 800-801) determined that non-locals may have, in general, been treated differently than locals at the three study sites in southwestern Germany investigated for this project. Their major findings were that 1) females were generally non-local, suggesting a patrilocal system of union; 2) being non-local might have had some influence on burial orientation; 3) non-locals were not buried with 'typical' grave goods; and 4) many non-

locals were from upland environments outside the loess farming areas. LBK communities were made up of locals and non-locals who received different treatment at death based on the systems of beliefs and logics inherent to the local mortuary culture.

Pueblo I-III Periods, AD 750 to 1400 – American Southwest

Overview

The Ancestral Pueblo peoples of the American Southwest developed complex agricultural systems based on the cultivation of maize that were vulnerable to the unpredictable regional oscillations between adequate precipitation and drought. Life during the Pueblo I-III periods (AD 200-1400) included times of plenty during which people built diverse settlements and small communities, to times of famine that saw multiple episodes of regional depopulation, increases in violence, and aggregation of communities. The Pueblo I-III periods are closely aligned with climatic shifts that ushered in these times of famine and plenty.

Ancestral Puebloan farmers, as Billman (2008:47) has argued, adapted particular crop strains to the ecologically diverse regions of the Southwest. They developed not only subsistence strategies that led to thriving periods of abundance, but the complex social structures to support their implementation and maintenance (Billman 2008:48-49). Because the Southwest is prone to periods of drought, however, sometimes very severe and extending over long periods of time, farming groups needed to retain their ability to move across the landscape in search of more optimal agricultural opportunities (Kuckelman 2016). Ancestral Puebloan peoples adapted to their unpredictable environment through migration, creating new technologies or implementing novel farming techniques as conditions changed, thereby changing their cultural landscape as well (Lekson 2002:611-612).

This was certainly true during the beginnings of agriculture in the Southwest (Cordell and McBrinn 2015:149). The agricultural complex of corn, beans and squash that developed during the Basketmaker periods (roughly 1500 BCE to AD 750) was firmly established by the onset of the Pueblo I period around AD 750. Ancestral Puebloan farmers included many other useful plants in their gardens, including amaranth, barley, cotton, Chenopodium and other wild species (Cordell and McBrinn 2015:135). A reliance on flocks of domesticated turkeys increased as corn cultivation expanded throughout the Southwest (Cordell and McBrinn 2015:136). During times of increasing populations and successful farming the health of the Southwest Pueblo populations improved (Stodder 2006). Evidence of more robust skeletal features and fewer degenerative skeletal conditions during times of plenty suggest more effort was expended on processing food (Stodder 2006:577-578). By contrast, the evidence of health impacts during times of drought and increased violence on the skeletons of Ancestral Puebloan people reflect a physically diminished and suffering population. Bacterial infections like tuberculosis, malnutrition, tooth health complications, vitamin deficiencies manifesting as scurvy and rickets, anemia and parasites were ubiquitous (Kuckelman et al. 2017; Stodder 2006:566-577).

Archaeological evidence supports the idea that many areas in the northern Southwest were periodically occupied and subsequently abandoned as climatic shifts to drier and warmer weather made continued agricultural success increasingly precarious (Billman 2008). The Southwest sites analyzed in this thesis (Figure 2.2) include: 1) Cowboy Wash, located in the southern piedmont of Ute Mountain; 2) Sand Canyon Pueblo in the central Mesa Verde region (both in modern southwestern Colorado); and 3) the Sacred Ridge site in the La Plata River Valley, which was recently inundated by modern Lake Nighthorse. Lifeways established during Pueblo I (AD 750-900) times resulted in regional depopulation around the time of climatic shifts

to warmer and drier growing seasons around AD 900. Pueblo II (AD 900-1150) period lifeways, after favorable climatic conditions around AD 1000, ended shortly after the onset of a severe regional drought around AD 1130. The Pueblo III (AD 1150-1400) period witnessed improved conditions after AD 1180 but ended with the onset of another harsh period of drought about AD 1270 (Kuckelman et al. 2017:95-96).

Violence during the Pueblo I-III periods has been interpreted as: 1) episodic, with periods of peace "interrupted infrequently by short outbreaks of violence and raiding" (Billman 2008:41); 2) as isolated instances during which everyone in a small farming community was attacked and killed in a display of institutionalized performative social control (Harrod 2017; LeBlanc 1999; Lekson 2002); or 3) systemic, in response to climatic shifts and reduction of resources (Kuckelman 2016). Evidence for the use of domestic tools as weapons and instruments of bodily processing is well-documented in the Southwest. Chipped stone knives and scrapers, axes, hammerstones, manos and metates were all found in association with disarticulated and processed remains at Cowboy Wash and Sacred Ridge (Billman 2000; Potter and Chuipka 2010; Stodder et al. 2010). Axes appear to have been the preferred method of dispatching and disarticulating people, as illustrated by the prevalence of this kind of blunt force trauma on cranial, facial and post-cranial skeletal remains (Larralde 1998). The atlatl and bow and arrow, projectile tools used in hunting, were also utilized in violent episodes. The atlatl was utilized in warfare throughout Central and North America for thousands of years before the introduction of the bow and arrow (Vanpool 2015). Rock art depictions of atlatls used in violent confrontations have been found at Basketmaker II sites (Reed and Geib 2013). By AD 500 the bow and arrow was the preferred weapon in both hunting and combat as evidenced by arrow projectiles

embedded in bone that resulted in violent deaths throughout the Southwest (Reeb and Geib 2013:107).

Regardless of the tools employed or the motivations for the violence, the archaeological and skeletal evidence makes it clear that violence during the Pueblo I-III periods was endemic and took many forms, from recurring physical abuse (Martin 2008, 2016), to torture (Osterholtz 2012, 2020), to bodily disarticulation and processing (Billman 2008; Stodder et al. 2010). These performative forms of violent expression occurred throughout the Puebloan period at varying scales, suggesting that a deep cultural significance was associated with those acts, which were accompanied by the assignment of meaningful roles to the willing and unwilling actors who participated in those performances.

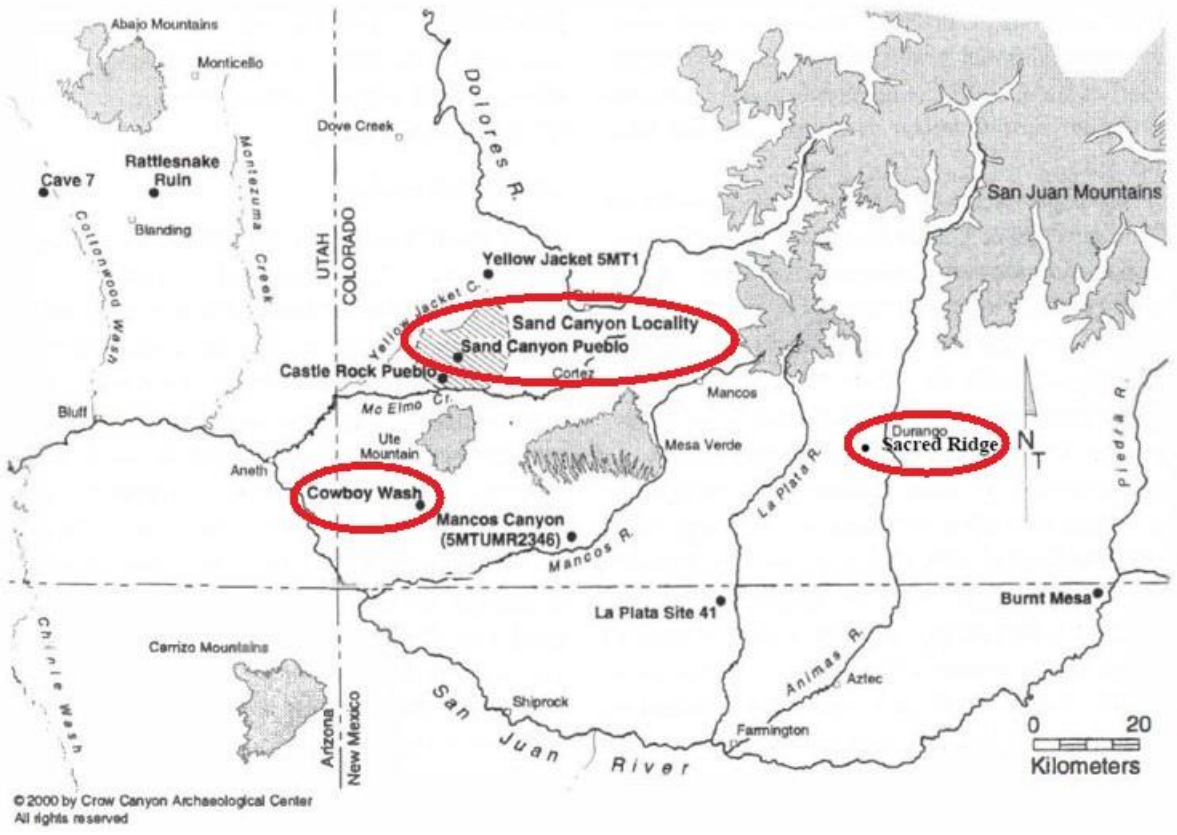

Figure 2.2 Locations of the Southwest case study sites (adapted from Kuckelman et al. 2002:487).

Pueblo I – AD 750-900

Ancestral Puebloan settlements during the Pueblo I period (AD 750 to 900) consisted of small groups of scattered farming families, with some larger village-sized communities. These low population density communities constructed pit houses with plastered walls and floors that could be more than a meter in depth and often contained even deeper storage pits, benches and a central hearth (Cordell and McBrinn 2015:160-161) (Figure 2.3). In addition to habitations, these settlements included communal gathering, cooking and storage areas (Cordell and McBrinn 2015:172). The larger village-sized settlements included rows of above ground adjoining rooms in addition to pithouses (Kuckelman et al. 2017:95). Along with hunting and gathering, corn, beans and squash were firmly in place by Pueblo I as the cornerstone of subsistence for these villages. Farmers adapted their growing strategies to conditions ranging from the fertile floodplains to more challenging mesa tops (Cordell and McBrinn 2016:169-170).

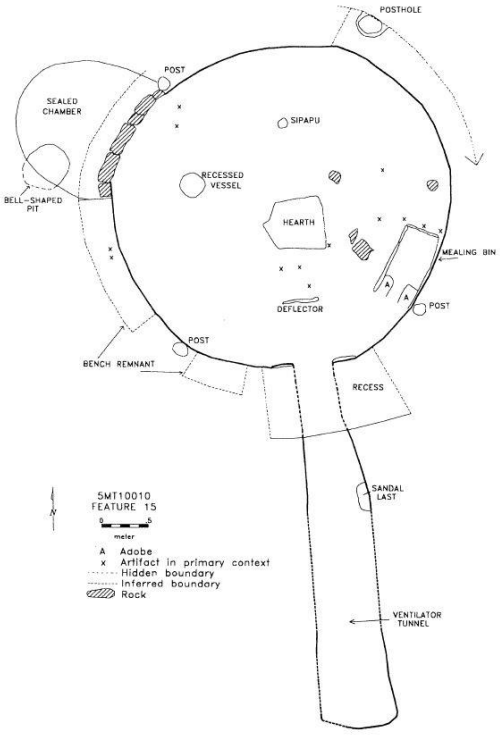

Figure 2.3 Typical pithouse plan (Billman et al. 2000:153).

Violence during the Pueblo I period in the Ridges Basin, now modern-day Lake Nighthorse near Durango, Colorado, is supported by evidence from sites throughout the region indicating that burned and mutilated bodies were dumped into pits following episodes of interpersonal and group violence (Potter and Perry 2011). The Sacred Ridge site in the Ridges Basin contained the skeletal remains of at least 33 people who were mutilated and systematically processed until there was little if any ability to identify pieces of their bodies as having belonged to a human being (Stodder et al. 2010). Sacred Ridge was abandoned around AD 810 and the basin was almost totally depopulated, possibly in response to the climatic downturn at the end of the Pueblo I period.

Pueblo II – AD 900-1150

The Pueblo II period (AD 900-1150) saw the rise of Chaco Canyon as the primary regional center in the northern San Juan and greater Mesa Verde regions of modern-day northwestern New Mexico and southwestern Colorado. By AD 1100, settlements consisted of small and dispersed groups of farming families, with little attention paid to locating settlements in defensible locations (Cordell and McBrinn 2015:209; Kuckelman et al. 2017:95; LeBlanc 1999:156). Habitation structures were now primarily above ground rooms, some with great kivas, while others were constructed in the style of Chaco Canyon great houses (Kuckelman 2017:95). These dispersed habitations on arable land in the Mesa Verde region interacted with Chaco Canyon and may have been influenced by that cultural system (Cordell and McBrinn 2015:209).

Corn remained the staple in the Pueblo II diet, with the addition of domesticated turkey in the San Juan Basin and Colorado Plateau. Heavy corn production was also relied upon to maintain sustainable turkey flocks (Cordell and McBrinn 2015:136; Kuckelman et al. 2017:95).

Skeletal evidence from this period related to community health "shows a marked increase in femur robusticity from 800-1150", mostly in females, which may reflect the increased labor required during times of good farming productivity (Stodder 2006:577-578). Increased robusticity in the arms and shoulders reflects greater time spent processing food and resulted in "degenerative conditions in women's elbow joints" (Stodder 2006:578). Despite this period of relative abundance, the Chaco political system ended around AD 1130, which coincided with a major drought that lasted well into the Pueblo III period. The end of the Pueblo II period was marked by a shift away from small, dispersed farming communities to large, aggregated villages in defensible positions.

LeBlanc (1999) and Lekson (2002) both describe the Pueblo II period as characterized by episodic outbreaks of extreme violence perpetrated on members of the dispersed communities. All the inhabitants of the small settlement of Cowboy Wash, for example, were executed in a premeditated public spectacle or attack, and then systematically processed and disarticulated. After the violent event their settlements were, as Snead (2008) has stated, prepared for destruction and decommissioned. LeBlanc (1999:176-177) likens the high number of murdered people, and the level of butchering their bodies were subjected to, to the treatment of animals for food.

Pueblo III – AD 1150-1400

The Pueblo III (AD 1150 to 1400) period began at the tail end of a cycle of drought that was accompanied by depopulation of certain regions and aggregation of smaller communities into larger settlements (Cordell and McBrinn 2015:227). Suitable conditions for farming returned in the late 1100s, followed by a dramatic rise in population and aggregated settlements that resulted in the largest pueblo settlements that had existed up to that point in the Southwest (Cordell and

McBrinn 2015:237; Kuckelman et al. 2017:96). These communities were centered on protected cliff dwellings or walled defensive villages. They employed stone masonry construction and built extensive public structures such as great kivas and multistory dwellings.

Around AD 1250 the climate again took a turn toward drier conditions in the greater Mesa Verde and San Juan regions, culminating in a major period of drought beginning in AD 1276. As a result, violence in the region once again escalated. Sand Canyon was a Pueblo III village centered around a spring that only lasted for about 30 years. The onset of the drought and human effects on the local environment severely reduced the diets of the Sand Canyon villagers (Kuckelman 2016:117-118). The village suffered an occupation-ending attack in AD 1280 which resulted in its residents being killed and disarticulated. The village and the greater Mesa Verde region were completely depopulated following violent events like these throughout the region, as the severity of the drought conditions made life untenable (Kuckelman 2016).

Comparative Summary

The case studies chosen for this comparative analysis exhibit patterns of overkill violence that allow us to test the hypothesis that such activity may be purposive and potentially predictable. The Southwest Pueblo periods and the Late European Neolithic are comparable in a number of ways: (1) a reliance on grain farming and animal husbandry; (2) similar levels of tool technology; (3) dramatic climatic changes that influenced their social fabric and networks; and (4) a focus on fragmentation, presentation and admixture in their violence practices, which remained consistent over long periods of time.

Both societies engaged in the kind of performative violence discussed in Chapter 1, behavior arising from a local cultural and historical script that defined roles for the individuals involved and rewrote or reinforced cultural rules and norms. The victims at Sacred Ridge and

Herxheim were subjected to extreme post-mortem processing. Victims at Cowboy Wash and Asparn/Schletz had their faces smashed and bodies torn apart in direct contrast to normative disposal or burial practices. The victims at Sand Canyon Pueblo and Talheim were killed in raid-like events and disposed of in commingled contexts in structures at Sand Canyon and in a single large pit at Talheim. Though we may never be able to fully understand the particular motives for the choices made by people in prehistory in enacting these violent scripts, comparing those scripts to one another may allow us to identify the similarities in interpersonal violence when the unthinkable becomes possible.

Chapter 3: Methodology

Six archaeological sites with evidence of overkill were chosen as case studies for this cross-cultural comparative analysis of extreme violence in early farming communities viewed as a cooperative and creative undertaking, rooted in local culture, with the body as the locus of performative action. The three central European Neolithic sites (5210 – 4950 BCE) date to the late central European Neolithic: Talheim, Asparn/Schletz and Herxheim while the three Pueblo I to Pueblo III sites (AD 700 – 1280) are from the Four Corners area of the American Southwest: Sacred Ridge, Cowboy Wash and Sand Canyon Pueblo. To allow a comparison of overkill in spite of the temporal and geographic gap between these cultures, an ordinal index, henceforth referred to as the Dehumanizing Violence Index (DVI), was designed to compare the level of violence between the sites in terms of damage to, and post-mortem manipulation of, the bodies of victims.

Sites with evidence of extreme violence documented archaeologically across space and time vary in the number, ages and demographic makeup of the victims. There is also great variation in the types of injuries and cultural modifications of the remains as well as the depositional patterns of the skeletal material. To analyze such a diverse data set requires an equally complex system of recording and a careful defining of variables. The analytical tools developed for such a study must be broad enough to include data on causal factors leading to death, and modifications to the body after death while making it possible to compare sites from different geographical and temporal contexts. At the same time, the analytical approach developed must be specific enough to exclude other types of violence indicators such as healed traumas, or archaeological sites where evidence of potential violence is present but may be more limited in scope and type and could be the result of multiple factors. The goal of the DVI as

developed for this project was to clearly define the variables most typically observed at overkill sites so as to be able to identify potential similarities between contexts where extreme violence has been documented. Ultimately the hypothesis to be tested is that particularly extreme and choreographed performative violence is associated with external and internal stressors that are archaeologically recognizable and could have predictive value. Environmental destruction and population increase combined with resource scarcity that cannot be ameliorated through intensification are all possible in this scenario.

The first section of this chapter describes the case study sites in detail along with the variables, referred to as damage characteristics, of overkill that were recorded and illustrated for each site. The next section discusses the ordinal index, the DVI, as an analytical tool in terms of the research questions posed in Chapter One.

Central European Late Neolithic Case Study Sites

Talheim

The site of Talheim in central Germany on the Neckar River just south of the city of Heilbronn was the site of a late Neolithic massacre dated to around 5100-5090 BCE (Wahl and Trautman 2012:78). Excavations in 1983 and 1984 by the Landesdenkmalamt of Baden-Württemberg led to the discovery of a 3m x 1.5m mass grave that contained the skeletal remains of 34 individuals (Figure 3.1). The Neolithic village of Talheim was part of a regional cluster of villages along the Neckar River that is thought to have been founded only a few decades before the massacre event (Strien et al. 2013:251). This may represent a parallel situation with Sacred Ridge, where there is evidence that the victims were recent immigrants to the area.

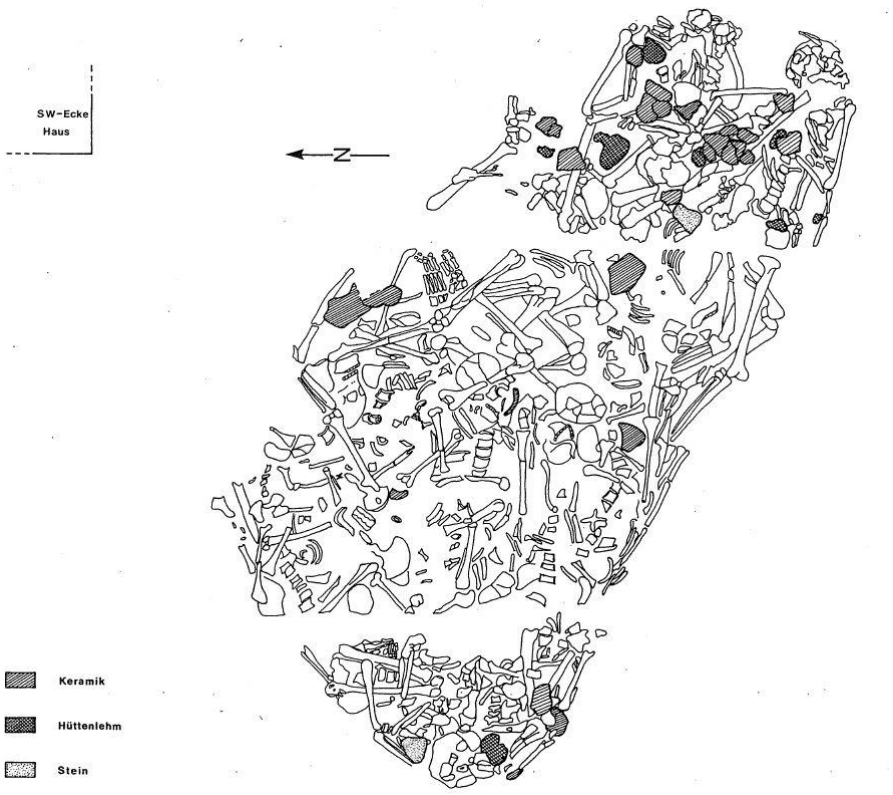

Figure 3.1 Compilation of the human remains from the 1983 and 1984 excavations (Wahl and König 1984:68).

The minimum number of individuals (MNI) was determined through examination of the long bone fragments (Wahl and König 1984:73). Data on dental development, cranial sutures and cranial bone thickness indicate that the deposit included 16 children, with the youngest around two years old, and 18 adults, with the oldest around 60 years old (Wahl and König 1984:73-74; Wahl and Trautman 2012:82). Sex estimation revealed a relatively even split between males and females, consistent with the demographic profile of a Neolithic village in this region (Wahl and Trautman 2012:82).

Several factors indicate that the victims were killed and buried during one relatively brief episode of violence. At the time of the 1983-1984 excavations, the human remains were found as a densely packed layer between 10-12 centimeters thick with little to no fill between the bodies

(Wahl and König 1984:69; Wahl and Trautman 2012:80). The victims seem to have been tossed into the pit one on top of another, many on their stomachs with their arms and legs in unnatural positions (Wahl and König 1984:71-72). The skeletal remains showed no indications of animal gnaw marks, which suggests they were not left on the surface very long after their deaths (Wahl and König 1984:124).

The manner of death was clearly evidenced by the cranial remains (Tables 3.4 and 3.5). Victims were generally attacked from behind with flat axes and shoe-last adzes of varying thicknesses, sustaining from one to three plus blows focused primarily on the occipital and right parietal areas of the head (Wahl and Trautman 2012:84-85). Flat axes were the dominant weapon, perhaps due in part to their thinner blade and ability to penetrate deeper upon impact (Strien et al. 2013:253). Archers were also present because at least two victims were hit in the back of the head by arrows (Wahl and Trautman 2012:85). Wahl and König (1984:184) profiled and reconstructed the violent scenarios leading to death for each of the 20 (out of 34) individuals whose remains showed clear evidence of violence. Scenarios of some of the more egregious attacks are highlighted below, but victims were generally struck or shot from behind in ways that appear to have immediately killed or knocked them unconscious. The attackers then stood or knelt over the victims and delivered one to several more blows to the head.

Evidence for violence on the post-cranial remains was difficult to identify due to the level of fragmentation, though several indications were present. Fractures resulting from blunt force hits are visible on long bones and a pelvis, while evidence for an arrow injury is present on a thoracic vertebra (Wahl and König 1984:167-168). Defensive injuries such as parry fractures are absent or not visible in the post-cranial skeletal remains, suggesting that the victims did not put up much of a struggle (Wahl and König 1984:184).

Victim Health and Relationships

Pathologies within the victim group, based on skeletal evidence, included dental caries in older individuals, healed cranial traumas and indicators for periods of malnutrition in childhood (Wahl and König 1984). This suggests that overall health was stable, with intermittent food scarcity for short durations during the main period of subadult growth.

Relationships among the victims have been identified through strontium isotope analysis. Analysis of the bone and tooth enamel from 22 individuals revealed noticeable groups that differentiated Talheim individuals into primarily upland or lowland residents (Price et al. 2006:275). Bentley (2012:305-308) describes three groups (a) primarily local individuals, including the children, (b) a possible nuclear family, and (c) a group of two males and females, the males as possible siblings. Bentley (2012:308-310) also discusses the evidence for agricultural and animal husbandry specialization, along with access to land and patrilocal residence patterns in LBK society. These social organizational trends combined with the strontium isotope results from Talheim further suggest that the victims were part of a characteristic LBK village community. Damage characteristics for Talheim, presented in Tables 3.1 and 3.2, suggest that there was little distinction between these categories as to the types and level of violence they experienced.

Table 3.1 Recorded damage characteristics present between age groupings on skeletal material at Talheim (Wahl and König 1984; Wahl and Trautman 2012).

Recorded Damage Characteristics (RDC)	Subadults 3-18 years old	Adults 19-40 years old	Senile 40-60 years old
Cranial Damage			
Blunt Force Trauma	X	X	X
Sharp Force Trauma	X	X	

Multiple 2+ Traumas	X	X	X
Projectile Trauma		X	X
Total # RDCs	3	4	3

Table 3.2 Recorded damage characteristics present between sex groupings on skeletal material at Talheim (Wahl and König 1984; Wahl and Trautman 2012).

Recorded Damage Characteristics (RDC)	Female and Probably Female	Male and Probably Male
Cranial Damage		
Blunt Force Trauma	X	X
Sharp Force Trauma		X
Multiple 2+ Traumas	X	X
Projectile Trauma		X
Post-Cranial Damage		
Blunt Force Trauma		X
Projectile Trauma		X
Total # RDCs	2	6

Trauma Descriptions

Wahl and König (1984) created profiles for each of the victims at Talheim with clear evidence of violent death. They provided a summary of the identifiable trauma for each individual, followed by a more detailed description of the particular trauma each individual experienced, a reconstruction of how the trauma occurred, and the consequences of the trauma for the victim. The four examples below demonstrate how Wahl and König's (1984) descriptions

were used to illustrate the level of violent overkill experienced by the victims at Talheim as interpreted in this study.

Individual 83/15B, Male, 10-12 Years (Wahl and König 1984:151)

This individual experienced multiple and overlapping blows to the left and rear side of the head, possibly with multiple instruments, and probably while in a lying position. The main area of trauma is almost ten centimeters across the left parietal, into the occipital bone, including a hole of approximately 20 millimeters in diameter. This individual experienced a series of hits so destructive that the left hemisphere of their brain would have been exposed and smashed. Unconsciousness was most likely immediate with death following quickly thereafter.

Individual 83/22A, Probably Female, 15-20 Years (Wahl and König 1984:158)

This individual was struck from behind, most likely with a flat hoe instrument perpendicular to the right side of their head and knocked down. The perpetrator then presumably stood over the victim and delivered several more blows to the rear right parietal resulting in an open cerebellar injury, and blunt force fractures and impressions to the occipital bone. The victim may not have died immediately but would have been promptly incapacitated and then likely bled to death.

Individual 83/20C, Female, 20-30 Years (Wahl and König 1984:155-156)

This adult female experienced such trauma to the front right side of the face and forehead that individual hits cannot be determined. Wahl and König describe her injuries as a fracture system stretching across her forehead and right side of the skull measuring 20cm x 5cm. This

treatment resulted in traumatic brain injury. The victim may have been immediately incapacitated, eventually dying from bleeding within and out of the brain.

Individual 83/22C, Male, 20-40 Years (Wahl and König 1984:161-162)

This adult male was struck by at least three blows to the head. The first may have been when he was still standing while the other two were delivered by the attacker from over and above the lying victim. Blows were delivered by a shoe-last wedge and a flat hoe. Trauma consisted of a fracture hole of 20-30mm to the left forehead, a 70 x 25mm oval shaped fracture to the occipital, and indications of another blunt force injury to the right parietal. The victim was most likely unconscious after the first hit, their skull opened. Death was directly caused by bleeding within and out from the brain.

Summary

As the above examples illustrate, the 34 individuals uncovered at Talheim experienced an event of extreme violence that may have ended the village occupation (Strien et al. 2013:254). The bodies were buried shortly after the massacre with little care or evidence of emotional attachment to the dead (Wahl and Trautman 2021:89). A closer reading of the trauma evidence might suggest that the females and children were subjected to more extreme treatment overall than males even though Table 3.2 suggests that males reflect a wider range of RCDs. For example, treatment of the children is exemplified by individual 83/15B highlighted above. They were beaten until their skulls were smashed and opened. Treatment of females is exemplified by 83/20C highlighted above, beaten until they died from bleeding out of the brain. Strien et al. (2013:253) suggest that the extreme nature of the violence communicated at Talheim was derived from a deeply emotional motive. Whatever the perpetrators' reasons ultimately were, the

result was the decimation of an entire village community, literally erasing them from the landscape.

Asparn/Schletz

The late Neolithic site of Asparn/Schletz is located near the modern town of Asparn an der Zaya in the Weinviertel region of Niederösterreich, or Lower Austria, about 50km north of Vienna. After the presence of possible earthworks were identified at the site by aerial photography, survey and excavations were conducted there in 1983 by the Niederösterreichisches Landesmuseum and continued into recent years. Two intersecting ditch systems of oval and trapezoidal shapes, with earthen causeways and evidence of buildings, have been identified. The human remains of at least 67 individuals, dated from 5210 to 4950 BCE, were recovered from areas in the oval ditch system (Teschler-Nicola 2012). Evidence of a catastrophically violent event was identified on all the cranial remains recovered from the site.

Demographic Profile, Health and Diet

Of the 67 individuals recovered from the oval ditch segment, 26 were children and 41 were adults. A high percentage of the children were very young with several being infants and newborns. The sex ratio of the 41 adults was 26 males to13 females, with an even split of ten males to nine females in the 40–60-year-old category, and 17 males to five females in the 20–40-year-old category (Teschler-Nicola 2012:105). Although the number of total individuals could have represented the "living population" of the site at that time (Teschler-Nicola et al. 1996:6), there is clearly a lack of females in the younger age bracket, with the young children and babies included among the victims possibly belonging to the missing segment of the community, who likely were taken back to the settlement of the attackers after the killing of their families.

Pathologies in the population were consistent with other Neolithic communities during this time period. There is clear evidence of anemia in the form of cribra orbitalia, or lesions in the roof of the eye sockets caused by iron deficiency (Teschler-Nicola et al. 1996:7). Also present is evidence of vitamin deficiencies and inflammatory diseases such as meningitis and sinusitis, which can leave traces on the skull and nasal bones (Teschler-Nicola et al. 1996:7). These pathologies suggest that diet was limited to mostly plant-based resources, based on an analysis of tooth abrasion (Teschler-Nicola et al. 1996:8), reflecting periods of food insecurity. Botanical remains from a "spring" or well feature excavated in the oval ditch segment included einkorn and emmer wheat, along with barley as the majority of plant material present (Windl, 2002:142). Strontium isotope analysis suggests the 67 individuals in the oval pit were locals (Teschler-Nicola et al. 1999:447). The victims in the oval ditch segments lived a seasonal lifestyle of alternating abundance and nutritional scarcity and were ultimately the victims of a violent attack. Since "no archaeological traces for continuity of settlement activity" have been found for the post-violence period, the massacre most likely led to the abandonment of the site (Teschler-Nicola 2012:102).

Ditch Enclosures

Two trenches, or ditches, originally detected through aerial photography, were recorded during the excavations conducted at the site since 1983 (Fig 3.2). The trapezoidal shaped ditch is approximately 400m long, while the oval shaped ditch is approximately 330m long. Both have similar dimensions of roughly four meters across by two meters deep, with the trapezoidal ditch cutting into the oval ditch (Teschler-Nicola et al. 1996a:61; Windl 2002:140, Windl 2009:191). The two ditches intersect at two points and are crossed by two earthen berms, or "causeways", to the east and west (Windl 2002). Windl (2009:195) suggests that "several

hundred" people may have taken part in the digging work because of the ditch size and because they were filled in relatively quickly, though they were never completed. Outlines for nine structures were found at the southern end of the site (Windl 1994:14). The remains of the 67 individuals were uncovered in several locations in the inner oval ditch (Windl 2009:193).

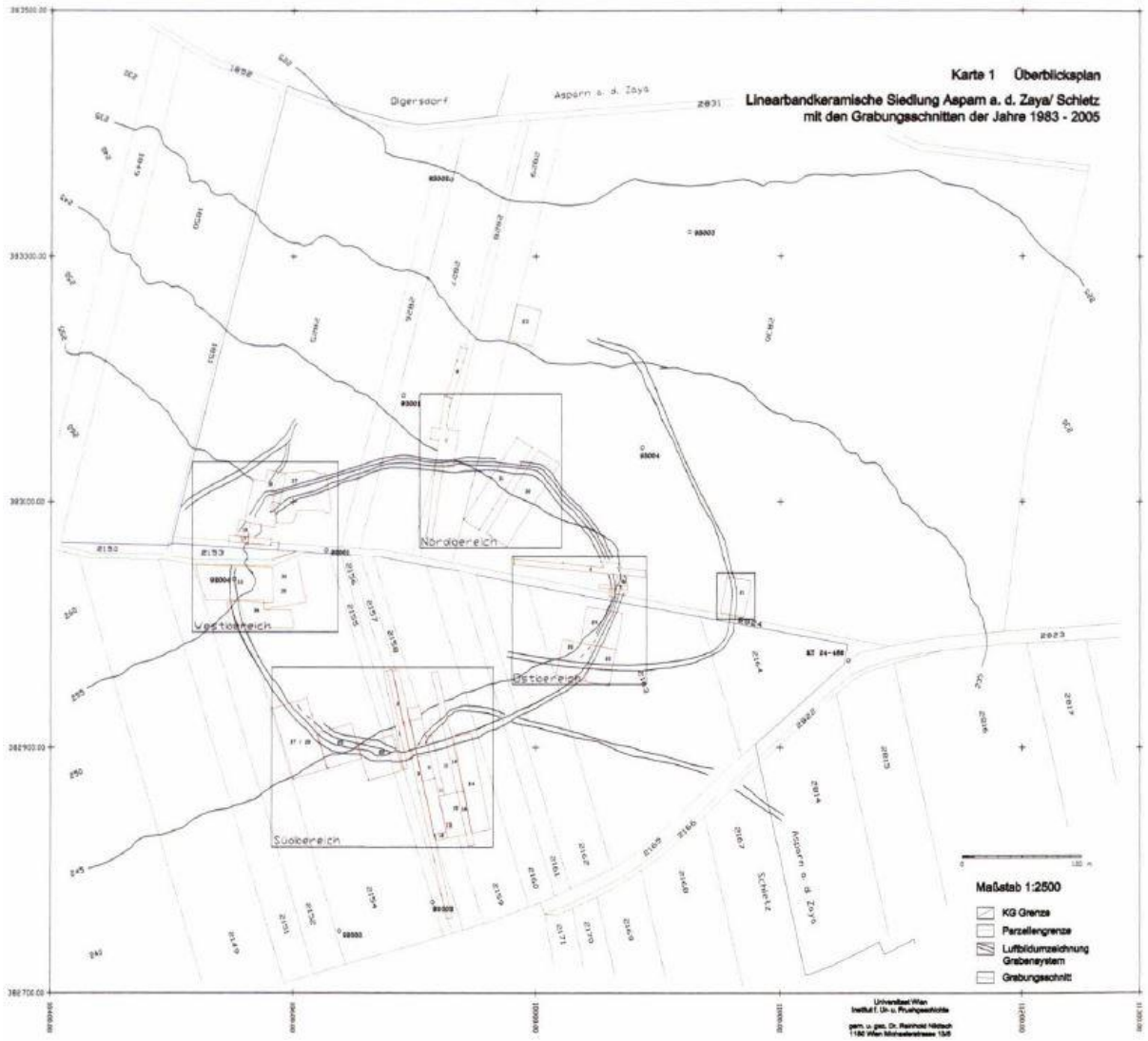

Figure 3.2 Overview plan of ditches at Asparn/Schletz (Windl 2009: 192).

Trauma Descriptions and Fracture Types

Damage characteristics at Asparn/Schletz are summarized in Table 3.3. Of the 67 individuals counted, 33 were identified through their cranial material. All 33 skulls, whether

whole or fragmented, evidenced “perimortally induced bending and burst fractures” on the cranium as well as the face (Teschler-Nicola 2012:106). All crania evidenced multiple intersecting fracture bends and lines from blunt force weapons, with up to eight distinct injuries on one cranium (Teschler-Nicola 2012:110). The faces of victims were beaten or smashed, showing varying degrees of Le Fort fractures to the maxilla, mandible, nasal bones, ascending ramus and eye orbits (Teschler-Nicola et al., 1996b:68). Violence was not differentiated between age or sex groups as all victims received the same level of violent treatment, including the infants and children (Teschler-Nicola et al. 1996a:11).

Teschler-Nicola (2012) describes in detail the various fracture types that victims at Asparn/Schletz endured. Bending fractures occur from “substantial force directed at a limited part of the cranium” that can distort the bone to take the shape of the tool used in the attack (Teschler-Nicola 2012:106). Burst fractures occur away from “the point of impact and therefore are a result of shape changes/compressions of the whole skull” (Teschler-Nicola 2012:106). For example, a 9–10-year-old was struck on the side of their head while lying on the ground. This resulted in a side to side burst fracture with their cranium being compressed (Teschler-Nicola 2012:110). Another individual experienced an impact from the top of the head that forced their spinal column into the cranial base, creating what are called ring fractures at the base of the skull (Teschler-Nicola 2012:111). Fractures to the face resulted from impacts from above and from the side, breaking the lower jaw of a seven-year-old, and the maxilla, teeth and nasal bones of an adult male (Teschler-Nicola 2012:111). An analysis of the strike patterns “shows that the right side was injured approximately as often as the left” (Teschler-Nicola 2012:113). Some of the victims may have tried to fight back, sustaining injuries from a right-handed attacker, while others were struck while trying to flee (Teschler-Nicola 2012:113).

Evidence for violence on the post-cranial skeleton is limited (Teschler-Nicola 2012:113). Bodies were allowed to remain on the ground surface for as long as six months as indicated by the high prevalence of animal gnaw marks on many of the remains. Prolonged exposure to the elements and scavenging carnivores resulted in evidence of dismemberment and disarticulation (Teschler-Nicola 2012:110, 116). There was also a lack of hands and feet or "distal portions of the extremities", many of which were missing from the skeletal assemblage (Teschler-Nicola 2012:116). Positioning of the bodies upon excavation revealed "atypical postures", suggesting the victims' remains were tossed into the pit without typical respectful burial treatment (Teschler-Nicola 2012:104). Windl (2002) notes that interpretation of the stratigraphy within the bone find layers suggests there was one violent event during which all the victims were interred within the same period.

Table 3.3 Recorded damage characteristics present in the skeletal remains at Asparn/Schletz (Teschler-Nicola 2012; Teschler-Nicola et al. 1999; Teschler-Nicola 1996a; Teschler-Nicola 1996b)

Recorded Damage Characteristics (RDC)	All Age and Sex Categories
Cranial Damage	
Multiple Blunt Force Trauma to the Cranium – Bending and Burst Fractures	X
Destruction of the Face	X
Destruction of Mandible and Teeth	X
Cranial Smashing-Neck Ring Fractures	X
Post-Cranial Damage	
Left Exposed on Ground Surface	X
Carnivore Fragmentation and Dismemberment – Missing Hands and Feet	X
Total # RCDs	6

Summary

The Neolithic population at Asparn/Schletz experienced a violent confrontation that resulted in at least 67 people killed and left out on the ground surface to be scavenged by local carnivores. They were later disposed of rather than formally buried in portions of the oval shaped ditch system. The total number of victims may be much higher as portions of the ditches have yet to be excavated (Windl 2009:193). The low number of younger women in the assemblage, and the high number of very young children and babies has suggested the possibility that some women were spared and taken by the attackers (Teschler-Nicola 2012:105). Regardless of the motivations, the attack on Asparn/Schletz was a village ending event with dire consequences for the local population at that time.

Herxheim

The Neolithic site of Herxheim is located in the modern town of Herxheim bei Landau/Pfalz, west of the Rhine River in the Rhineland-Palatinate and approximately 31km north-west of the city of Karlsruhe. The elements of the site that concern this study are two roughly parallel ditch segments that were excavated as part of rescue operations from 1996 to 1998, followed by research excavations from 2005 to 2008 (Figure 3.3). Both ditch segments revealed striking finds that included disarticulated and systematically butchered human remains, evidence for destruction of cultural materials such as pots and stone tools, and the inclusion of butchered animal remains. Dating of human bone from the ditches places the site firmly within the late Neolithic between 5210 and 5050 BCE (Haack 2016:34).

Figure 3.3 Plan map of ditch segments at Herxheim (Zeeb-Lanz 2016a:173).

Sex and age estimations were based on the high number of complete crania, cranial fragments, calottes and full or partial burials (Orschiedt and Haidle 2012:124). The minimum number of individuals identified in this analysis was approximately 325 victims recovered during the 1996 to 1999 excavations (Orschiedt and Haidle 2012:124). The 2005 to 2008 excavations recovered another 84 skullcaps (Haack 2016). The actual number of people buried at Herxheim is possibly far higher as much of the site remains unexcavated. The victims included children and adults, from neonates and subadults to the elderly (Orschiedt and Haidle 2012:125). Males and females were most likely both represented, but this was difficult to determine because "all

sexually dimorphic areas of the cranium were missing" (Orschiedt and Haidle 2012:126). Disease prevalence and dental pathologies were limited, indicating that the victims at Herxheim were not experiencing disease or lack of subsistence before their processing and deposition into the ditch segments (Orschiedt and Haidle 2006:161; Orschiedt and Haidle 2012:133).

Standardized Processing of the Human Remains

The cranial and post-cranial human remains uncovered in the ditch segments at Herxheim exhibit a variety of extreme treatments (Table 3.4). The most striking of these, which is unique to Herxheim, is the purposeful creation of calottes, the top portion of the cranial vault that includes pieces of the frontal, parietal and occipital bones. Calottes were carefully shaped and often stacked, or purposefully placed together throughout the concentrations of human bone in the ditches. Post-cranial remains also display evidence of systematic butchering and processing.

Calottes

Most of the crania of the victims at Herxheim were subjected to a transformative process that turned human heads with faces and identities into calottes (Zeeb-Lanz et al. 2016:181). The steps involved in the creation of a calotte included the complete fragmentation and destruction of the victim's head by 1) a cut from the "root of the nose to the nape of the neck" along the sagittal suture (Boulestin et al. 2009:976); 2) cut marks indicating the removal of the cranial skin (scalp) and soft tissue (Boulestin et al. 2009:976; Orschiedt and Haidle 2006:160; Orschiedt and Haidle 2012:127); 3) removal of the face through cut marks on the connective tissues of the mandible including removal of the tongue (Boulestin et al. 2009:976; Orschiedt and Haidle 2012:127-128); and 4) the careful application of hammer blows around the lower areas of the brain case and forehead, removing and fragmenting the eye orbits and lower areas of the parietals and occipital

bones, releasing the calotte (Orschiedt and Haidle 2006:160). Sometime after this process the calottes were intentionally placed or stacked in several concentrations within the pit structures with similarly processed post-cranial remains, pottery, lithics, personal adornment objects, and animal remains.

Post-Cranial Processing

Along with the fragmented cranial remains and calottes, the post-cranial remains at Herxheim also suggest systematic processing of the human body. Bodies were taken apart, defleshed and the bones smashed. Cut marks indicative of skinning and removal of soft tissue appear on long bones and areas of connective tissue to bone. Purposeful bone smashing and splintering is indicated by the presence of percussion and anvil marks. Post-cranial damage was done to green bone, shortly after death while the bone was still fresh. The steps involved in the systematic butchering of the post-cranial body as aggregated from Boulestin et al. (2009) and Zeeb-Lanz et al. (2016) included 1) cutting of the muscles and connective tissue around the shoulder blades and clavicle to remove the arms and upper body tissue; 2) severing of the rib bones from the vertebra and disarticulation of the vertebral column; 3) removal of the legs from the pelvis by cutting through connective tissues, and removal of or smashing of the spongy bone/epiphysis of the long bone; 4) cutting and scraping away of all soft flesh; 5) splintering of long bones by smashing and hammering; and 6) scraping of marrow from inside the long bone fragments. Unlike the intentionally placed calottes, the post-cranial remains seem to have been haphazardly deposited within the pit concentrations (Zeeb-Lanz et al. 2016:145) This was clearly a time consuming and bloody process that would have produced a scene of significant social meaning to the participants and spectators. As recorded in Table 3.4, all areas of the cranial and post-cranial body were subjected to extreme treatment and disintegration.

Table 3.4 Recorded damage characteristics present in the skeletal remains at Herxheim (Boulestin et al. 2009; Orschiedt and Haidle 2006; Orschiedt and Haidle 2012; Zeeb-Lanz et al. 2016).

Recorded Damage Characteristics (RDC)	Cranial	Post-Cranial
Cranial		
Removal of Skin	X	
Defleshing	X	X
Dismemberment/ Disarticulation	X	X
Fragmentation/ Smashing		X
Cutting/Severing of Muscle and Tissue	X	X
Intentional Shaping of the Bone	X	
Scraping out Marrow		X
Burning	X	X
Total # RCDs	6	5

Ditch Fill Processes and Cultural Material Concentrations

The current understanding of the site is that the two parallel ditches were constructed by separate multiple overlapping V and U-shaped pits that produced the effect of a "continuous ditch-like structure" (Haack 2020). Haack (2016; 2020) suggests that the pits were infilled relatively quickly based on the absence of evidence for erosion of the side walls into the bottom, little indication of recuts, the high proportion of artifact and human remain refits towards the bottom of the pits, no evidence for animal gnawing, and the scatter-like nature of the deposited cultural material and human remains. A maximum timespan of 50 years had previously been proposed for the ditch segment construction and depositional phase, but as Haack (2020) suggests this time period may have been much shorter based on more recent evidence.

The 2005-2008 excavations determined that cultural objects and human remains were deposited in intentional concentrations of material (Zeeb-Lanz et al. 2016:144). The levels of distinct materials in these concentrations varied considerably between the pits. Artifacts and human remains share "striking parallels in composition and in the modalities of deposition, but different in spatial extent, amount of material deposited and number of different material categories which are represented" (Haack 2020:55). Both human remains and artifacts were destroyed prior to deposition. Pottery and lithics were broken and made unusable. Animals were butchered, and certain parts of them, or certain kinds of animals, appear to have been favored for inclusion in the pits. In addition to the seemingly intentional placement and arrangement of calottes, other material may just as often have been casually dumped in from the surface (Haack 2016; 2020; Zeeb-Lanz et al. 2016). Many pottery sherds and human bones refit with others across stratigraphic levels and depositional contexts. The number of each item varies significantly between concentrations and may or may not contain human remains buried with them. Items were so broken and scattered that in no concentration was it possible to fully reassemble a whole pot, stone tool, or human skeleton (Haack 2020:64).

Summary

The main focus at Herxheim "appears to have been the violent destruction of items of material culture and especially of human bodies" (Haack 2020:62). Many pottery styles were found at the site that are from the region and beyond, which suggests a diverse collection of people participated in what ultimately happened at Herxheim. The fragmentation of objects and people appears to have been intentionally equivalent; regardless of the level of decoration, all pottery recovered was equally fragmented (Haack 2020:62). All lithics were dulled or broken. All human remains were butchered and processed. Whoever these victims were, regardless of

their social status, and wherever the cultural material in the ditches came from, the treatment was standardized, repetitive and completed with intention and haste (Zeeb-Lanz et al. 2016:185).

American Southwest Pueblo Period Case Study Sites

Sacred Ridge, Pueblo I

The Sacred Ridge site (5LP245) is located in the Ridges Basin, a few miles southwest of Durango, Colorado in the Four Corners region. A Pueblo I ridgeline habitation site located in the southwest of the basin, Sacred Ridge was excavated by SWCA from 2003 to 2005 as part of the Animas-La Plata archaeological project in preparation for the flooding of the basin to create Lake Nighthorse. Ten areas, or loci, were designated for Phase 3 excavation (Chuipka 2009:1). Three features were discovered during the course of the excavations that contained the disarticulated and heavily processed remains of at least 33 people, including ten adult males and seven adult females as well as children and infants in the skeletal assemblage.

Sacred Ridge was a village site containing 22 pit structures, which served both as habitation and communal spaces. It was occupied from about AD 700 to 810 and was part of a "village community" (Potter and Perry 2011:532) made up by a collection of hamlets within and surrounding the basin inhabited by people who were likely immigrants to the area with "distinct social identities" (Potter and Perry 2011:532). The eastern and western subregions were distinguished by differences in pit house shapes and construction practices as well as different mortuary practices. Dental and cranial biodistance studies "indicate that some of the house clusters represent distinct biological and possibly ethnic groups" (Potter and Perry 2011:532). People of different origin in the basin appear to have been attempting to live together while following a diverse set of lifeways.

The mortuary assemblage in the basin appears to support "the hypothesis that groups with distinct social identities occupied different areas of the basin, particularly the eastern cluster and Sacred Ridge" (Potter and Perry 2011:538). Burials were generally flexed or semi-flexed. Eastern burials appeared most often in extramural contexts and middens, while the western interments, including Sacred Ridge, were most often placed within structures (Potter and Perry 2011:538). Mortuary assemblages also exhibited differences between east and west, especially with respect to the number and types of grave goods. Ceramic vessels, shell and faunal ornaments were more prevalent in the east, while minerals such as turquoise crystals and quartz are more common in the west and at Sacred Ridge (Potter and Perry 2011:538).

Evidence from excavated remains throughout the basin suggests that violence was a regular part of life for the inhabitants at this time. Skeletal elements from several sites indicate that bodies were burned and buried under collapsed structures, while projectile points found in association with remains and groups of individuals with cranial trauma that were dumped into pits suggest causes of death in numerous cases were due to interpersonal violence (Potter and Perry 2011:533). At Sacred Ridge, the massacre of at least 33 people took place shortly before complete site abandonment around AD 810. Thousands of fragments of bone were deposited in three pit structures designated Features 58, 134 and 104. (Figure 3.4) The pit houses where human remains were uncovered appear to have been cleared of other cultural material except for some of the possible tools used in processing the remains. Feature 104 contained the most fragments, with almost 15,000 (Stodder et al. 2010:279). The bodies of the Sacred Ridge victims were subject to extreme post- mortem processing that was repetitive and patterned, so much so that every area of the body was subjected to perimortem trauma (Osterholtz 2016:126).

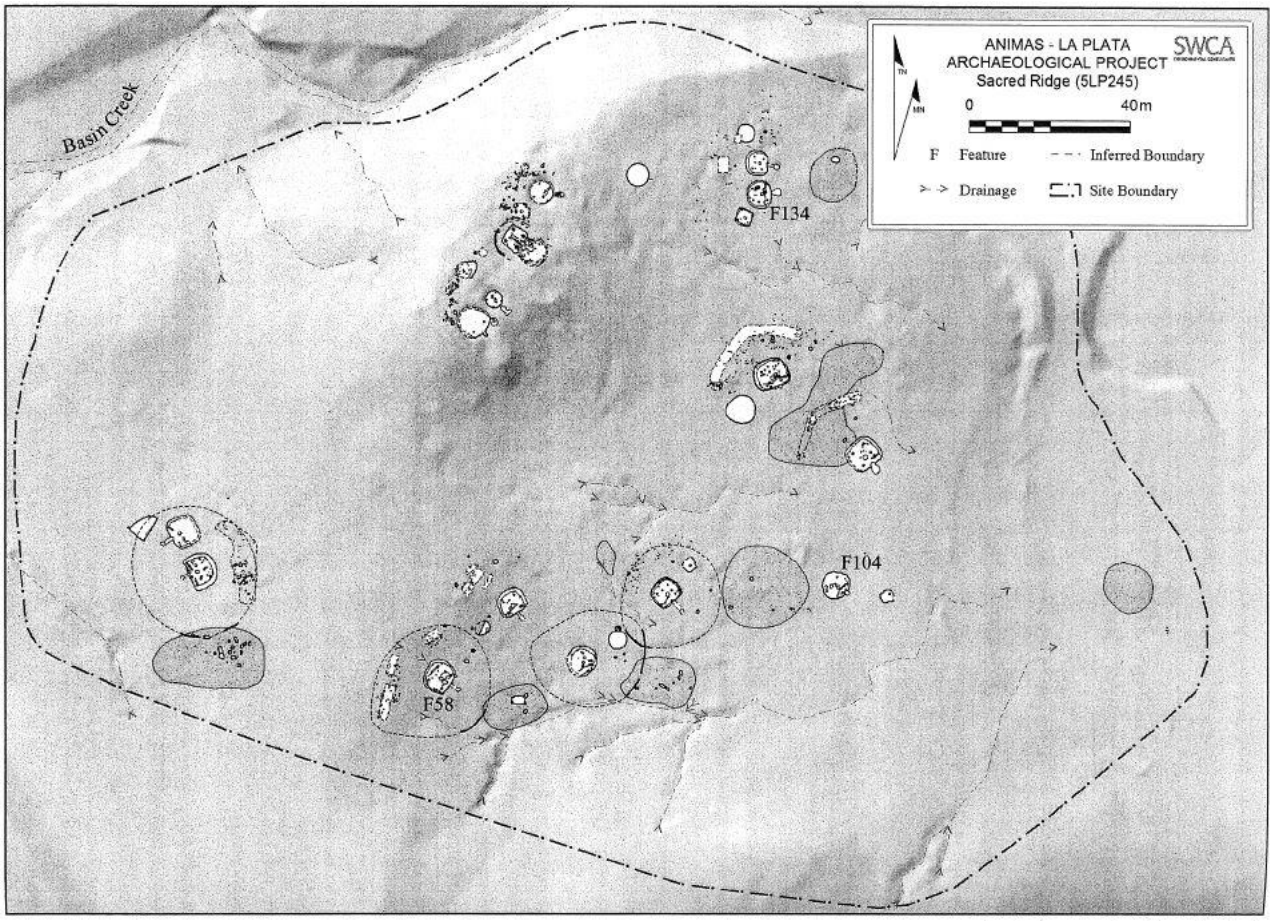

Figure 3.4 Sacred Ridge feature plan map (Stodder et al. 2010:280).

Processing patterns were consistent between individuals in the assemblage. Visible on the crania are cut and scrape marks that indicate scalping, severing of connecting tissues, removal of the ears, percussive pitting indicative of breaking up the skull, and radiating fractures that indicate the possible removal of the head (Osterholtz 2016:127-131; Stodder et al. 2010). Smashing of the back of the head was indicated by ring fractures and intersecting ring fractures. Faces of the victims were ripped from the crania and torn apart as evidenced by fractured jaws, tool marks on the mandibles and in areas of muscle attachments. Fractures to the front and side of the face included Le Fort, ablation and tripod fractures, destroying the facial bones, eye orbits,

mandibles and teeth. Tool marks and peeling were present on the zygomatic processes to remove the jaw, including removal of the maxilla and crushing of the nasal apertures (Stodder et al. 2010; Osterholtz 2016:127-131).

Post-cranial processing of the body also appeared to follow a patterned procedure. Long bones were universally fractured into small pieces and none of the recovered fragments were longer than 5cm (Osterholtz 2018:470). Femurs and elbows appeared to have been severed from their connecting joints through similar processes, including evidence of defleshing through hammering and scraping (Osterholtz 2018:470). Victims' feet were also processed through smashing and cutting of the tops, bottoms, heels and ankles (Osterholtz 2010, 2012, 2013). Burning was also evident on many bones when the flesh was still attached (Osterholtz 2018:471). The victims' bodies were subjected to a level of processing that left few recognizable traces of the people they had been known as in the community. Processing at this level would have been an arduous and gruesomely graphic task (Table 3.5).

Table 3.5 Recorded damage characteristics present in Features 58, 104 and 134 on Skeletal material at the Sacred Ridge Site, 5LP245 (Potter and Chuipka 2010; Stodder et al. 2010).

Recorded Damage Characteristics (RDC)	Feature 58	Feature 104	Feature 134
Cranial Damage			
Cut Marks		X	
Scalping Cut Marks		X	X
Destruction of Facial Bones/Teeth		X	X
Decapitation		X	
Burning	X	X	
Fragmentation	X	X	

Post-Cranial Damage			
Cut Marks on Multiple Areas		X	X
Chop Marks on Multiple Areas		X	X
Dismemberment		X	X
Disembowelment			X
Removal of Hands			X
Fragmentation		X	X
Splintering		X	
Destruction of Feet		X	
Burning		X	
Total # of RDCs	2	13	8

Table 3.5 indicates that Feature 104 produced evidence for the greatest number of processing steps, consistent with the fact that it also contained the largest number of skeletal fragments, while Feature 58 produced evidence for the least number of processing steps. Likewise, none of the processing steps in the table were found in all three locations although all three locations share processing steps with at least one of the other locations.

Feature 58

Feature 58 (Figure 3.5) was a sub-rectangular pit house with a bench on three sides that was interpreted as a residential structure. It appears that the structure was mostly cleared of domestic artifacts and the roof burned at the end of the processing event; it may have been the final structure abandoned at the end of the site occupation (Chuipka 2009; Potter and Chuipka

2010:513). Remains uncovered in the structure included a three-to-four-year-old on the northeast corner of the bench and a possible subadult whose remains were scattered and piled on the floor and hearth area (Chuipka 2009; Stodder et al. 2010:284). Remains in the hearth area exhibited a significant degree of burning, including parietal, temporal, occipital and mandible fragments (Potter and Chuipka 2010:513; Stodder et al. 2010:284). A cranial fragment was uncovered with a hammer stone in situ on a metate (Potter and Chuipka 2010:515). Several lithic artifacts left on the floor tested positive for human myoglobin and appear to have been used in the processing activities in this structure, including an axe, scraper, hammerstones and a mano (Potter and Chuipka 2010:516; Stodder et al. 2010:284). Feature 58 may have been an active site for processing of remains with some being deposited in Feature 104 before the structure was emptied and the roof burned (Potter and Chuipka 2010:516).

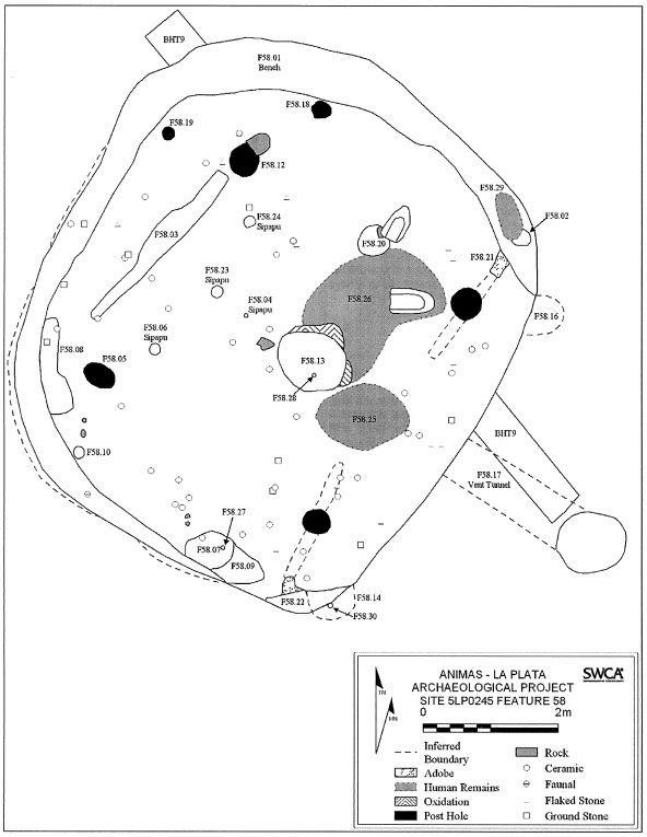

Figure 3.5 Feature 58 plan map (Potter and Chuipka 2010:515).

Feature 134

Feature 134 was interpreted as a habitation pit structure with an oval or D-shaped form (Chuipka 2009; Potter and Chuipka 2010:513). The original entrance to the structure was thought to have been through the roof with the ventilator shaft being widened later to become the main entrance (Chuipka 2009:114-115). It was in this ventilator shaft/entrance that a pile of processed remains was uncovered that were revealed as those of an adult female and a child (Stodder et al. 2010:286-288). Evidence suggests that processing occurred in this structure and that its abandonment was pre-planned by the removal of all domestic items before the roof was burned, though two lithic artifacts left on the floor tested positive for human myoglobin (Chuipka 2009:120-121; Stodder et al. 2010:286).

Stodder et al. (2010) provide a detailed analysis of the treatment and processing of Burial 196 that illustrates what happened to the victims at Sacred Ridge. The adult female excavated in Feature 134, Burial 196 was between 45 to 49 years old. Her body was scalped, decapitated, her face ripped apart and destroyed. She may have been disemboweled and her unrecovered hands were removed (Stodder et al. 2009:291). Force resulting in perimortem fractures was applied to her cheeks, ascending ramus, and the sides of her head, crushing her mastoid process on the left side. Cut marks, chop marks and fractures record the removal of the muscles of her arms and shoulders, the opening and separating of her rib cage, cutting and chopping along her spine, and the removal and dismemberment of her legs (Stodder et al. 2010:288-289).

Feature 104

Feature 104 was an oval pit structure that contained the largest collection of processed and burned remains at the site. Figure 3.6 displays only a small sample of the 14,882 bone fragments in this feature alone (Stodder et al. 2012:292). Some of the processing may have taken

place in the structure, though the evidence suggests that the structure was cleared of its domestic assemblage, the roof disassembled into the pit, and then the largest portion of the processed remains deposited on top (Chuipka 2009; Potter and Chuipka 2010:516). Almost 15,000 bone fragments, representing over 30 individuals of all ages, including five males and seven females, were excavated. They were all processed in the same manner as Burial 196 in Feature 134 (Chuipka 2009; Stodder et al. 2010).

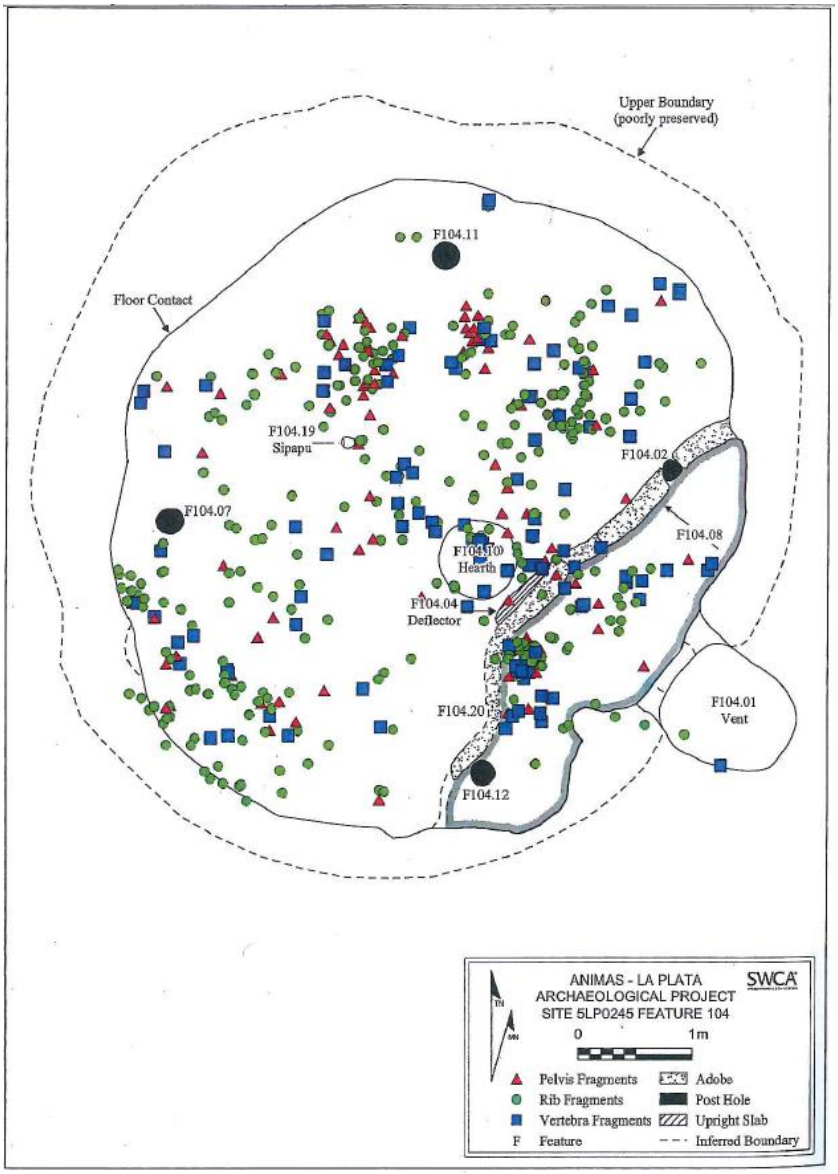

Figure 3.6 Pelvis, rib and vertebral fragment distribution from Feature 104 (Stodder et al. 2010:292).

Artifacts remaining on the structure floor included manos and metates, chipped stone scrapers, and ceramics, with one grayware jar testing positive for human myoglobin (Potter and Chuipka 2010:516). The construction of Feature 104, its oval shape and bifurcated vent, has been interpreted as being more closely related to structures in other places in the Basin and greater locality than to the rest of the 21 structures at Sacred Ridge (Chuipka 2009:216). This unique shape, along with biodistance studies, suggests the victims at Sacred Ridge may have been part of a "distinct group within the community" (Potter and Chuipka 2010:519). Strontium isotope studies firmly place the victim group as local to the Ridges Basin, but dental and cranial analysis suggest they were distinct from other groups at Sacred Ridge (Potter and Chuipka 2010:519). This suggests that the victims were incomers who had inhabited the site for at least a generation, long enough to have an isotope signature based on the local water and food sources but possibly from a different area of the Basin originally.

Summary

The Sacred Ridge site was an important central village in the Ridges Basin. This is evidenced by its size compared to the other aggregated hamlets that dot the Basin, and the fact that there appear to have been diverse groups of people living there together. One of these groups may have been the victims of the massacre and processing events that occurred there. Martin (2016:6) points out that the processing of a body requires great effort and time. It would have created a gruesome scene that could have had a lasting psychological impact in terms of its social implications for those observing or visiting the site after the event. The massacre at Sacred Ridge has been interpreted "as a single large event rather than as temporally separate episodes" (Chuipka 2009:216), suggesting that this was more than processing for food, as in starvation cannibalism. The level of damage inflicted on the bodies of the victims, the smashing and

fragmenting of the crania and faces, the detailed care taken in the dismemberment and splintering of the post-cranial body, all suggest significant social consequences for the people of the village community at that time.

Cowboy Wash, Pueblo II-III

Cowboy Wash is located on the southern piedmont of Ute Mountain in the Four Corners region of southwestern Colorado (Figure 3.7). Four sites with similar occupation dates, from late Pueblo II to early Pueblo III (AD 1125-AD 1150s), were excavated at this location beginning in 1990 during Reach III of the Towaoc Canal Project.

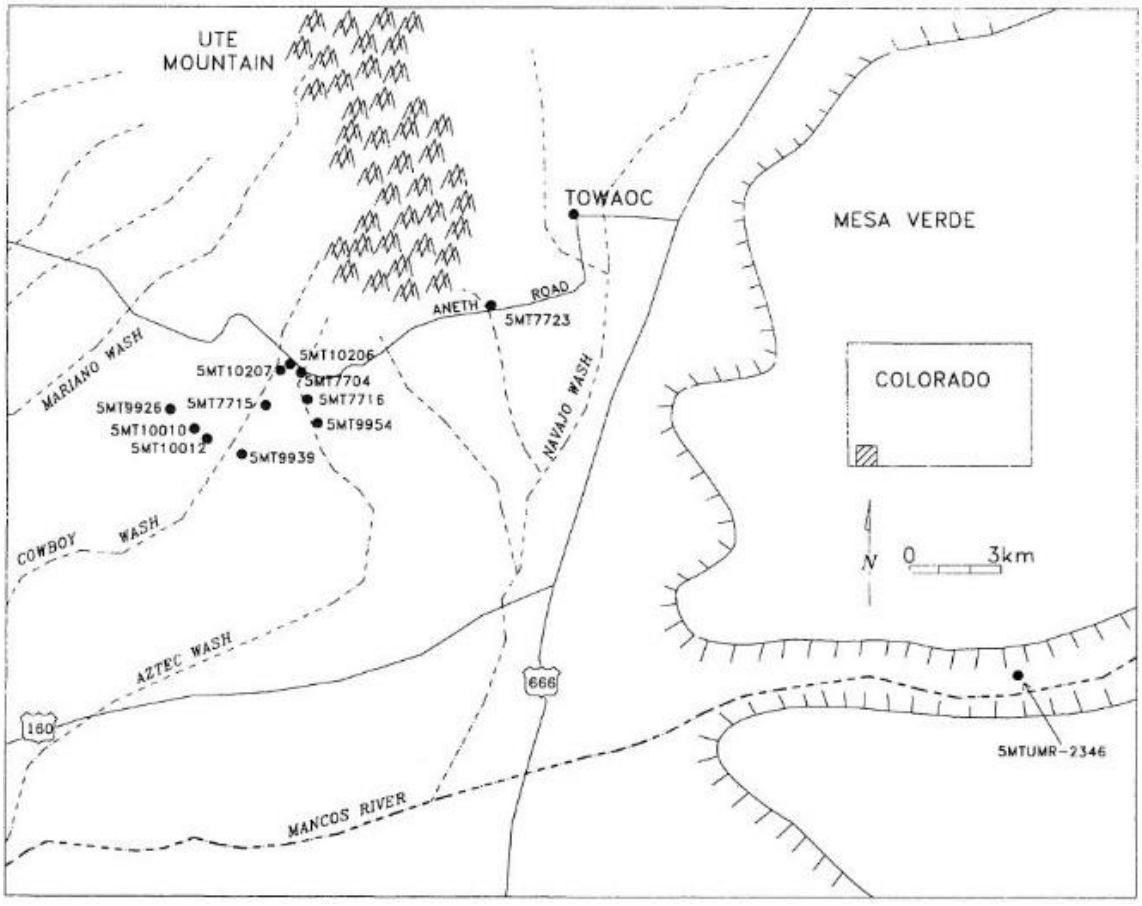

Figure 3.7 Cowboy Wash sites map (Billman et al. 2000).

These four sites contained the remains of at least 24 people whose bodies had been mutilated and butchered. The population of these sites experienced a calamitous event sometime in the AD 1150s that resulted in the sudden and complete abandonment of all four sites directly following the deadly events.

The southern piedmont of Ute Mountain is an area of intermittent alluvial washes that would have been more susceptible to the cyclical nature of precipitation and drought than other areas of the Southwest. Farming in this area was precarious due to the lower elevation and limited overall rainfall so the local population most likely had to employ floodwater irrigation techniques (Billman 2008:49). Several occupations and abandonments occurred in this region in the preceding centuries, generally following the climatic fluctuations between drought and periods of increased rainfall. During late Pueblo II and early Pueblo III, the southern piedmont region was experiencing a time of extended prosperity (Billman 2008:51) that resulted in the establishment of ten new settlements in the Cowboy Wash locality around AD 1125 with a total population of 65 to 125 people (Billman, 2008:55). The occupation of these sites lasted about 15 to 20 years, suggested by the evidence of extensive pithouse remodeling (Billman 2008:56-57).

The four excavated sites, 5MT7704, 5MT10206, 5MT10207, and 5MT10010, contained human remains that had been extensively processed (Figure 3.7). The 24 victims were systematically butchered, and the burned and smashed remains were distributed among the floors, hearths and vents of kivas and pithouses. These victims included men, women, adolescents, and children. The remains were defleshed with stone tools that were discarded on the structure floors. Traces of the butchering processes the bodies were subjected to include cut marks, smashed proximal ends and splintering of long bones, percussion fractures, smashed teeth and facial bones, flake scars, and evidence of burning, roasting and possibly cooking particular

body parts in pots (Billman 2008:60-63; Dice 1993). Butchering appears to have occurred on the sites themselves, some possibly inside and some outside the structures based on the evidence of stone tools whose cutting surfaces tested positive for human myoglobin. A strong case for cannibalism has been made at site 5MT10010. In addition to its presence on stone tool flakes, human myoglobin was also found on sherds from a cooking vessel and in a human coprolite discovered in the ash pile of the central hearth of the pithouse (Billman et al. 2000:154; Marlar et al. 2000:76).

Sudden abandonment of the sites followed these violent events as evidenced by the abundance of cultural materials left in the structures. Building and roofing materials that might otherwise have been scavenged and reused were generally left in situ (Billman 2008:59). Cultural materials left on the kiva and pithouse floors included a variety of lithic food processing tools, pottery, and adornments such as bone tubes, a polished jet ring and stone beads (Billman et al. 2000).

The four excavated sites also revealed a high proportion of Chuskan pottery, especially in 5MT10206 and 5MT10207. The Chuska mountains are located south of the site along the modern-day New Mexico and Arizona border. Chuskan pottery represents more than 83 percent of the non-Mesa Verde pottery recovered from these sites and is highly suggestive of migration into the Cowboy Wash area from the south (Errickson 1993). The four excavated sites were not constructed in a manner suggesting defense. Their construction followed the general regional trends of late Pueblo II and early Pueblo III, which are characterized by open settlements with little suggestion that defense was a consideration. As can be seen in Table 3.6, here again none of the localities exhibited evidence for the full spectrum of processing steps seen at the Cowboy Wash sites as a group.

Table 3.6 Recorded damage characteristics present on skeletal material at Cowboy Wash sites 5MT7704, 5MT10206, 5MT10207, 5MT10207 and 5MT10010 (Billman et al. 2000; Dice 1993; Lambert et al. 2000).

Recorded Damage Characteristics (RDC)	5MT7704	5MT10206	5MT10207	5MT10010
Fresh Bone Breakage	X	X	X	X
Cut Marks		X	X	X
Fragmentation	X	X	X	X
Hammer/Anvil Marks and Abrasions		X	X	X
Splintering		X	X	X
Percussion Pitting				X
Thermal Alteration – Burning	X	X	X	X
Decapitation				X
Total # RDCs	3	6	6	8

5MT7704

Site 5MT7704 revealed the remains of at least two individuals, one adult and one child, scattered on the floor of a Pueblo III habitation kiva. Ritual and domestic cultural objects were also abandoned in the kiva. Bones recovered displayed fresh bone breakage patterns, with little evidence for processing with tools. Cultural damage noted on the remains from this site include a broken child's mandible in a storage vessel, a burned tibia fragment, cranial fragments, and femur fragments (Dice 1993:77-79).

5MT10206

Site 5MT10206 yielded the remains of at least two individuals, one adult female and one adolescent. Rooms excavated at the site consisted of two surface rooms, one kiva, and an underground storage and mealing room.

Human remains in the kiva were located on the floor, the southern recess, the fill of ceramic bowls and the area between the hearth and deflector. Most of the skeletal material recovered from the kiva consisted of long bones, vertebrae, ribs and hand and foot phalanges, all of which were broken while still fresh. Cultural damage to the skeletal material related to extreme processing recorded in the kiva included splintering, cut marks, anvil abrasions and hammer marks (Dice 1993). The roof of the kiva was burned either immediately or shortly after the processing and deposition of the human remains in the structure.

The three other rooms contained a similar composition of splintered long bone fragments and cultural damage patterns. Cranial remains were represented by only a small percentage of the total 566 bones found at the site, including small pieces of a calotte and a frontal bone fragment with evidence of cut marks (Dice 1993). This suggests that the heads of these individuals were subjected to particularly comprehensive destruction and possible deposition elsewhere.

5MT10207

Site 5MT10207 revealed the remains of at least 13 individuals, one baby, one three- to six-year-old child, three seven- to twelve-year-old children, one thirteen-year-old, and four adults, including at least three males and three females (Dice 1993:43). Five features over three rooms, a kiva and two storage/food processing rooms contained disarticulated and processed human remains.

In the kiva, human remains were recovered from the hearth, between the deflector and the vent tunnel, scattered around the floor and in the sipapu (Figure 2.3). The remains in the kiva constitute 90 percent of the bones excavated at the site. Cultural damage patterns observed on the remains recovered in Features 9 and 18 in the kiva include fresh bone breaks that are the result of being "pulverized while still vital" (Dice 1993:33), splintering of long bones, hammer abrasions and impact zones, mandibles broken in half, burning, cut marks, and ribs that were snapped off from the thorax (Dice 1993:26-33). Some post-cranial bones were still in articulation but "crania were subjected to intensive reduction with heavy objects" (Dice 1993:33).

Other excavated features display a similar pattern, including heavily burned bones from the fill of Feature 71 (Dice 1993:35). Processed bones were piled in the rooms with other cultural debris, along with some evidence of carnivore activity (Dice 1993:39-42). Evidence also suggests that disarticulation was focused more intensively on the upper bodies than the lower bodies of the victims (Dice 1993:26). It also appears that the kiva and one of the rooms were abandoned for some time before the deposition of the remains. The kiva roof was left to degrade on its own while the roof of Room 3 was burned (Dice 1993).

5MT10010

Site 5MT10010 revealed the remains of at least seven people, one seven-year-old child, one eleven- and one fourteen-year-old child, three adult males and one adult female. All seven people were defleshed and disarticulated on the surface and the remains dumped into ventilator shafts as well as within the structures. Almost seventy percent of the recovered bones at the site were heavily fractured (Lambert et al. 2000:52). Remains were scattered and piled in ventilator chambers, on structure floors, side chambers and recesses. Cultural damage recorded at the site included cut marks at tendon and ligament attachment sites, long bones snapped at the distal and

proximal ends, fresh bone breaks, chop marks, percussion pits and abrasions, long bone splintering, decapitation and burning (Billman et al. 2000; Lambert et al. 2000). Underrepresented bones include vertebrae, small hand and foot bones, sterna and sacra (Lambert et al. 2000:52), with scapulae the most common skeletal element (Billman et al. 2000:158).

Several unusual finds at site 5MT10010 have led researchers to conclude that cannibalism may have taken place during the traumatic events before abandonment. For example, the entire head of the fourteen-year-old child was placed on a fire, as evidenced by the burn patterns on the sides of the skull (Billman et al. 2000:162), leading to the interpretation that this person was being prepared for consumption (Lamber et al. 2000:56). In addition to two lithic flakes that tested positive for human myoglobin, pottery sherds tested positive as well, suggesting that human flesh was cooked and/or stored in those pots (Marlar et al. 2000:76).

The most significant and rare find at this site supporting the interpretation of cannibalism is a human coprolite that was found on the ash pile of the central hearth. The coprolite was deposited after the hearth had cooled (Billman et al. 2000:154), and it too tested positive for the presence of human myoglobin, which must have passed through the human digestive system (Marlar et al. 2000).

Summary

The events at Cowboy Wash around AD 1150 were catastrophic and led to the disarticulation and extreme processing of approximately 24 individuals followed by site abandonment. No exceptions seem to have been made in the choice of individuals singled out for violent disintegration and all age and sex groups were subjected to equally intense treatment. One-fifth to one-third of the estimated total population of 35 people living at the four sites were killed (Billman et al. 2000:168-169). Cultural modifications to victims' bodies included cut

marks, hammer and anvil abrasions, percussion pits, burning, fresh break splintering, smashing, and possible consumption. Whatever precipitated the events at Cowboy Wash occurred in a community that had experienced approximately 25 years of good growing seasons and economic prosperity culminating in an environmental downturn and drought after AD 1150.

Sand Canyon Pueblo, Pueblo III

Sand Canyon Pueblo (5MT765), located in southwestern Colorado's greater Mesa Verde region, is a Pueblo III (AD 1250-1280) village site that was mapped and excavated from 1983 to 1993 by the Crow Canyon Archaeological Center (Figure 3.8). Crow Canyon excavated the site as part of the Sand Canyon Archaeological Project focusing on settlement patterns in the Mesa Verde region during the Pueblo III period (Kuckelman, 2010:498). Village occupation lasted about 30 years. Construction at the village began around AD 1250 and was centered on a natural spring. It was completely abandoned by AD 1280 in tandem with regional depopulation patterns in the Mesa Verde region after the onset of a major drought period beginning about AD 1276. Major village structures included a great kiva, plaza, a D-shaped building, towers, and a masonry wall encompassing the village limits. These structures along with "other public buildings indicates that it also served as a ritual and political center for the Sand Canyon community" (Kuckelman 2002:498-490). Sand Canyon Pueblo appears to have been a focal point for public life in the area. The pueblo's population ranged between 400 to 600 residents based on the residential capacity of the 420 rooms and 90 kivas recorded at the site (Kuckelman, 2010:498). The layout of Sand Canyon Pueblo appeared to be pre-planned by an enclosure wall marking the village borders along a canyon ridge with several structures built up against it during one phase of construction (Ortman and Bradley 2002:49). Evidence for both domestic and ritual activities were uncovered at Sand Canyon Pueblo. Ceramic, textile and stone tool manufacturing, food

processing, turkey domestication, and storage were all present as signs of domestic activities (Ortman and Bradley 2002:49).

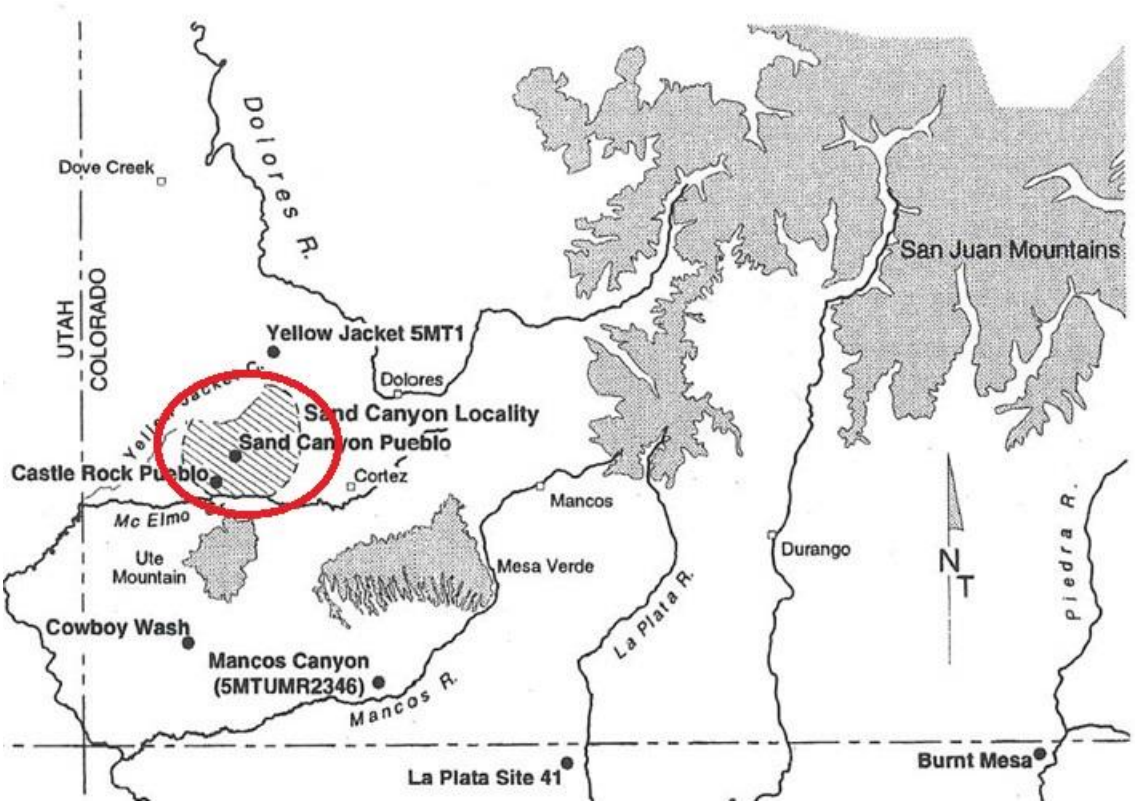

Figure 3.8 Map showing the Sand Canyon locality (Kuckelman et al. 2002:487).

Signs of spiritual or ritual life uncovered include kiva sipapus, petroglyphs in kivas, the unique D-shaped building and fetishes (Ortman and Bradley 2002:54). At the time of the founding of the community, residents at Sand Canyon Pueblo experienced a period of economic abundance featuring a rich social and spiritual atmosphere.

By the onset of what is called the Great Drought in AD 1276, life at Sand Canyon and in the adjacent villages, such as Castle Rock Pueblo, had begun to worsen. The primary subsistence strategy before the drought relied on maize and turkeys; the latter required a great deal of the

available maize and water. With these main food stuffs drastically reduced after AD 1276, a shift to locally available plants and animals occurred (Kuckelman 2010). Violence increased region-wide around the onset of the drought. The occupation of Sand Canyon Pueblo ended with an outbreak of extreme violence resulting in the complete depopulation of the village around AD 1280 and of the entire region by AD 1300. Excavations revealed articulated and scattered bones of 35 individuals distributed between several architectural blocks all of whom are believed to have died during the violent event that ended the village occupation (Kuckelman 2010:509; Kuckelman and Martin, 2007). Victims were uncovered in abandonment contexts, with eight of them exhibiting "direct evidence of violent deaths" (Kuckelman 2010:510). These eight individuals were located in architectural Blocks 100 and 1000 near the village spring and included one child, two middle-aged males, one male adolescent and two unsexed adolescents (Kuckelman et al. 2002:492). Though only eight of the 35 individuals display clear evidence of perimortem trauma it is plausible that most if not all of them experienced a violent death linked to the final abandonment of Sand Canyon Pueblo. As recorded in Table 3.3, the remains in architectural Block 100 did not exhibit the full range of damage characteristics on display in architectural Block 1000, though as shown in the discussion below of each architectural block, the individuals with clear evidence of violent deaths were treated similarly during and after the attack (Table 3.7).

Table 3.7 Recorded damage characteristics present on skeletal material found in abandonment contexts at Sand Canyon Pueblo, Site 5MT765 (Kuckelman et al. 2002; Kuckelman and Martin 2007; Kuckelman 2010).

Recorded Damage Characteristics (RDC)	Architectural Block 100	Architectural Block 1000
Cranial Damage		
Depression Fractures	X	X
Destruction of the Face	X	X
Scalping Cut Marks		X
Crushing – Base of Skull		X
Missing Cranial Fragments		X
Decapitation		X
Post-Cranial Damage		
Dismemberment	X	X
Cut Marks		X
Anvil Abrasions		X
Spiral Fractures		X
Fragmentation		X
Splintering		X
Missing Hands, Leg and/or Feet Bones		X
Total # RDCs	3	13

Architectural Block 100

Two individuals with clear perimortem trauma were excavated in architectural Block 100 (Figure 3.9) A middle aged, partly disarticulated male, Human Remains Occurrence (HRO) 2,

was discovered sprawled on the floor of Room 105. He may have been killed by a devastating blow to his face as evidenced by a depression fracture that encompassed his frontal and parietal bones. HRO 2 also seemed to have been ailing based on evidence of an abscess on his upper palate (Kuckelman et al. 2002:492; Kuckelman, 2010:510).

The second individual in architectural Block 100, HRO 4a, was an adolescent, 12-15 years old, found on the floor of Kiva 108. This individual was a probable male and exhibited perimortem skull fractures and indicators of possible removal of his face. The remains were comingled with another individual who was also disarticulated. Parts of HRO 4a were found in the ventilator tunnel of Kiva 108, on the floor of Room 116, in a midden and on the floor of Room 118 (Kuckelman 2010:510).

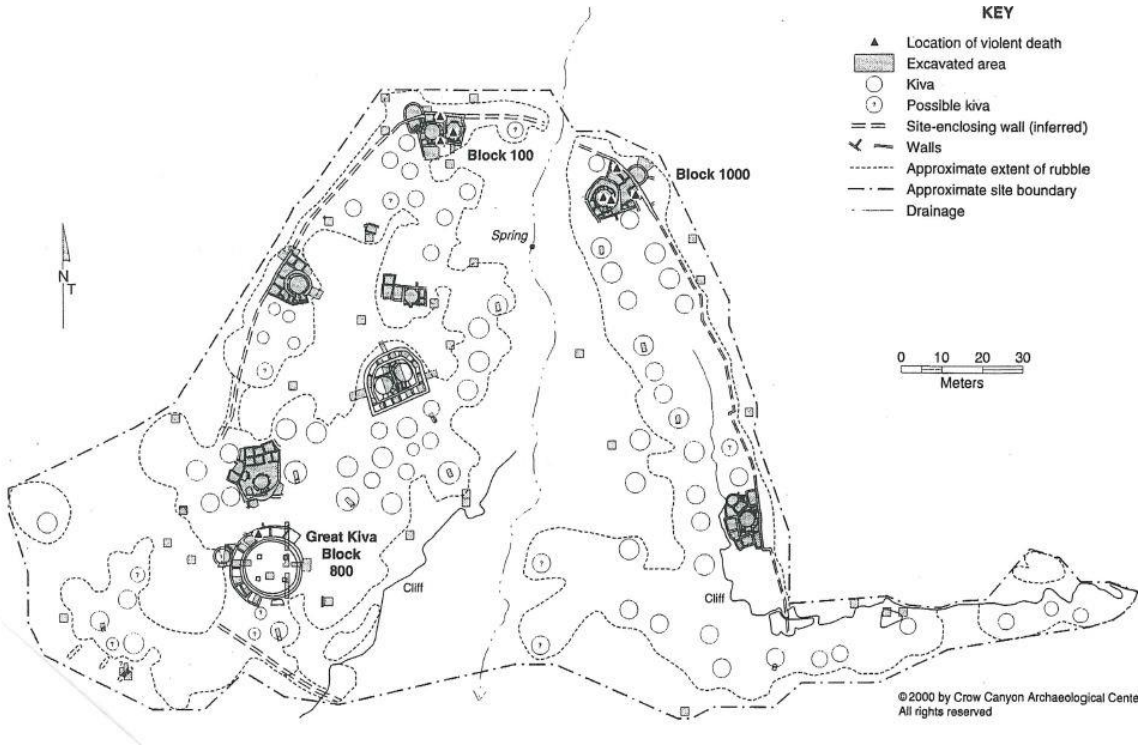

Figure 3.9 Locations of remains of individuals who died violently at Sand Canyon Pueblo (Kuckelman et al. 2002:490).

Architectural Block 1000

Six more individuals exhibiting clear evidence of violent death were recovered from architectural Block 1000 (Figure 3.9) A fifteen-year-old adolescent (HRO 11), possibly dumped through an access point on the roof, was found in ashes and wall debris in Room 1005. The skeleton exhibited a high degree of articulation but there was evidence of crushing at the base of the skull. The nose and several teeth had been broken and the mandible and right arm were missing (Kuckelman et al. 2002:493; Kuckelman 2010:511).

Another 12–15-year-old adolescent (HRO 19) was found sprawled on the floor of Kiva 1004 and is thought to have been killed there. This individual suffered multiple severe traumas which included a depression fracture on the back of the skull, several other depression fractures on the skull, cutmarks and abrasions over the left eye indicating possible scalping, missing cranial bones, and signs of attempted dismemberment. Cutmarks on the distal end of the left humerus, anvil abrasions on the left clavicle and spiral fractures on the right tibia possibly indicate attempted removal of arms and legs (Kuckelman et al., 2002:493; Kuckelman, 2010:511).

All the leg bones from HRO 20, found disarticulated in Room 1001, were removed and placed in Courtyard 1000. HRO 20 may have been struck from behind and fell through a roof access into the room. In addition to the removal of the legs, this individual evidenced at minimum three depression fractures on the back of their skull, and fractures and anvil abrasions on the pelvis (Kuckelman et al. 2002:493; Kuckelman 2010:511).

A child of about 8 years old (HRO 22) was found sprawled on the hearth of Kiva 1004, most likely dropped through the roof access. The remains displayed cutmarks on the right and left parietals indicative of scalping, and a fracture on the occipital. Either caused by the fall into

the kiva, or some other violent act near the time of their death, this individual's left arm and left leg were in abnormal and traumatizing positions (Kuckelman et al. 2002:493; Kuckelman 2010:511).

The fragmented remains of another adult male, 35-39 years old, were found in Room 813. This individual's hands and feet were removed and taken somewhere else. Perimortem spiral fractures were noted on all the leg bones and pelvis. Evidence also suggests that this individual was decapitated (Kuckelman et al. 2002:494; Kuckelman 2010:515).

The eighth individual, an adult found in Room 116, is represented by facial bones. These remains were found in secondary refuse and exhibit a depression fracture and evidence of facial disarticulation or processing (Kuckelman et al. 2002:494; Kuckelman 2010:514).

Summary

The 35 individuals found in abandonment contexts are all thought to have died in a violent episode that resulted in the abandonment of Sand Canyon Pueblo after roughly 30 years of occupation. Tree ring dates suggest that development and construction at Sand Canyon were in process up until abandonment and that the uses of some of the buildings in the village changed towards the end of Sand Canyon's occupation (Ortman and Bradley 2002:69-70). Based on additional analysis of the remains, the eight individuals with clear markers for violent death may have been related. Based on the prevalence of children and subadults, "the remains found were thus probably those of family groups who died in their resident kiva suites" (Kuckelman 2010:517). In addition to the eight remains, further antemortem lesions were found on some of the other scattered remains, plus another four which were either antemortem or perimortem. All these additional areas of trauma were situated on skulls (Kuckelman et al. 2002:500). The removal of body parts, their placement in other areas of the village, the bone disarticulation and

fragmentation, suggest some time and thought went into the overkill spectacle the perpetrators created at Sand Canyon.

Dehumanizing Violence Index

The Production Step Measure (PSM) developed by Feinman, Upham and Lightfoot (1981) is a time-tested method for comparing the relative effort expended in the manufacture of an artifact to compare assemblages to one another in terms of their relative energy investment. The PSM was developed in the American Southwest to compare the differential social costs and labor steps involved in the production of simpler versus more intricately decorated ceramic vessels. It is an ordinal index that assigns one point for each step in the manufacturing process, providing a numerical representation for the relative effort invested in the production of each vessel. The more ornately decorated, larger vessels in this system have a higher PSI (production step index) than simpler, smaller vessels without appendages or additional production steps, such as multiple applications of different colors of paint or appendages such as handles or impressed/stamped/incised designs. The PSM provides an operational model for comparing the complex case study sites included in this study in a way that explicitly equates each "processed" body with a "processed" ceramic vessel. Sites in which human bodies were the focus of extreme violence can be considered loci of performances just as certain types of ceramic vessels were produced to serve a performative function at feasts or other public events. The energy invested in the production of ceramic vessels and the production of the Othered bodies in these case studies was purposive, meant to be performed and witnessed to send particular messages to particular audiences.

An ordinal index based on the PSM was generated by assigning a Dehumanizing Violence Index (DVI) to each set of remains in the study sample. Whereas the PSM compares the relative labor costs in the manufacture of simple versus more complex ceramics and assigns a production step index to each vessel, the DVI compares the relative level of effort involved in the violent acts associated with overkill sites. Post-mortem disarticulation or extreme processing of the body is broken down into a set of discrete acts represented by damage, manipulation or destruction of the skeletal remains. The DVI allows the variety of violent treatments of the human body recovered from archaeological sites that yield evidence of extreme violence to be compared by quantifying the identifiable processing steps recorded for each set of remains. Once quantified, such differences provide an empirical means of evaluating established interpretations of such contexts. Finally, the results of the DVI analysis are compared to what is known about the environmental and social context of the groups involved in the overkill events to determine whether any common patterns can be discerned that might have predictive value.

DVI Structure

The DVI assigns points for each clearly defined violent action recorded on cranial or post-cranial skeletal material in the case study data sets. It distinguishes between peri-mortem injuries, and peri- to post-mortem cultural modifications to both the cranial and post-cranial skeleton. Peri-mortem trauma is defined as actions and injuries leading directly to death or that occur at or near the time of death. Peri- to post-mortem cultural modifications are alterations to the body and/or skeleton of a person at the time of death or shortly thereafter. Modifications may include defleshing of skin and muscles, disarticulation of the skeleton, or extreme processing (EP). EP is the complete erasure of anything recognizable as part of a human body. Separating the cause of death from the cultural modifications that follow is one of the ways

to compare sites where co-mingled remains exhibit evidence of blunt force trauma to more complex sites where extreme post-mortem processing of the body took place. The ability to assign an ordinal measure of violence to an archaeological context makes it possible to identify and compare previously unrecognized differences and similarities between culturally, geographically and temporally distant contexts.

Peri-Mortem Trauma

Points assigned by the DVI for perimortem injuries to the cranium distinguish between blunt or sharp force trauma and include cut marks most likely caused by scalping and blows to or intentional disarticulation of the face. Points assigned for peri-mortem trauma to the skeleton include trauma to the neck, most likely from decapitation or attempted decapitation, spinal trauma from weapon strikes or projectiles, and long bone fractures and cut marks in the arms and legs (Table 3.8).

Table 3.8 DVI included peri-mortem damage characteristics observed at overkill sites.

Peri-Mortem Trauma - Violent actions resulting in death, occurring at or near the time of death.
Cranial
Cranial Blunt Force Trauma
Cranial Sharp Force Trauma
Cranial Cut Marks
Facial Trauma/Fractures Zygomatic fracture La Fort fracture Mandibular fracture Maxilla fracture Dental trauma
Burning

Post-Cranial
Decapitation
Neck trauma
Spinal trauma
Arms-long bone fractures
Legs-long bone fractures
Cut Marks
Projectile Trauma

Peri- to Post-Mortem Cultural Modifications

Points assigned by the DVI for peri- to post-mortem cultural modifications to the crania (Table 3.9) include various cut and percussion damage to the top of the head resulting from scalping, defleshing and intentional shaping of the calotte. Cut, scrape, chop and peel marks are also counted due to the various steps involved in removing areas of the face including the mandible, maxilla, nose, lips and ears. Smashing and crushing of the facial and cranial bones are also included as they are part of the technique involved in extreme processing. Thermal alteration is in evidence at some sites as facilitation for easier muscle and tissue removal.

Table 3.9 DVI included peri- to post-mortem cranial cultural modifications observed at overkill sites.

Peri- to Post-Mortem Cranial Cultural Modifications
Cranial
Cranium-Circumferential cut marks
Cranium-Cutmarks follow sagittal suture

Cranial Defleshing Cut marks Chop marks Scrape marks Peeling
Cranial Fracture
Removal of Skullcap
Zygomatic Fracture
Le Fort Fracture
Mandibular Fracture
Mandibular Cut Mark
Maxilla Fracture
Maxilla Cut Mark
Dental Ablation Fracture
Removal of Nose/Lips
Removal of Ears
Thermal Alteration - Burning
Extreme Processing Crushing Smashing

DVI points assigned for peri- to post-mortem cultural modifications to the post-cranial skeleton (Table 3.10) include the processes involved in defleshing and disarticulating the human body. This involves cutting, scraping, chopping and peeling of the shoulder area, clavicle, spinal column, ribs, hips, legs, arms, hands and feet. Smashing, crushing and thermal alteration that facilitate the easier removal of flesh are also included as steps involved in extreme processing.

Table 3.10 DVI included peri- to post-mortem post-cranial cultural modifications observed at overkill sites.

Peri to Post-Mortem Post-Cranial Cultural Modifications
Post-Cranial
Unspecific Post-Cranial Dismemberment
Shoulders-fracture
Shoulders-defleshing Cut mark Scrape mark Chop mark Peeling
Arm Long Bones-defleshing Cut mark Scrape mark Chop mark Peeling
Removal or discarding Hands Forearms Head of femur
Spinal Column-defleshing Cut mark Scrape mark Chop mark Peeling
Ribs-removal from spinal column
Ribs-defleshing Cut mark Scrape mark Chop mark Peeling
Disembowelment
Hip-defleshing Cut mark Scrape mark Chop mark Peeling
Leg long bone-defleshing Cut mark Scrape mark Chop mark Peeling

Thermal Alteration - Burning
Extreme Processing Crushing Smashing

The DVI addresses the research questions in Chapter 1 by comparing the events and processes that contributed to the violent end of a victim's life and the various performative acts the body was subjected to subsequent to death. The DVI provides researchers with a critical lens through which to view the degree of dehumanization involved in the actions that characterize such events. It allows the treatment of human bodies before, during and after death to be represented in terms of the relative degree of effort engaged in by the offenders to dehumanize their victims, thus providing a window into the view the perpetrators had of the humans they acted upon in such absolute ways. The DVI focuses on the body as a material object and the extent to which each victim was manipulated and transformed from a person to a thing through the acts of killing and manipulation that followed.

Chapter 4: Analysis and Discussion

In this chapter the damage characteristics for each site are reviewed and scored using the DVI. The results are then analyzed using a qualitative comparative approach and discussed in terms of their utility in understanding human violent interaction. DVI scoring was based on the available data and written descriptions for this thesis as a proof-of-concept test. Analysis of the DVI results, at least in this study, was limited to a qualitative approach because the descriptive detail of the steps involved in the killing and processing of the individuals was too variable for a quantitative analysis to be carried out. Scoring was a challenge because a standardized approach for discussing or presenting data from overkill sites has not been developed in bioarcheology thus far. The resulting diversity in data presentation made a statistical analysis untenable and reinforced the need for a universally agreed on system of reporting bioarchaeological data. Scoring was occasionally subjective due to the lack of clarity in some data sets and descriptions about which observed injuries may have occurred peri-mortem or post-mortem in the processing sequence after the initial cause of death. Scoring decisions are discussed in the site score review section below. Subsequent sections include an illustrated comparison of the data from each of the six sites, followed by an overkill graphic that will present the dehumanization steps revealed through the application of the DVI to the case study sites.

Site Score Review

Talheim

The 34 victims at Talheim were all killed in what was most likely a fast-paced attack. Most victims were struck from behind with shoe-last adzes or flat axes of varying thicknesses evidenced by the prevalence of blunt and sharp force overlapping fractures to the parietal and

occipital areas of the skull. Victims received multiple blows to the head after the initial incapacitation and were then tossed into a comingled burial context.

DVI Score and Explanation

Talheim was assigned a score of ten on the DVI (Table 4.1). Points were assigned primarily in the peri-mortem section due to preservation issues and a lack of descriptive detail of post-cranial material in the mass grave on which to base a more complete picture of post-mortem manipulation. Points were assigned for blunt and sharp force cranial trauma, facial trauma, neck trauma, arm and leg bone fractures from the few available examples in the site studies, along with one point for projectile trauma. To account for the multiple blows and level of violence shown towards the victims, one point each was assigned for post-mortem cranial, zygomatic and mandibular fractures. Most of the victims were already dead or close to death when the second, third or more blows were delivered. Wahl and König (1984) describe this as deadly brain smashing. The DVI score might have been higher if more data had been preserved and/or recorded at the site.

Asparn/Schletz

A total of 67 individuals were identified at the massacre site of Asparn/Schletz, 33 by their cranial remains, all of which exhibited evidence of violent fractures. Multiple intersecting fractures and smashed faces were identified in all sex and age groups, with a notable lack of younger women. Unfortunately, as at Talheim, post-cranial skeletal material was limited, which made assigning a DVI score representing the scope and breath of violence at the site difficult. Worth noting at Asparn/Schletz is the prevalence of animal gnaw and bite marks in the skeletal

assemblage, indicating that the remains were exposed on the surface for a considerable period of time after dismemberment.

DVI Score and Explanation

Asparn/Schletz was assigned a score of 9 on the DVI (Table 4.1). Source material for this site discussed the damage to victims in more general summary terms than the other sites included in this study. The DVI score was based on these summaries, so it is possible that the score would have been higher if the data available were comparable to those from the other sites. Points were assigned in the peri-mortem categories for blunt and sharp force trauma, facial trauma and neck trauma. To account for the multiple blows observed on many of the 33 sets of cranial remains, and some of the specificity for injuries to the face, points were assigned on the peri- to post-mortem categories of cranial trauma, Le Fort fracture, mandibular fracture and maxilla fracture. To account for the damage caused by leaving the bodies on the surface and the subsequent heavy carnivore damage to the remains and the many missing extremities, a point was assigned in the 'unspecified post-cranial dismemberment' category. This is important because it relates to the idea that these remains were meant to be on view for some time in some cases.

Herxheim

Hundreds of victims at the site of Herxheim were subjected to extreme dismemberment and processing, most notably in the form of systematic removal and stacking of skullcaps in the ditch segments. Bodies were processed following a series of repetitive and methodical steps that can be reconstructed from the evidence recorded on the human remains. Bones were intentionally shaped, and marrow scraped from long bones. Bodies were reduced to pieces,

fragmented and smashed, then buried with objects and animals that were similarly deconstructed and rendered shapeless.

DVI Score and Explanation

Herxheim was assigned a score of 27 on the DVI (Table 4.1). Points were assigned in the peri-mortem cranial categories for blunt force cranial trauma, cranial cut marks, facial trauma and burning. Peri-mortem post-cranial long bone trauma and cut marks were assigned points as well since they could have occurred at or near the time of death as described in the site literature. Points assigned in the peri- to post-mortem cultural modifications included most categories, including trauma to specific areas of the face, disarticulation of the shoulders, ribs, hip, long bones of the arms and legs, and removal and discarding of certain body parts. Both cranial and post-cranial extreme processing points were assigned for Herxheim since, according to Haack (2020:64), there were never "enough cranial or postcranial skeletal elements to completely reconstruct whole bones, let alone complete individuals". This indicates an extreme intentional disintegration of the victim. The same treatment was given to pottery, lithics and animal remains. Ceramics were shattered, lithics were dulled and animals were processed in similar manners and made "deliberately unusable" (Haack 2020:65). As at Sacred Ridge, the victims at Herxheim were transformed into something other than human according to a local cultural logic.

Sacred Ridge

Butchered and mutilated human remains were recovered from three pit structures at the Sacred Ridge site, which served as the loci of processing and of deposition for the 33 victims subjected to extreme treatment in this locality. Processing of the bodies was repetitive, patterned

and thorough, so much so that what was later recovered by archaeologists presented as small, often unidentifiable bone fragments that had been splintered, crushed or smashed.

DVI Score and Explanation

Sacred Ridge was assigned a score of 31 on the DVI (Table 4.1). This represents the highest score assigned in this analysis because of the extreme level of processing exhibited by the remains at this site and the level of detail provided in the published material on the site. Points assigned in the peri-mortem categories include cranial blunt force trauma and cranial cut marks, facial trauma and decapitation, all of which were likely to occur as part of the killing event. Points were assigned in all but one category in the peri- to post-mortem cultural modification section. As illustrated and discussed in more detail below, Stodder et al.'s (2010) description of Burial 194 in Feature 134 includes most of the categories included in the DVI in a single example from the site. Together with the few categories not observed in Burial 194 the illustration below represents the most extreme instance of overkill in this study.

The DVI score for Sacred Ridge includes twice as many points as Cowboy Wash and Sand Canyon Pueblo. While there is no doubt that some level of butchering and processing took place at those sites, the extent of that processing was less apparent in the level of bone preservation where data were available, or in the level of descriptive detail in the published articles and reports compared to Sacred Ridge. Sacred Ridge stands out in that it provides an extreme example of the violence that took place in the San Juan/Mesa Verde Region.

Cowboy Wash

Systematically butchered, burned and smashed remains were distributed within pit house and kiva structures at four sites in the Cowboy Wash area. The 24 victims were treated in a

similar manner irrespective of sex or age. Individuals were defleshed by cutting, hammering and burning, which in turn allowed their skeletal frames to be splintered and spread across the structure floors. Lambert et al. (2000:61) speculate that the butchering was an expedient process as patterned and repetitive steps in the processing are not clearly discernable.

DVI Score and Explanation

Cowboy Wash was assigned a score of 16 on the DVI (Table 4.1). Points for extreme processing were not assigned for the site because the recovered skeletal material was described as splintered, or heavily splintered, not crushed or smashed. Splintering assumes that the bones were broken or smashed into pieces but were not pulverized as at Sacred Ridge. Points assigned to the peri-mortem section included blunt force head trauma, mandibular fractures, and decapitation, along with arm and leg bone fractures and cut marks. Many of these injuries were described as peri-mortem in the literature so were assigned points in that category. Points assigned in the peri- to post-mortem cultural modification sections included fractures to the head and face, cranial and post-cranial burning, defleshing of the spinal column, ribs and long bones. One point was also assigned for the removal or discarding of certain body parts as extremities and vertebrae were frequently missing in the recovered skeletal assemblage.

Sand Canyon Pueblo

Sand Canyon Pueblo experienced an outbreak of extreme violence and complete depopulation of the village around AD 1280. Evidence of violent death was observed for eight individuals found on structure floors. These eight individuals were children, adolescents and ill or incapacitated middle-aged males, suggesting that able bodied men were not in the village at the time of the attack (Kuckelman 2012:130).

DVI Score and Explanation

Sand Canyon Pueblo was assigned a 15 in the DVI (Table 4.1). Points were assigned for cranial blunt force trauma, scalping cut marks, facial trauma, along with arm and long bone fractures and evidence of decapitation. Points assigned for peri- to post-mortem cultural modification were limited to cranial cut marks and general fractures, and evidence of shoulder, arm, hip and leg disarticulation. Points for burning were not assigned as burning found on the HROs was attributed to be coincident with or caused by the final burning and decommissioning of the site (Kuckelman 2010:515; Kuckelman and Martin 2007). One point for removal and discarding of certain body parts was assigned due to the description of HRO 20's legs that were removed and moved to the courtyard, where it appeared that a cluster of legs were piled together.

Scoring for Sand Canyon Pueblo was a challenge because trauma descriptions for the eight HROs were not as detailed as those for Cowboy Wash and Sacred Ridge, possibly due to poor preservation. For example, one point was assigned for the "Unspecific Post-Cranial Dismemberment" category due to Kuckelman et al. (2002:492) stating that the partial disarticulation observed in HRO 100 was attributed to "unknown agents".

Table 4.1 DVI totals

	Sacred Ridge	**Herxheim**	**Cowboy Wash**	**Sand Canyon**	**Talheim**	**Asparn/Schletz**
Peri-Mortem Trauma - Violent actions resulting in death, occurring at or near the time of death.						
Cranial						
Cranial Blunt Force Trauma	1	1	1	1	1	1
Cranial Sharp Force Trauma					1	1

Cranial Cut Marks - includes scalping	1	1		1		
Facial Trauma/Fractures Zygomatic fracture La Fort fractures Maxilla fractures Mandibular Fractures Dental trauma	1	1	1	1	1	1
Burning		1				
Post-Cranial						
Decapitation	1		1	1		
Neck Trauma	*				1	1
Arms-long bone fractures	*	1	1	1	1	
Legs-long bone fractures	*	1	1	1	1	
Cut Marks	*	1	1			
Projectile Trauma					1	
Peri to post-mortem modifications. Cultural modifications to the victim's body, disarticulation, extreme processing.						
Cranial						
Cranium-circumferential cut marks	1	1		1		
Cranium-cutmarks follow sagittal suture	1	1				
Cranial Defleshing Cut marks Chop marks Scrape marks Peeling	1	1				
Cranial Fracture	1	1	1	1	1	1
Removal of Skullcap		1				
Zygomatic Fracture	1				1	
La Fort Fractures	1					1
Mandibular Fracture	1		1		1	1
Mandibular Cut Mark	1	1				
Maxilla Fracture	1					1
Maxilla Cut Mark	1	1				
Dental Ablation Fracture	1			1		
Removal of Nose/Lips	1	1				
Removal of Ears	1					
Thermal Alteration - burning	1	1	1			

Extreme Processing Crushing Smashing	1	1				
Post-Cranial						
Unspecific Post-Cranial Dismemberment				1		1
Shoulders-fracture	1					
Shoulders/Clavicle-defleshing Cut mark Scrape mark Chop mark Peeling	1	1	1	1		
Arm Long Bone-defleshing Cut mark Scrape mark Chop mark Peeling	1	1	1	1		
Removal/Discarding of Hands Forearms Epiphyses Feet	1	1	1	1		
Spinal Column-defleshing/fractures Cut mark Scrape mark Chop mark Peeling	1	1				
Ribs-removal from spinal column	1	1	1			
Ribs-defleshing Cut mark Scrape mark Chop mark Peeling	1	1	1			
Disembowelment	1					
Hip-defleshing Cut mark Scrape mark Chop mark Peeling	1	1		1		
Leg Long Bone-defleshing Cut mark Scrape mark Chop mark Peeling	1	1	1	1		
Thermal Alteration - Burning	1	1	1			

Extreme Processing Crushing Smashing	1	1				
Total:	31	27	16	15	10	9

* These actions were most likely present, but unidentifiable due to the level of bone disintegration.

Discussion of DVI Section Scores

Peri-Mortem Cranial and Post-Cranial Scores

In the peri-mortem trauma section of the DVI analysis, violent actions resulting in and occurring near the time of a victim's death were assigned points in cranial and post-cranial categories (Table 4.2). The cranial categories included blunt and sharp force trauma (severe blows to the head by various instruments), cut marks (scalping or removal or ears or nose), facial trauma (severe damage causing blows to the various areas of the face) and burning (applying heat shortly after death to facilitate defleshing). The post-cranial categories included neck trauma and decapitation, cut marks or projectile trauma caused by the violent attack, and arm and leg long bone fractures that may have been meant as debilitating strikes or were the result of defensive postures.

Table 4.2 Case study site DVI scores for recorded peri-mortem cranial and post-cranial violence.

	Talheim	**Herxheim**	**Cowboy Wash**	**Sand Canyon**	**Asparn/ Schletz**	**Sacred Ridge**
Peri-Mortem Trauma - Violent actions resulting in death, occurring at or near the time of death.						
Cranial						
Cranial Blunt Force Trauma	1	1	1	1	1	1
Cranial Sharp Force Trauma	1				1	

Cranial Cut Marks - includes scalping		1		1		1
Facial Trauma/Fractures	1	1	1	1	1	1
Burning		1				
Post-Cranial						
Decapitation			1	1		1
Neck Trauma	1				1	
Arms-long bone fractures	1	1	1	1		
Legs-long bone fractures	1	1	1	1		
Cut Marks		1	1			
Projectile Trauma	1					
Total	7	7	6	6	4	4

Scores assigned in this section of the DVI range from four to seven out of 11 possible points. Points in these categories were assigned if the data were described as peri-mortem or data for post-mortem manipulation were not present. For example, the remains at Sacred Ridge were processed so completely that injuries caused at or near the time of death were difficult to discern. Though the same is true at Herxheim, where skeletal material was crushed and smashed, the literature on the site describes the bone breakage that was visible as green breaks or breaks on fresh bone. At Sand Canyon Pueblo, Talheim and Asparn/Schletz, much of the skeletal data that could have been obtainable had conditions been more ideal but could not be recorded due to poor bone preservation or missing body parts.

Several trends across the sites stand out as significant. The first is that blunt force trauma injuries to the head are present across all six sites. The second category present at all sites is traumatic blows to the face. The head and face as targets are ubiquitous across these sites. Traumatic injuries to the arm and leg long bones are the next most frequent occurrence. Points for these categories were not assigned for Sacred Ridge because the complete level of processing on the skeletal material made identification difficult, while at Asparn/Schletz these parts of the

body were either missing, or injuries to these areas were not described in the site literature, so these results are clearly underestimating the degree of damage inflicted on the bodies at those sites.

The next area of focus for applying devastating force was the neck region. The difference between the US Southwest and the European contexts may partly be due to the descriptive language used in the site literature, but decapitation was the clear intention in the Southwest, while injuries to the neck in the European context seem to have been part of the killing process and were linked to the multiple blows to the head and face.

Cranial Peri- to Post-Mortem Cultural Modification Scores

For the peri- to post-mortem cultural modification section of the DVI analysis (Table 4.3), the violent actions and intentional alterations near the time of death or immediately following were assigned points in cranial and post-cranial categories. The cranial categories included actions that were part of the post-mortem disarticulation and processing procedures of the cranium and face. These categories include cutting, defleshing and fracturing of the skull, destruction of the face by removal of the ears, nose and lips, fracturing the maxillary areas, and cutting away the connecting tissue and fracturing of the mandible and teeth.

Table 4.3 Case study site DVI scores for cranial peri- to post-mortem cultural modifications

	Sacred Ridge	**Herxheim**	**Asparn/ Schletz**	**Cowboy Wash**	**Sand Canyon**	**Talheim**
Peri to Post-mortem Modifications. Cultural modifications.						
Cranial						
Cranium-circumferential cut marks	1	1			1	
Cranium-cut marks follow sagittal suture	1	1				

Cranial Defleshing	1	1				
Cranial Fracture	1	1	1	1	1	1
Removal of Skullcap		1				
Zygomatic Fracture	1					1
La Fort Fractures	1		1			
Mandibular Fracture	1		1	1		1
Mandibular Cut Mark	1	1				
Maxilla Fracture	1		1			
Maxilla Cut Mark	1	1				
Dental Ablation Fracture	1				1	
Removal of Nose/Lips	1	1				
Removal of Ears	1					
Thermal Alteration	1	1		1		
Extreme Processing	1	1				
Total	15	10	4	3	3	3

Scores assigned in this section of the DVI ranged from three to 15 out of a possible 17 points. Sacred Ridge scored the highest in this section as points were assigned in all categories except removal of the skullcap, a very intentional process of shaping the calotte observed only at Herxheim. The complete destruction of the face is well described at Sacred Ridge and appears to have been a detailed and systematic focus of the violent spectacle that occurred there. Herxheim also scored higher in this section due to the obvious focus on shaping the skull and systematic deconstruction of the face. Both Sacred Ridge and Herxheim were given points for extreme processing because of this level of detailed destruction. Points assigned to Talheim, Asparn/Schletz and Sand Canyon Pueblo in this section were assigned to account for the multiple strikes that victims endured after the initial blows to the head and face.

The first trend that stands out as significant in this section is that the application of cranial fractures is again present in all site assemblages. Deconstruction of the head was clearly a

necessary step in the processing spectacle. The second category present at four of the sites was mandibular fractures, associated with the attention paid to the face of the victim. The third important processing category present at Sacred Ridge, Sand Canyon Pueblo and Herxheim was circumferential cutmarks, which can be attributed to scalping and defleshing of the crania. Thermal alteration also appears to have been important at Sacred Ridge, Cowboy Wash and Herxheim as a strategy, according to the literature, to facilitate the removal of muscle and tissue from bone.

Peri- to Post-Mortem Post-Cranial Cultural Modification Scores

The post-cranial peri- to post-mortem modification section of the DVI (Figure 4.4), includes activities that were part of the post-mortem disarticulation and processing procedure. These categories include fracturing and defleshing of the shoulder and clavicle area, fracturing of the spinal column, cutting, fracturing and removal of the ribs (scraping the inside of the ribs in some instances), cutting, fracturing and defleshing of the long bones (including marrow extraction), defleshing of the hips with indications of disembowelment, and evidence of thermal preparation. The removal and discarding of extremities such as hands and feet and epiphyses were also accounted for.

Table 4.4 Case study site DVI scores for peri- to post-mortem post-cranial cultural modifications

	Sacred Ridge	**Herxheim**	**Cowboy Wash**	**Sand Canyon**	**Asparn/ Schletz**	**Talheim**
Peri to Post-mortem Modifications. Cultural modifications.						
Post-Cranial						
Unspecific Post-Cranial Dismemberment				1	1	
Shoulders - fracture	1					

Shoulders/Clavicle-defleshing	1	1	1	1		
Arm Long Bone-defleshing	1	1	1	1		
Removal/Discarding-hands, forearms, feet, epiphyses	1	1	1	1		
Spinal Column-defleshing/fractures	1	1				
Ribs-removal from spinal column	1	1	1			
Ribs-defleshing	1	1	1			
Disembowelment	1					
Hip-defleshing	1	1		1		
Leg Long Bone-defleshing	1	1	1	1		
Thermal Alteration	1	1	1			
Extreme Processing	1	1				
Total	12	10	7	6	1	0

Scores assigned in this section of the DVI range from zero to 12 out of a possible 13 points. The Sacred Ridge site had the highest score followed closely again by Herxheim. Extreme processing occurred at both sites and included all the steps that would be required from the shoulders down to the feet to systematically deconstruct the human body. Most categories were present at Cowboy Wash (seven points) and Sand Canyon Pueblo (six points). In contrast, little evidence of these processing categories was present at Talheim and Asparn/Schletz, due in large part to a lack of descriptive information, missing sections of the body or poor preservation. This made it difficult to accurately score Talheim and Asparn/Schletz in the post-mortem sections of the DVI. Asparn/Schletz was assigned one point in this section in the 'unspecified post-cranial dismemberment' category to account for the intentionality of leaving victims on the ground surface for an extended period subject to carnivore scavenging.

No category in this section is present across all site contexts, though where data are available, a picture emerges of common elements in the processing of human bodies. For

example, processing of the shoulders, arm and leg long bones, and removal and/or discarding of hands, feet or epiphyses, possibly due to trophy taking, occurred at all Southwest sites as well as Herxheim. The next most common categories observed in at least two of the Southwest sites and Herxheim are removal and defleshing of the ribs, and thermal alteration. Spinal column defleshing and fracturing are present at both Sacred Ridge and Herxheim. It is certainly possible that the categories in this section were present at Talheim and Asparn/Schletz, two similar raid type violent events. The attackers may have disabled the victims before killing them, and then further deconstructed their bodies through post-mortem mutilation.

Further Site Comparisons: Composite Illustrations

Three comparisons between the Southwest and European sites created from the scores assigned on the DVI are presented in this section. Bodily damage recorded at each site is illustrated in a composite snapshot. This snapshot seeks to show the extent of the violence at a particular site using a single individual as an indication of the degree and kind of violence inflicted on these communities. The goal of this method is to help visualize and highlight the commonalities and differences as well as determine the focus of the violence at these sites in order to distinguish between the different types of overkill events. The three comparisons presented here are Sacred Ridge with Herxheim, with DVIs indicating extreme processing, Cowboy Wash with Talheim, interpreted as the result of raiding or warfare, and Sand Canyon Pueblo with Asparn/Schletz, interpreted as raiding and warfare sites followed by site abandonment.

Sacred Ridge and Herxheim Comparison

Both Sacred Ridge and Herxheim can be considered sites of extreme dehumanizing processing. Immediately evident in Figure 4.1 is the emphasis on the complete disassembly and destruction of the body. Both sites exhibit multiple cranial cutmarks with similar intent. The cutmarks at Sacred Ridge were patterned circumferentially and were most likely the result of scalping. Prominent cutmarks at Herxheim were patterned from the nose to the back of the head, most likely for defleshing in preparation for the shaping and removal of the calotte. The destruction of the skull at Sacred Ridge was greater than at Herxheim, as the calotte was generally kept intact. The face at both sites was subject to destruction. At Herxheim the face was disassembled through cut marks at the site of mandibular attachments and defleshing of the mandible, along with fractures to the maxilla, cheek bones, eye orbits and forehead. At Sacred Ridge the face was defleshed as observed by cutmarks removing the nose and lips, along with smashing of the zygomatics, mandible and maxilla.

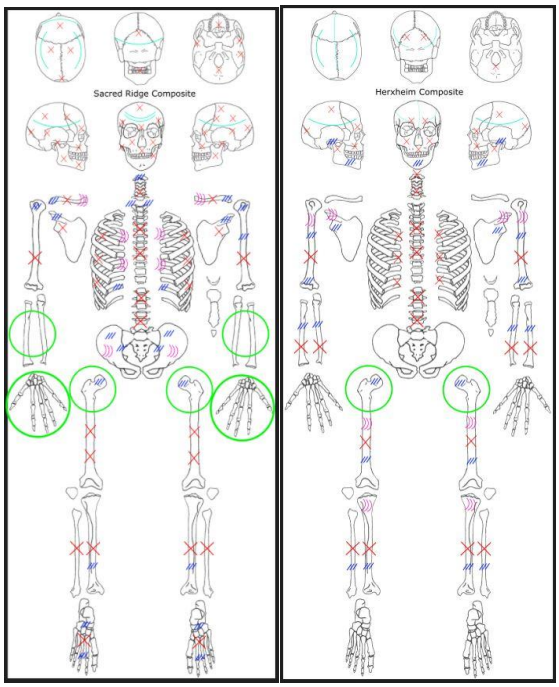

Figure 4.1 Sacred Ridge (L) and Herxheim (R) composite comparison.

Key: ✕ = Fracture, /// = Cut Mark, ⌒ = Cranial Cut Mark,))) = Scrape Mark, ○ = Missing

At both sites the base of the neck and vertebrae exhibit evidence of damage, though at Sacred Ridge there is more detail in observable cutmarks on the C1 vertebra and near the base of the neck at the muscle attachments. The clavicles at Sacred Ridge were heavily processed while little information is available for clavicles at Herxheim. Shoulders and areas of muscle attachment at both sites contain observable fracture, cut and scrape marks. Arm long bones at Herxheim yielded evidence of cutting and heavy fracture. At Sacred Ridge the recovered humeri were fractured, though there is a general lack of radii, ulnas and hands. There was little information for any recovered hand bones at Herxheim. At both sites the spinal columns were fractured. Vertebrae at Herxheim show that ribs were snapped away, but there was little other information about the condition of ribs recovered. Ribs at Sacred Ridge were fractured away from the spinal column, scraped from the inside out and fractured further into smaller pieces.

At Sacred Ridge the hips were defleshed while there is little information about hip bones recovered from Herxheim. Leg long bones at both sites were heavily processed based on defleshing cut and scrape marks followed by fracturing into small pieces. The epiphyses of the femurs at Herxheim were generally missing. Feet were extensively processed at Sacred Ridge while there is little information for bones of the feet recovered from Herxheim. Processing at both sites was systematic and intentional and differences in the processing of crania reflect local conceptions of the required chaîne opératoire.

Cowboy Wash and Talheim Comparison

Cowboy Wash and Talheim have been interpreted as possible sites of raiding and warfare. Interpretations also suggest that the violent events were expediently conducted. With the unfortunate lack of post-cranial data from the Talheim assemblage, it is difficult to provide the ideal level of comparison between the two. Nevertheless, some areas of commonalities and

differences were revealed by the DVI analysis. The emphasis at both sites appears to have been expedient killing, along with, at Cowboy Wash at least, the disarticulation of the victim (Figure 4.2).

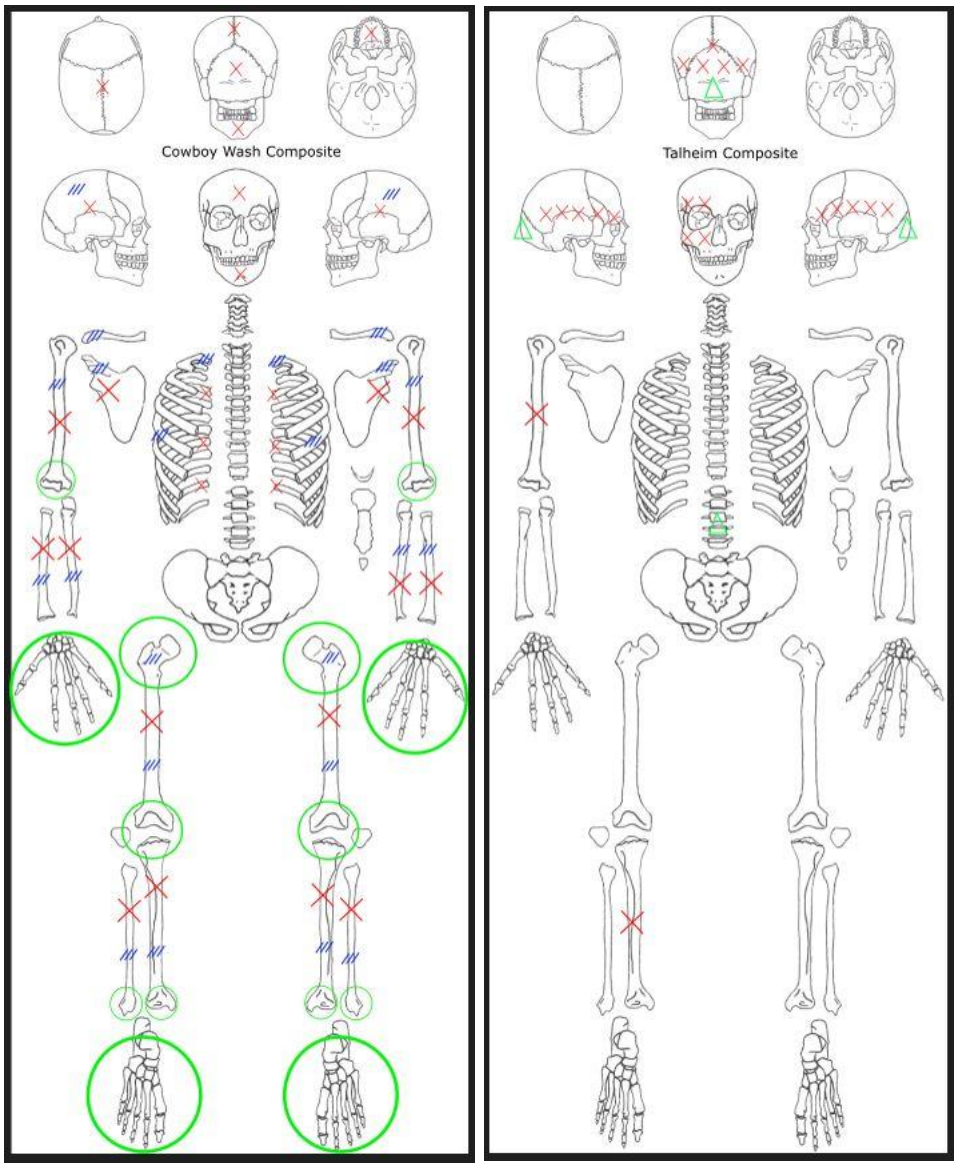

Figure 4.2 Cowboy Wash (L) and Talheim (R) composite comparison. Key: ✕ = Fracture, /// = Cut Mark, ⌒ = Cranial Cut Mark,))) = Scrape Mark, ○ = Missing, △ = Projectile Trauma

Cranial fractures at both sites were the most obvious common denominator. At Talheim, victims were subjected to multiple blows to every area of the cranium, as well as to the forehead and face. Two victims were also subject to projectile trauma on the backs of their heads. Victims at Cowboy Wash were similarly subjected to peri-mortem cranial fractures and cranial reduction by multiple blows with heavy implements. The cranial reduction also included cut marks, but there is little detail on their exact placement. Most recovered mandibles at Cowboy Wash appear to have been fractured at the midpoint, or symphysis. Some limited heat treatment of cranial and post-cranial elements was also observed at Cowboy Wash

The only post-cranial fractures observable at Talheim were on one tibia and one humerus. If more data on the Talheim post-cranial bodies had been available, more violent actions directed to the chest and extremities would probably have been revealed. The extreme nature of the killing at Talheim observed on the crania suggests that hits to the body were also prevalent, and that some post-mortem disfigurement occurred before burial. Post-cranial dismemberment is clearly visible in the cut and fracture marks on the shoulders, ribs and all long bones. Long bone epiphyses, hands and feet were generally missing from the Cowboy Wash assemblage.

Sand Canyon Pueblo and Asparn/Schletz Comparison

Sand Canyon Pueblo and Asparn/Schletz have been interpreted as occupation-ending raiding or warfare resulting in site abandonment. Post-cranial data were limited at Asparn/Schletz due to the pervasiveness of animal bite and gnaw marks, which again makes it difficult to provide an ideal comparison of the two sites, but some commonalities and differences were revealed by the DVI analysis. The limited data on post-cranial remains at Asparn/Schletz apart from animal activity mentions the general lack of hands and feet. The emphasis at both

sites appears to have been expedient killing with subsequent post-mortem mutilation and neglect (Figure 4.3).

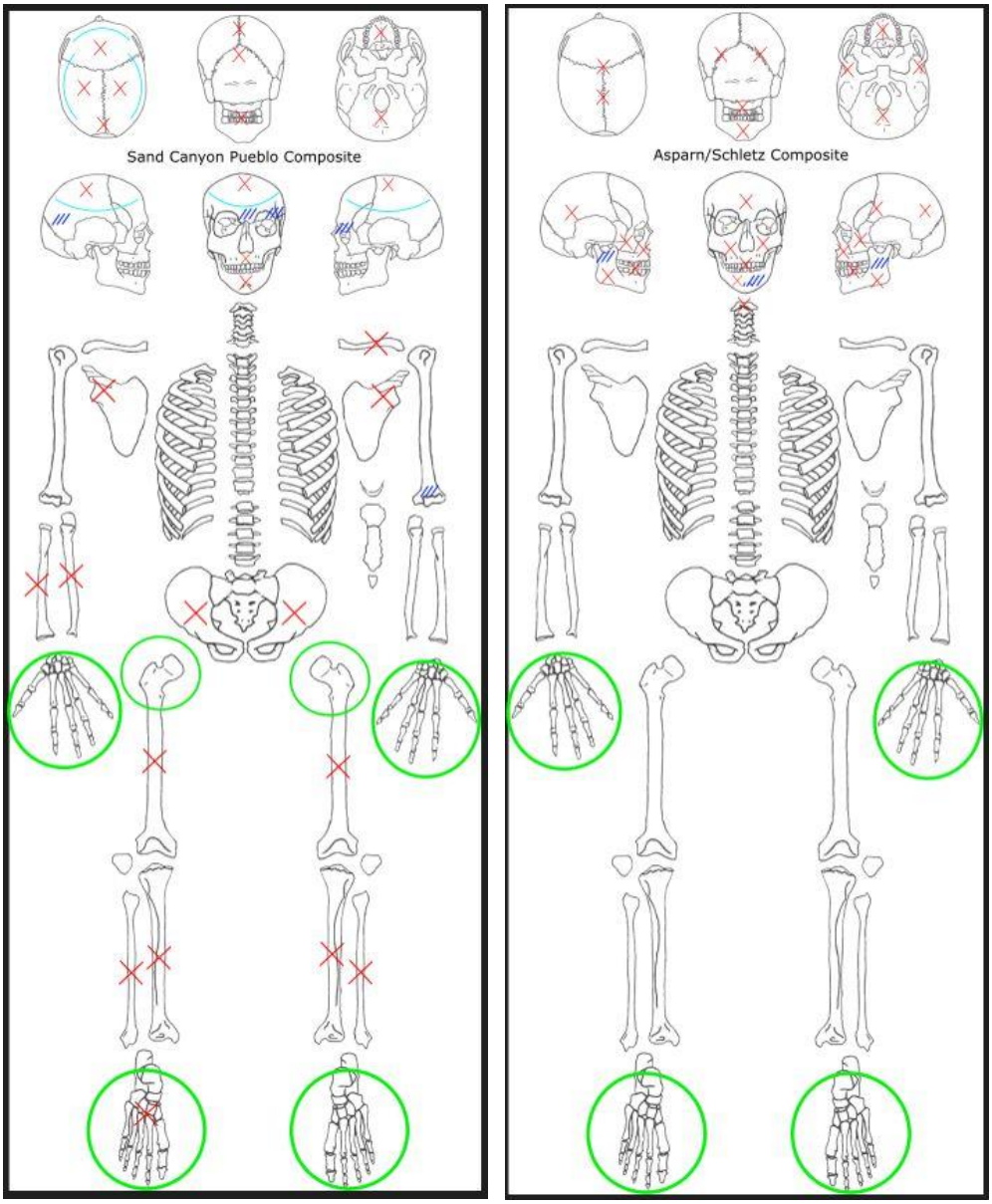

Figure 4.3 Sand Canyon Pueblo (L) and Asparn/Schletz (R) composite comparison.

Key: = Fracture, = Cut Mark, = Cranial Cut Mark, = Scrape Mark, = Missing

Massive damage to the head was clearly observed at both sites. Fractures to all areas of the cranium, forehead, face and base of the skull are present at Asparn/Schletz. Cut marks are present on several areas of the mandible, including the muscle attachment sites. Victims at Asparn/Schletz suffered up to eight blows, causing multiple intersecting fractures. Cranial fractures at Sand Canyon Pueblo were observable on all areas of the cranium, forehead, base of the neck, maxilla and teeth. Circumferential cutmarks were present indicating possible scalping, with other sets of cutmarks on the forehead, above the eye orbits and sides of the head.

The Sand Canyon Pueblo post-cranial data indicates general dismemberment of some of the victims. Fractures were observed on shoulder blades, clavicles, one set of forearm bones, hips, and all the leg long bones. There was also a notable lack of hands, feet and epiphyses. The severe animal predation at Asparn/Schletz suggests willful neglect that resulted in the mutilation of the corpses and subsequent difficulty in gathering data regarding post-cranial damage. Along the same lines, the willful mutilation of Sand Canyon victims, and subsequent humiliation by actions such as piling dismembered legs in the main courtyard speaks to the dehumanized status of the victims at both of these sites.

Prinzip der Geordneten Zerstörung

The DVI results suggest that the general processing of a victim comprises a set of ordered steps, a *Prinzip der Geordneten Zerstörung*, or principle of ordered destruction, as defined by Lang (2009). These steps occur over the course of a very fluid situation. They can overlap or occur at various points throughout the timeline of overkill events. This section illustrates the steps based on the frequency with which the DVI categories occur between the case study sites. For example, peri-mortem cranial trauma occurred at all six sites. This category would therefore

be placed at the top of the diagram as a very common archaeologically observable occurrence at an overkill site.

Within the peri-mortem section of the diagram (Figure 4.4) cranial trauma and facial trauma occur at all six sites and are shown as interchangeable in the initial process of killing. Cranial and facial trauma are followed closely by arm, leg and neck trauma, areas of the body that may sustain injuries as part of the effort to incapacitate the victim. Neck trauma is observable in five out of the six sites, with decapitation as the primary goal in the Southwest. Cranial cut marks may have occurred once the victim was subdued, taking the shape of scalping in the Southwest.

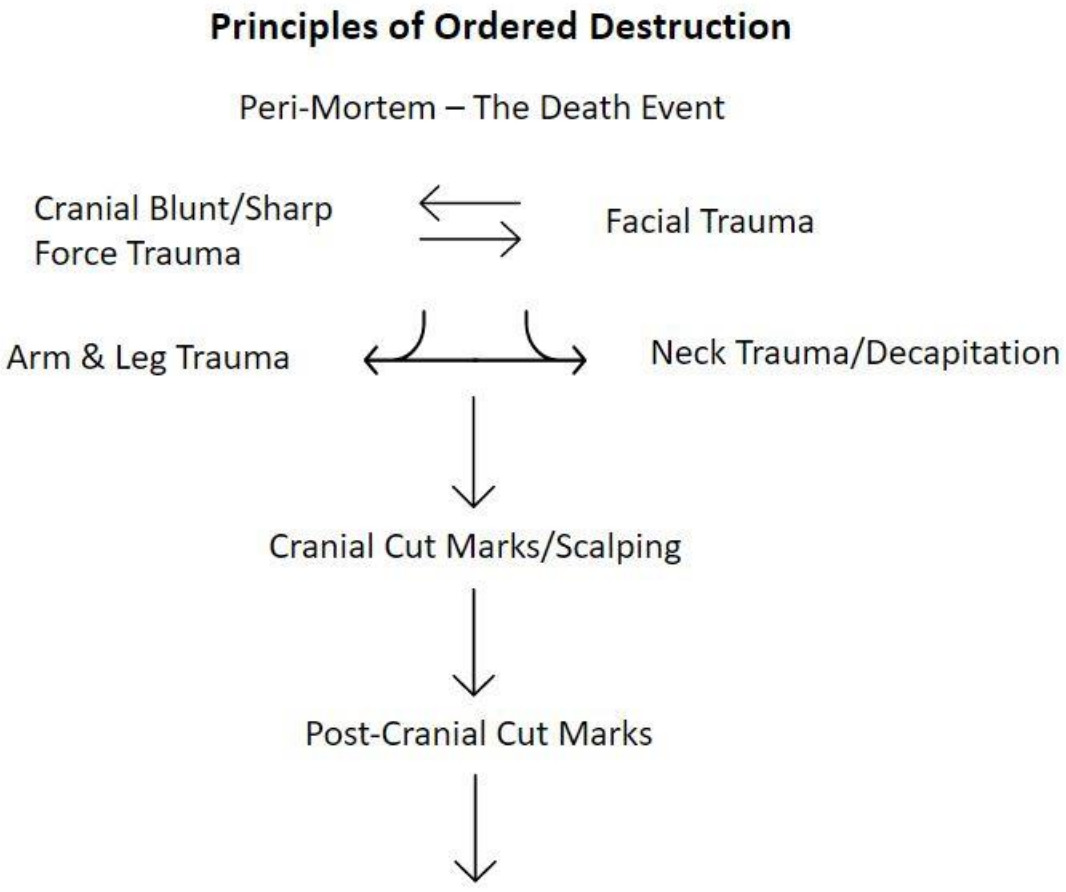

Figure 4.4 Dehumanization illustration, peri-mortem steps.

Within the peri- to post-mortem cranial cultural modifications section of the diagram, (Figure 4.5) cranial trauma, again, is present at all six sites. Mutilation of the head appears critical in the first step of the overkill event. Fracturing over all sections of the mandible, from the attachment points to broken in half at the symphysis as at Herxheim, is present at four out of the six sites. Cranial cutmarks appear at three out of six sites. They take the form of circumferential cuts, the result of probable scalping in the Southwest, to straight across sections of the head at Herxheim, probably intended for cranial defleshing. Present at only Sacred Ridge and Herxheim, and possibly part of the process of extreme erasure of individual identity, removal of the ears, nose and lips, and facial processing of the eyes, cheeks, maxilla and teeth follows. As with processing of the cranium, destruction and processing of the face is an important step in the victim's transformation.

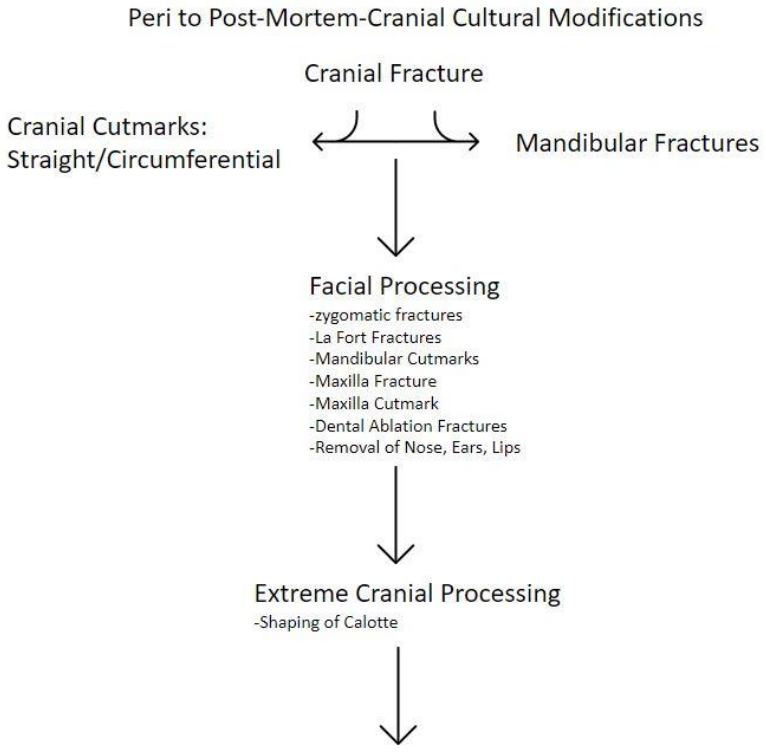

Figure 4.5 Dehumanization illustration, peri- to post-cranial cultural modifications.

Within the post-cranial cultural modifications section of the diagram (Figure 4.6) there are distinct levels of post-cranial processing between the case study sites. Processing of the shoulders, arm and leg long bones, and removal of extremities occurs at four of the six sites. These actions may have come after or concurrently with processing of the head and face. Regardless of when it happened, destroying the body focuses heavily on stripping it down to its essential components and taking away certain parts for possible trophies, pure cruelty, or other beliefs regarding what the dead can do if their bodies are not manipulated in prescribed ways. Processing of the ribs and hips occurred at three of the six sites, with areas that could only be accessed if the extremities were removed being dealt with first. This represents another level of treatment that required perseverance and a particular goal. Ribs were not only snapped from the spinal column, but they were also scraped out from the inside. This happened as well with hips. Spinal column defleshing and processing are present only at Sacred Ridge and Herxheim, a sign of the extreme nature of the processing at both sites.

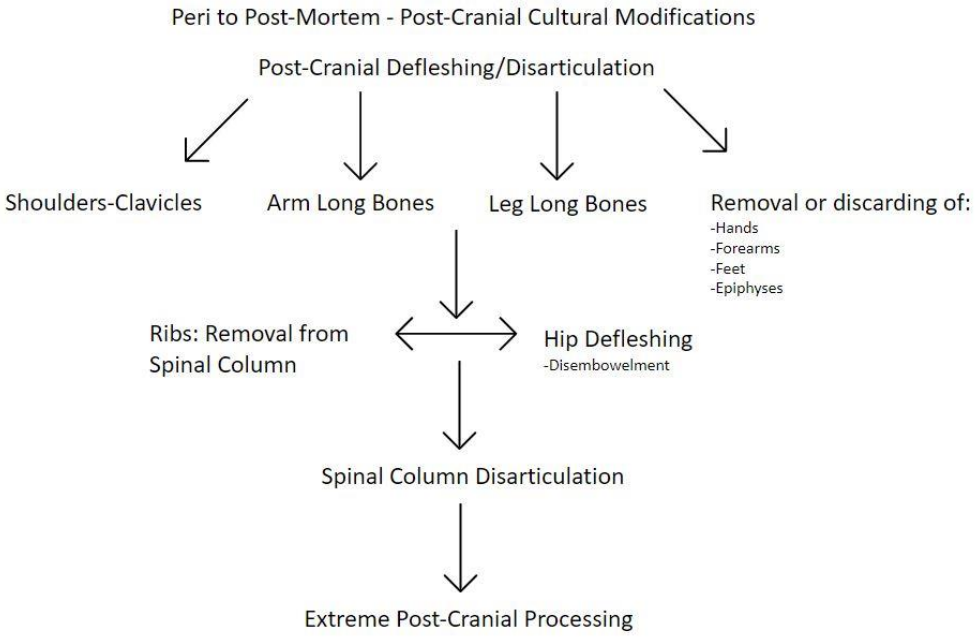

Figure 4.6 Dehumanization illustration, peri- to post-mortem post cranial cultural modifications

Summary

Figures 4.4, 4.5 and 4.6 illustrate the deconstruction of the human body in a series of steps observed in the DVI results. These steps may not have occurred in this or any particular order, but a few points become clear: 1) destroying the head and face was a crucial step as observed at all of the case study sites; 2) destroying each area of the body in a systematic and prescribed manner was an essential component of the spectacle that would progress and carry meaning within the local context; 3) some contexts fully erased people by creating the conditions for extreme processing as an acceptable outcome. Though it may not be articulated as clearly in every context within which it occurs, and will manifest within locally relevant practices and beliefs, the behavioral actions involved in overkill take similar forms across temporal and geographical contexts. However, the differences within the geographic contexts and the similarities across them indicate that something other than temporal and spatial distance must be invoked to explain the patterns described here.

Chapter 5: Conclusions and Future Research

The DVI results suggest strongly that overkill sites as generally defined in fact have distinguishing characteristics, as discussed in the previous chapter. A system for determining the types as well as the extent of victim treatment provides archaeologists with a way to compare in a more systematic way the level of violence and dehumanization represented by different sites that have been classed as overkill locations. The results of the analysis presented in this thesis also raise questions about: 1) the victims, who they were, who was present or absent and how they were treated; 2) the perpetrators, what was the emphasis and intent in their action; and 3) possible internal and/or external stressors that can shed light on how overkill violence is performed/installed and who the intended audience may have been. When viewed in light of the DVI results, a comparison of the data provided in the site literature related to these points reveals some striking similarities as well as some potentially important differences across geographic and temporal boundaries. This chapter will expand upon the DVI results by reviewing the site contexts to identify areas of overlap that lead up to, or occur during, overkill events.

Who Were the Victims?

The Victims, the Manner of Treatment, and What Was Missing

The level of violence that occurred at the overkill events presented here raises questions about the identity of the victims, how they were treated across age and sex groups, who might have been spared, and how many people might have been involved in the overkill event during the various archaeologically documented phases. The violence discussed here may have involved different agents participating in different stages of dehumanization over the course of events. A picture emerges from the DVI results and from the site literature suggesting that specific groups

of people were singled out for special treatment in some site contexts, few were spared the full range of bodily damage, and certain people or parts of people are conspicuously absent from the site data sets, suggesting a selection process may have been in play in some cases at least. Victims may have been opportunistically found for the purposes of violent treatment or actively selected for some parts of the process. Non-locals, immigrants, women of reproductive age and groups with distinct social identities appear to have been the focus of violence at the sites analyzed in this study. The exact roles these individuals and groups played in their communities, or how they came to be in those specific situations when they occurred, is not discernable based on the available evidence, but the fact remains that they were subject to a dehumanizing process that terminated and transformed the very nature of their existence. At the same time, it is clear that protocols for distinguishing between the various categories of de-humanizing performances represented at these sites need to be developed if we are to understand the root causes of this persistent though rare type of violence.

Within the European contexts presented in this study, outsiders appear to have been subject to most of the overkill violence. At Talheim, the violence has been described as originating from emotionality and familiarity (Strien et al. 2013:253), which is at odds with Price et al. (2006:276), who suggest that three out of the 12 individuals sampled for strontium isotope analysis were non-local. Bentley (2012:305-309) discussed the fact that strontium isotope analysis at Talheim supports the evidence for the existence of a patrilocal residence pattern for females, demonstrated by the evidence that the sampled individuals comprised three distinct groups. Group One represented the local isotope signature and included all the children. Females are missing from Group One, suggesting they were spared and taken by the perpetrators. Group Two appeared to represent a familial unit, while group three included two males that could have

been related to one another along with two unrelated females. The isotope results suggest that some of the victims may have originated from the uplands around Talheim or resided there for much of the year. Except for the missing females in Group One, everyone else was subjected to the same extremely violent treatment regardless of age or sex (Wahl and König 1984; Wahl and Trautman 2012). Individuals involved in the quick overkill event at Talheim comprised locals and non-locals from the surrounding area, as well as perpetrators that may have come from nearby villages or a completely different region.

Strontium isotope analysis at Herxheim revealed that nearly 90 percent of the 76 individuals sampled were non-local to the loess areas around Herxheim (Turk 2019:371). Locals comprised only nine individuals, five of them children. The remaining individuals hailed from five different regions that ranged from lowlands distant from Herxheim to hilly areas or low mountain ranges. The forty individuals from low mountain range regions represented 53 percent of the sample group. These individuals were the focus of the most severe dismemberment and processing (Turk 2019:375). The non-local nature of the victims is supported by the recovery of eight pottery vessels with clay compositions different from the locally produced ceramics that were found in a destroyed state throughout the pit structures (Turk 2019:328; Zeeb-Lanz et al. 2016a:177). Sex and age assessments were difficult because of the extremely fragmented nature of the deposits and the general absence of sexually dimorphic fragments of the cranium (Orschiedt and Haidle 2012:126), but it could be safely assumed that everyone, regardless of age or sex, was subjected to the same level of processing, especially the large group of non-local individuals from the mountains. Several skeletal elements of victim skeletons had been targeted for removal from the Herxheim assemblage. Many of the small bones of the hands and feet were missing (Orschiedt and Haidle 2012:126), along with a “systematic lack of epiphyses” on the rib

attachments to the vertebrae, joint areas of the clavicle and scapula, and from approximately 95 percent of the long bones sampled (Bauer 2019:12). Hundreds of individuals from the local and surrounding regions were involved at Herxheim for the estimated 50 years of activity at the site. The large number of bodies recovered from the excavated ditch segments and the work it would have taken to organize that level of organized destruction suggests many people were involved in the various stages of acquiring people and artifacts and then processing them.

The victims at Asparn/Schletz were almost certainly local in origin as supported by early strontium isotope analysis (Latkoczy 1998:565-566). This supports the interpretation of the site as an eradication event with an outside group targeting an entire local population. It is possible that this local eradicated group shared a distinct social identity from the group that attacked it. The absence of young females in the skeletal assemblage suggests they were selected and taken by the attacking party (Teschler-Nicola 2012:105). Other than this lack of females there were no obvious differences in the types or severity of trauma inflicted upon all victims regardless of age and sex (Teschler-Nicola et al. 2016:11). Hands and feet were generally missing from the skeletal assemblage, suggesting that a form of trophy-taking as well as raiding for women may have been motivations in this case.

In the Puebloan assemblages victims appear to have consisted of a mix of local and non-local groups living in ethnically diverse contexts. The victims of violent events at Cowboy Wash may have been immigrants from the Chuska Mountains located to the south-southwest of the Ute Mountain locality during the early Pueblo III period. The attackers may have been locals, from neighboring villages or from outside the region, with migration due to environmental stress creating a conflict situation between culturally diverse peoples. A high percentage of Chuskan ceramics were recovered from all sites with disarticulated human remains (Billman 2008:57;

Errickson 1993). Few Chuskan ceramics are found in other parts of the Mesa Verde region (Billman 2008:54), which further supports the possibility that the victims at Cowboy Wash were perceived as an outsider group. The victims, especially at site 5MT10010, were subjected to the same treatment regardless of age or sex based on the general absence of hands, feet and long bone epiphyses in the skeletal assemblage. The extreme nature of this treatment is highlighted by the evidence of blood residue in a cooking vessel, bone discoloration from stewing, and a human coprolite deposited in the ash heap of a hearth.

The residents at Sacred Ridge lived in a community of diverse people with distinct social identities occupying separate sections of the Ridges Basin (Potter and Perry 2011). This is supported by the variable construction techniques utilized throughout the Basin. The victims recovered from Feature 104 were local but are interpreted as being from a separate social group based on cranial biodistance and dental studies (Potter and Chuipka 2010:519). The individuals subjected to extreme processing were targeted specifically for such treatment. Though sex and age assessments were difficult to determine due to the extreme nature of the bodily processing, it appears that all members of the group were subjected to the same procedures. While it was difficult to discern if particular ages or sexes were missing, there was a noticeable absence of hands and feet in the skeletal assemblage. The multi-cultural nature of the Ridges Basin suggests that people from diverse groups could have participated in various roles during the overkill process. It is not clear how long these activities may have taken, but a variety of roles for participants were involved, from instigating the event, to restraining the victims, to processing and displaying their bodily transformations.

The victims at Sand Canyon Pueblo appear to represent a local population subjected to an attack by a peripheral, possibly non-local group that ended the village's occupation. The skeletal

assemblage reveals a victim group that was comprised of mostly women, young adults and children. The men included in the victim group were either older or were suffering from infirmities that may have limited their usefulness in a conflict situation (Kuckelman 2010). Everyone regardless of age or sex was subjected to the same level of violent treatment. Young fighting age males were not well represented in the assemblage, suggesting that their absence may have been a motivating factor in the timing of the attack (Kuckelman 2012:130). Hands and feet were generally missing from the skeletal assemblage, along with an intentionally constructed pile of extremities deposited in the central village courtyard (Kuckelman 2010).

Trophy Taking

Trophy taking, the removal of body parts for preservation as trophies, is well documented in the Americas. Two studies of trophy taking in central California (Andrushko et al. 2005, 2010) document the routine dismemberment of forearms over a long period of time and a wide geographic area, for example. As in the case of the standardized processing of bodies at Sacred Ridge and Herxheim, forearm "amputation was highly ritualized" (Andrushko et al. 2005:380). The forearms of particular individuals were removed using stone tools peri-mortem, and the bones were drilled and polished according to a standardized process (Andrushko et al. 2005:380). In a study on scalping and ear trophies in the southern United States, De Vore and Jacobi (2016) studied skeletal assemblages collected in the 1930s and 1940s in the Tennessee River Valley. Five individuals were identified as exhibiting evidence of scalping and ear removal with no distinction being made between males and females (De Vore and Jacobi 2016:144, 148). Missing body parts in the case study sites analyzed in this thesis may have been taken as trophies, indicating that this practice is a predictable element in overkill events and that the areas

of the body involved are generally the same irrespective of time period or area of the world. Hands, feet and long bone epiphyses are generally missing from the skeletal assemblages at all the case study sites except Talheim.

Intended Audience and Exhibition versus Installation

This section will discuss the variable emphases of the violence exhibited at the sites in this study as well as the intended audiences of the performances and displays that resulted from these violent interactions. It will also explore these overkill sites as loci of installation or exhibition for the performative processing and display of human bodies. Deprez (2020:345) writes that exhibitions and installations "gain their distinctive meaning from arranging art objects in space, and from responding to that space." The various features of an artwork, once understood by the audience, creates "meaning bearing properties […] that are imbued with significance" (Deprez (2020:345). The display and arrangement of the victims' bodies in the case studies discussed in this thesis created new spaces of significance and meaning. The bodies and their various states of disarticulation and erasure during the construction of the exhibitions or installations "were the key conveyer of information, guiding themselves and others on how they were to be perceived and treated (Tung 2021:125). These sites became spaces of meaning and interaction, whether that was the goal of the perpetrators or not. The exhibitions and installations at overkill sites are visceral for those who experience them, containing a "sensual dimension" that includes smells, sights and the textures of touch (Geller and Suri 2014: 505). Whether the selection of body parts involved display or installation, and whether the specific acts of body modification were purposeful or not in the case study contexts, the acts and choices made were meaningful (Geller and Suri 2014:506). For the purposes of this discussion an exhibition is defined as a public

display meant to communicate meaningful social messages, while an installation is defined as an immersive environment meant to be interacted with by the perpetrators and witnesses.

Constructing a picture of who the victims might have been is more accessible through the skeletal material they leave behind, while it is obviously more difficult to ascertain the emphasis and significance that the perpetrators assigned to their actions. The motivations behind violent actions can be determined partly by the end result of the actions themselves while the intended audience based on site contexts may be reconstructed through long-term studies of their localities. The audience is an essential component of the cultural meaning that is created at an overkill site, as "violence and fear of violence need witnesses who understand the symbolism behind various acts and performances of violence" (Martin and Osterholtz 2020:89). The witness group is often the hardest to identify archaeologically, but it is the meaning they make of the events that produces the intended social effects through changed or reinforced behaviors (Osterholtz 2016:135).

Emphasis and Audience

Three themes emerge from the DVI results and the site biographies regarding emphasis and audience: 1) [exhibition] removal of a community from the landscape with surrounding villages or travelers as audience; 2) [exhibition and installation] degradation and eradication of an outsider group with local populations as audience; and 3) [installation] a focus on the process and display of translated remains with visitors or forced participants as audience. All three of these themes have at their core the intent to exert control and influence over territory, people and possibly spiritual aspects as people conceptualized them. The poetics approach to understanding violence "suggests that violence is fundamentally built into the scaffolding that produces and

maintains social structures" (Martin and Osterholtz 2020:89). The perpetrators of the violence documented at each of the case studies presented here understood what they were emphasizing and the audience they sought to influence by embodying forms of violence their audience could understand.

At Talheim and Asparn/Schletz the emphasis appears to have been efficient removal from the landscape. The victims at Talheim were quickly killed in a raid style attack, with the overkill mainly taking the form of excessive head traumas, after which the bodies were expediently deposited at the same time in one mass grave (Wahl and Trautman 2012:80). The audience for the raid likely consisted of the perpetrators themselves, as a group reinforcement of the logic behind the attack. Surrounding villages might also have been aware of the massacre, or the intended audience might have been other non-locals that were moving into the area.

The emphasis at Asparn/Schletz was also efficient killing in a raid style attack, with the overkill designation being mainly due to the excessive amount of head trauma exhibited by many of the victims. The bodies were left out on the ground surface and their corpses were subjected to scavenging based on the evidence of gnaw marks and crushing observed on bone from the site and possibly the many missing extremities as well (Teschler-Nicola 2012:116). The intended audience could have been the surrounding villages who would have become aware of the attack and maybe even participated in the ditch construction and final deposition of the bodies.

The three case studies in the Southwest emphasized eradication of the target group in addition to a layer of extreme dehumanization or humiliation represented by the severe manipulation of victims' bodies. The audience at all these sites would have been anyone in the target group that was spared the initial violence, along with those who participated in, supported, or were simply witnesses to the events. The violence would have communicated a message to

everyone who was a witness, regardless of their level of involvement or social status, that certain behavioral attributes were expected and that there were consequences that some people were willing to violently enforce.

The emphasis at Cowboy Wash was on expedient killing and deliberate mutilation culminating in site abandonment (Billman 2008:57-58). Processing of the bodies appears to have occurred outside on the ground surface and the body parts were then dumped into the various structures (Lambert et al. 2000:54). The perpetrators ensured that their actions would be on full display throughout the killing and processing phases, allowing the audience a full view of the actions perpetrated on a possible non-local group of outsiders.

The emphasis at Sacred Ridge appears to have been relatively expedient killing as well as the extreme mutilation of the offending group. Elements of torture were also observed on the partial reconstruction of eight feet at the site. All the feet displayed tool marks and crushed bones suggesting that some victims were incapacitated at some point before their deaths (Osterholtz, 2020:225-226). This is suggestive of a longer process that the witness may have been subjected to before being killed that may have included the disabling and torturing of the victims followed by killing and processing as described previously. Much of the actual processing occurred inside some of the structures, but most of the human bone was moved from one structure for final deposition in another. Though the audience may not have witnessed the processing itself, they could certainly have witnessed the spectacle of human body parts being transported from one place to another.

The emphasis at Sand Canyon Pueblo was raiding and the destruction of the village, along with eradicating and humiliating those that had remained in their residences. As mentioned previously, the dead at Sand Canyon Pueblo were primarily women and children. The

perpetrators killed the victims and deposited them in the various rooms and kivas throughout the village. Victims were disarticulated and parts were sometimes moved to different areas of the site. A pile of limbs was uncovered in the central courtyard that included the legs and feet of a 20-year-old man uncovered in Room 1001 and the lower half of a 15–20-year-old female in the same structure, among many others (Kuckelman 2010:511). Since Sand Canyon was abandoned at the conclusion of the overkill event, it is difficult to imagine for whom the spectacle was intended. Environmental factors, such as the onset of drought during this period, may have contributed to the desperate character of this raid. In this case the overkill element appears to correspond more to an installation with a ritual display function and the intended audience may literally have been more than human, i.e., supernatural.

As at Sand Canyon Pueblo, the emphasis at Herxheim was on the transformation and display of the victims, an ordered ritualistic system of mutilating human bodies. Individuals were killed and subjected to a "normed and sanctified method of treatment" (Zeeb-Lanz et al. 2016:144). Since most of the victims in the strontium isotope studies discussed previously were non-local to Herxheim, the audience may have been: 1) the performers or ritual specialists responsible for enacting the ritual executions and mutilation; 2) future victims who were present willingly or unwillingly; 3) the captors responsible for bringing future victims to the site; 4) local individuals invested in the economic activities at this site.

Exhibition versus Installation

Given the extreme visual impact of the activities at all the sites included in this study, further discussion of the display element of overkill contexts appears warranted. An exhibition is a public display meant to communicate a message, while an installation is an immersive

environment, also meant to communicate a message, but that includes intense visceral, sensory, and immersive emotions.

The perpetrators at Talheim did not leave their victims on display for a long period of time after the attack. The exhibition element at this site was the show of force and its extreme nature, along with the physical effects of the attack on the village structures and landscape. It also included the mass grave itself, the spectacle of depositing the bodies, and a new place in the landscape where spectators and future visitors could see the results of these actions. Talheim has been interpreted as a planned attack because of the appearance of deliberate choice in the weapons used (Strien et al. 2013:253). The local meaning embedded in the intentionality behind the targeted destruction of heads and faces was the message.

The exhibition at Cowboy Wash took the form of the processing of victims out in the open. The public display of systematically dismembering another human being would have powerfully reinforced whatever statement the perpetrators were trying to make. The exhibition element appears to have included the roasting of some body parts (Billman et al. 2000: 145), and the possible consumption of human flesh as evidenced by the human coprolite deposited in the ash pile of a central hearth (Billman et al. 2000:154). Once the display was completed the remains were deposited in structures or dumped down ventilator shafts and the site abandoned.

The exhibition element of the Sacred Ridge case study included the debilitation and torture of the victims along with the killing and moving of body parts from a processing structure to their final deposits. Osterholtz (2020:228) writes that “the infliction of pain was an important component of the massacre”. The display of pain, killing and mutilation would have created a powerful spectacle against the backdrop of whatever social issue it was meant to address.

Whether it was intentional or not, leaving the bodies on the landscape for an extended period at Asparn/Schletz created an installation within that particular space where witnesses or visitors to the site would be immersed within the violence that occurred, and were subjected to the full impact of the message the perpetrators were communicating. It is possible the attackers could have created some ordered display of the bodies but they may have simply left them where they died. In either scenario, animal predation and disturbance would have heightened the spectacle. It is unclear who eventually buried the remains, but there is no evidence that a settlement existed there after the event (Teschler-Nicola 2012:117).

The perpetrators of the violence at Sand Canyon Pueblo dumped most of the dead victims into the various village structures, but they also disarticulated the victims and moved certain parts of their bodies into Courtyard 1000 (Kuckelman 2010). The installation of this pile of body parts within what was most likely a public area within the village would have dramatically changed the meaning of the space.

The installation at Herxheim created an immersive environment within the pit structures. The purposeful placement and stacking of calottes, and the "certain intent to pour ritual material more or less concentrated into specific spots in the ditch system" produced an environment that one could enter and manipulate (Zeeb-Lanz et al. 2016:121). Bodies were split apart and the parts distributed throughout the pit structures, creating concentrations of bone elements that did not represent entire individuals (Zeeb-Lanz et al. 2016a:175). It seems reasonable to suggest that the entire enclosure of Herxheim was an intentional immersive installation created for a specific purpose.

Themes of fragmentation and admixture at Herxheim not only included bodies, but animals and cultural objects as well. Pottery and stone tools were fragmented and intentionally

made unusable. An assortment of animal bones, mostly from dogs, was combined with human remains in concentrated deposits throughout the ditch segments (Haack 2020:65; Zeeb-Lanz et al. 2016a:177-178). Fragmentation and admixture of objects and osteological material are consistently encountered throughout the geographical range of the LBK culture (Hofmann 2015:119), suggesting that this step was a critical component of the ritual or sacrificial process taking place at Herxheim. Victims in the Southwest case studies were also subjected to fragmentation and admixture by the piling of their fragmented bones with the bones of others in various structures or open public areas. Practices of site abandonment or decommissioning in the Southwest, where a structure or village is emptied of its domestic and other cultural materials, then disassembled and often burned (Snead 2011), mirrors LBK fragmentation and abandonment practices. In both contexts, once vital bodies, structures and objects that were integral to the rich social life and well-being of the community were completely transformed by being literally disassembled.

External Stressors: Unpredictability

Tying external stressors such as climate change to the emergence of overkill violence remains difficult to definitively demonstrate (Gronenborn 2006:27). The dry to wet periods recorded in the European context analyzed here and the periods of warming and cooling in the American Southwest can only be roughly correlated with incidences of extreme violence. Though specific climatic cycles may not correlate precisely, it is not coincidental that one of the common denominators of the two contexts from which the case studies were drawn is climate unpredictability. Regardless of the farming method employed in the Southwest "it was inherently difficult to produce a reliable maize crop from year to year" (Benson and Berry 2009:95), and the cooling cycles that brought increased rainfall in Central Europe caused large-scale crop

failures in at least some of the contexts presented here (Gronenborn 2006:25). Periods of agricultural success may lead to population increase and expansion into peripheral regions, resulting in displacement and turmoil during periods of food production failures as groups struggle to find the resources they need to survive (Schwindt et al. 2016:75). It could be argued that successful agricultural yields in early European and marginal Southwestern food producing contexts carried within them the seeds of violence at the levels seen in the case studies presented here. The mechanisms for coping with shortfalls and population displacement either had not yet been developed or were insufficient to mitigate the negative impact of environmental changes.

Dates for the European case study sites range from 5210 BC to 4950 BCE, which roughly correlates to a period of climatic unpredictability between wet and dry fluctuations beginning around 5150 BCE (Gronenborn et al. 2014:80; Gronenborn and Dolukhanov 2015:201). LBK communities during this time increased the construction of settlement enclosures and experienced the "highest population densities contemporary to increased rainfall after 5098 BCE" (Gronenborn et al. 2014:80). The effects of high population and climate unpredictability appear to have led to cultural changes and adaptations within LBK communities that are archaeologically recognizable by 5000 BCE (Gronenborn and Dolukhanov 2015:201). The overkill violence was possibly just one manifestation of the changes sweeping through LBK communities in Central Europe at that time.

Correlations between climate change and overkill violence have been suggested for the Southwest. Benson and Berry (2009:98) describe climate fluctuations between wet and drought periods from AD 1140 to AD 1297 as follows:

Table 5.1 Southwest Climate fluctuations between wet and drought periods from AD 1140 to AD 1297 (Benson and Berry 2009)

AD 1040 – 1029	Wet
AD 1130 – 1177	Dry
AD 1193 – 1269	Wet
AD 1273 – 1297	Dry

These cycles are linked to three cool periods proposed by Salzer (2000:303) based on tree ring dates from AD 1195-1219, 1225-1245 and 1258-1271. Cool periods have an extremely negative effect on corn growth. The violence at Cowboy Wash and Sand Canyon Pueblo occurred securely within the dry periods, which may have been exacerbated by periods of cooling that would have made farming even more unpredictable. In fact, Benson and Berry (2009:105) suggest that "the termination of each Pueblo stage is associated with a megadrought". What resulted from these extreme cycles in the Southwest was population growth and expansion into more marginal areas during the wetter and warmer periods, with aggregation, decreased mobility, subsistence stress and violence during the dryer and cooler periods (Cordell 2007; Schwindt et al. 2016). The unpredictability of subsistence security in the Southwest may have fostered an atmosphere of continuous tension between communities as suggested by Ember and Ember (1992:254).

Another possible factor in promoting instability and possibly contributing to the increase in violent events in Neolithic Central Europe was the spread of disease. *Yersenia pestis*, also known as the plague, appears in individuals near the end of the LBK in Scandinavia around 3000 BCE (Rascovan et al. 2019:2). It is certainly plausible that diseases such as the plague could have contributed to the end of the LBK in other areas of central and eastern Europe with high

population densities along with the periods of climatic unpredictability. It is well documented that "people enter into social relationships with artifacts and act as if these objects have causal power" (Walker 2009:113). Could periods of instability caused by non-human actors such as a disease inspire societies to react in violent ways intended as a defensive response to a perceived existential threat? The general perception of the violence displayed in the case study sites is that it is offensive, carrying the intention of attack and aggression. It is worth considering that these actions originated from a spirit of defense tied to a physical or spiritual space in an attempt to guard against actual or perceived threats from human or non-human actors.

Summary – Tying the Knot

Archaeologically, the evidence for prehistoric violence is documented on the bones of victims. The starting point for this analysis was identifying a set of appropriate case studies with robustly analyzed skeletal data sets that would allow for a picture of overkill in practice to emerge, and possibly reveal a clearer impression of the people, processes and motivations involved. The development of the Dehumanizing Violence Index, when applied to these data sets, made it possible to distinguish between overkill sites with diverse expressions of violence in a more systematic way. It also generated further questions and suggests future avenues of investigation into the contextual and causal factors surrounding the violent events. The DVI, as applied in this analysis, proved its utility by allowing clear comparisons and differentiations between sites of distant geographical and temporal contexts to be made, including the fact that the violent actions performed in some of the case studies are more similar than might first appear in spite of geographic and temporal distance. This suggests that additional qualitative comparisons regarding the identities of victims and motivations of the perpetrators might be a productive next step.

Two significant observations emerged from the DVI results and the comparative discussion presented above. The first is that outsiders appear to be the targets of overkill violence in both temporal and geographic contexts, and that unpredictability in the subsistence arena of life, including climate fluctuations causing resource stress, was a major contributing factor in the lead up to violence. The victims in the Puebloan sites were exterminated from the landscape and/or subjected to extreme processing. The European site victims were exterminated from the landscape and/or possibly sacrificed in a ritual setting. The perpetrators in each of these settings destroyed their victims in such a complete way as to create a "psychological impact on the regional interaction sphere in which they were operating" (Perez 2012:17). As Hinton (2004:160) has suggested, "violence is always enacted in a vernacular"; the perpetrators' actions in these case studies became part of the landscape and the cultural history that determined the future forms that violence could take in those regions.

The theoretical approach applied in this thesis views violence as arising from local patterns, purposes and forms of enactment (Martin and Harrod 2014:119), performed by local groups cooperating to possibly protect or reinforce some aspect of their social or historical contexts. These performances, as the DVI and the qualitative comparison above demonstrate, are carried out upon the bodies of victims to various extents. The bodies of overkill victims incorporate and become the messages that perpetrators intend to send. The inscribing of that message on bodies in overkill performances, exhibitions and installations defines the cultural spaces and possibilities for the future in those contexts.

Future Research

Several interesting and related questions remain that are outside of the scope of this thesis. The first is where all the missing body parts were taken. Scalping and trophy taking have

long histories, especially in the Southwest (Kuckelman 2020), so the fact that hands, feet and long bone epiphyses are missing from all the case study sites except Talheim is not surprising, but this does not explain the motivations that may prompt such activities in the first place. Another question is what happened in these contexts when the violence finally stopped. At some point the conflicts abated and left room for relative peace. What were the factors that contributed to this communal reintegration after periods of intense violence? Was it due to a lack of people willing or able to continue fighting, or a retreat to aggregated communities with little communication between them, or an improvement in the conditions needed for survival? An ideological motivation for violence can be followed by ideologically derived mechanisms for its cessation as well. A third question is, who organized the overkill violence? Were individual actors encouraging particular responses to community stress? Were these events the result of spontaneous group actions, similar thinking leading to actions that were self-evident to all participants? Or were such actions the result of strategic interventions by a subset of the population whose control over the group waned after the need for extreme violence was no longer evident?

The continued comparative reevaluation of existing overkill site studies should reveal new avenues of understanding the deep commonalities between human cultures when it comes to why we fight. Future studies that apply the DVI to more diverse overkill contexts throughout the world will also be able to further explore the common denominators shared by overkill victims, if any, as well as possible external or internal factors contributing to this type of violence. Refining our understanding of the victims in overkill events and the many factors that support the choice of violent responses may lead to more precise predictive models that can impact approaches to peacemaking and violence prevention today.

An important methodological issue in the subfield of bioarcheology revealed during the data recording stage of the DVI determinations was the difficulties posed by the absence of a standardized system of recording schemes for overkill sites. The development of such a system would allow future comparative study of mass violence sites by improving data quality. The DVI scores had to be constructed from a variety of data sources that ranged from descriptions of the violence in report texts to detailed data tables. This left some of the points assigned up to the interpretation of the researcher. The DVI approach presented in this thesis has the potential to be a powerful tool in overkill site analysis. Standardized data would allow DVI analyses to be carried out in a form that could more confidently utilize statistical analyses, which would allow patterns between overkill sites to be revealed. As methods continue to be refined in this subfield the goal should be to compare as many examples of overkill as possible in order to broaden our understanding of the underlying causes of this class of violent events.

Conclusions

Ultimately, the goal of this project was to be able to associate the performative violence of the case study sites with external and internal stressors that are archaeologically recognizable and could have predictive value. The Dehumanizing Violence Index developed for this project supports a detailed examination of the treatment of human bodies at overkill sites and allows this treatment to be discussed within theoretical frameworks that account for the humanity and enable the cultural contextualization of the victims, perpetrators and witnesses. Two insights from this study have clear predictive value for future human conflicts: that unpredictability in subsistence is a potential source of such violence, and that outsider groups are most often the target when such violence does occur, with very diverse consequences as to the level of treatment victims may experience.

Final Words

My thoughts often return to that brief moment on the bridge over the Sava, the grey sky, how wide and dark the river seemed, the coolness of the early fall morning, the fear in my chest of embarking on a dangerous journey, how one moment can tie a thread that weaves through the pursuits of one's life. It is difficult for me to think of the people of Bosnia and the region without feeling a deep sadness for those who suffered and died, those who were buried in the mass graves, the survivors who suffer still from the memories of lost loved ones, or from their deeds during the conflict. It is hard to reconcile those feelings with the training I received as a soldier. That training tried to make me into a killer, if ordered, and the moment that I was finally witness to the aftermath of the killing I might be expected to do, I rejected it and have since lived my life searching for answers to the question of why we treat each other in such unspeakable ways.

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