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# Beaten Down and Worked to the Bone: Bioarchaeological Investigations of Women and Violence in the Ancient Southwest

Debra L. Martin

*University of Nevada, Las Vegas*, [debra.martin@unlv.edu](mailto:debra.martin@unlv.edu)

Ryan P. Harrod

*University of Nevada, Las Vegas*, [rharrod2@uaa.alaska.edu](mailto:rharrod2@uaa.alaska.edu)

Misty Fields

*University of Nevada, Las Vegas*, [misty.fields@ymail.com](mailto:misty.fields@ymail.com)

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# Beaten Down and Worked to the Bone: Bioarchaeological Investigations of Women and Violence in the Ancient Southwest

## **Abstract**

The study of violence is generally androcentric in its focus, with emphasis on men and their pursuit of resources, power, and prestige. Neglected is the role and motivations of the women in violence, and this is especially true in raiding. With the analysis of over sixty Ancestral Pueblo human remains from La Plata Valley as a case study, this study is focused on the relationship between the women in the culture and interpersonal violence. The basic questions that this project addresses are: (1) Does the pattern of trauma vary and are there certain individuals who are at more risk within the culture (i.e., appear “beaten down”)? (2) Are there certain portions of the culture that appear to have worked harder during their lifetime (i.e., been “worked to the bone”)? (3) What can the differential patterning of pathology, trauma, and early death across the population reveal regarding the roles of men and women in raiding societies? In order to answer these questions several categories were evaluated according to age and sex. These factors include non-lethal injury (especially trauma to the head), mortuary status (e.g., burial position and grave goods), and muscular stress markers or enthesopathies. The results of this analysis present a picture of inequality within the La Plata population with obvious morbidity differences between women of varying status. The results of this study found that there were two groups of women living in La Plata. The local women who lacked cranial trauma, received a culturally appropriate burial, and showed little evidence of muscular stress markers. The women that may have been obtained from raids had cranial trauma, were thrown haphazardly into abandoned pits, and possessed clear signs of having worked hard throughout their lives. This study looked closely at the relationship between women, work, and violence, and results suggest that the local women living at La Plata may have been attempting to reduce their own morbidity risks by both sanctioning and supporting the subordination of captive women obtained in raiding activities. The captive women (having been beaten and worked to the bone) benefited both the local men and women at La Plata. This study shows the complex ways that structural violence works, the potential for gender based functional differences in violent behaviors, and the ways that violence becomes culturally normalized.

## INTRODUCTION

Historically, there has been a deeply rooted tradition within the study of violence and warfare to view violent acts as aberrant behaviors with little or no discernable reason behind why they occur and persist in society. The most salient examples of this perspective are cases of serial murder, for which the dominant explanation is that the perpetrators are suffering from a mental disease, hence the terms psychopath or sociopath. The notion that violence is some sort of plague on humanity has been extended to explain all types of violence, however the problem with this perspective is that it focuses much of the research on the development of treatment and prevention measures instead of looking for the keys to its origin. In terms of the origin, current research has suggested that there is in fact a long evolutionary history for the development of violence (Wrangham and Peterson 1997). This understanding of violence is important because it means that violence is not a disease that can be treated but instead is an integral aspect of human nature that is functional in that it serves a purpose and solves a problem. The functional nature of violence is the primary topic of interest in this paper.

The hope of many researchers is that by understanding the roots and reasons for violent behavior, humankind might better avoid the pitfalls inherent in our “biopsychological” makeup (Whitehead 2004). For example, researchers have examined the ingroup-outgroup phenomenon behind cultural patterns of violence, particularly as they relate to the dehumanization of the “other” (Hewstone, Rubin, and Willis 2002). Moreover, research has typically focused on the biological roots of violent tendencies in men, examining competition and status seeking in male violent behavior as a functional means of securing access to resources and women (Wrangham and Peterson 1997). While statistics on crime indicate that men, especially young males, are the highest violent offenders (Table 1), an aspect of violence that is often oversimplified is the role that women play in the performance of violence (Whitehead 2004).

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**TABLE 1: VIOLENT CRIME**

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Age Group	1993			1997			2001		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
12 and under	23.0	38.9	6.4	22.3	37.1	6.7	19.8	32.6	6.5
13-14	460.7	740.5	166.9	395.6	618.0	161.9	293.3	447.8	131.1
15	828.6	1,378.8	248.9	663.6	1,066.2	238.0	476.9	744.8	194.9
16	1,030.9	1,764.3	253.1	867.9	1,438.8	260.8	582.3	939.3	205.4
17	1,115.3	1,944.2	232.8	957.7	1,622.3	246.3	662.1	1,094.2	203.6
18	1,148.7	2,038.0	213.7	1,050.3	1,797.4	261.9	759.1	1,268.5	215.4
19	1,008.4	1,781.1	202.7	952.2	1,629.4	245.2	753.4	1,260.5	218.3
20	919.4	1,609.6	199.0	855.7	1,445.6	238.4	699.1	1,158.7	217.9

21	876.6	1,532.5	192.1	850.8	1,436.7	237.8	711.0	1,178.8	221.0
22	821.4	1,428.6	193.3	778.4	1,295.5	239.3	659.4	1,081.3	216.4
23	781.5	1,351.9	193.6	741.0	1,237.5	227.0	627.6	1,034.9	201.3
24	736.1	1,266.0	192.1	690.0	1,150.7	216.6	578.3	936.1	205.0
25-29	660.6	1,130.8	187.0	576.1	948.4	198.6	467.4	761.2	165.2
30-34	507.2	862.7	153.7	500.0	809.5	188.5	384.5	616.6	149.2
35-39	361.3	617.1	108.2	393.7	643.4	145.6	333.9	532.2	136.1
40-44	230.4	402.8	62.0	269.8	451.6	91.9	248.3	405.7	93.4
45-49	148.5	265.3	36.0	166.6	286.7	50.6	154.8	260.9	51.9
50-54	97.2	176.4	22.3	97.9	174.7	24.5	89.7	156.4	25.9
55-59	63.6	117.4	14.0	64.5	117.7	15.0	54.1	97.0	13.9
60-64	41.1	79.7	6.9	41.6	78.8	8.2	34.9	64.8	7.7
65 and over	15.5	34.5	2.5	14.4	31.6	2.5	12.3	26.4	2.3

**Table 1.** Federal Bureau of Investigation (FBI) Uniform Crime Reports (UCR) on violent crimes by age and sex (<http://www.fbi.gov/ucr/addpubs.htm>) (Federal Bureau of Investigation 2010).

Women are traditionally only discussed as victims of violence because they are believed to be much less violent than men, which some research suggests may not be an entirely accurate assessment (Warner, Graham, and Adlaf 2005). While there is the possibility that women may be less violent than males, it appears that both genders utilize violent behaviors as a means of obtaining and securing desired outcomes. Here we argue that given a reason and the opportunity, women will participate in and perpetrate acts of aggression toward a desired end. In addition, a confounding factor in the understanding of female violence may lie in the complexity of social identities and relationships linked to these behaviors among women. A cross-cultural study of boys and girls in four industrial countries, Österman, et al. (1998) found the primary difference between male and female violence was in fact, the method in which it was employed. Females were found to use indirect violence such as social manipulation, while males were more likely to express their violence in the form of physical violence or verbal assault.

This emphasis of indirect over more direct violence is especially problematic for bioarchaeological studies as violent manifestations of indirect aggression would be much less apparent when compared to more direct physical violence. There is less ambiguity in understanding violence intended to influence or control others, but it is far subtler, and therefore much harder to identify, when violence has become infused with cultural meaning and thereby integrated into society as acceptable social norms and behaviors (Whitehead 2004). One means of assessing indirect violence that will be analyzed in this research is evidence of differential treatment and an unequal distribution of labor among members of the population.

This analysis is meant to provide a more nuanced understanding of the ways in which violence may have played out in past populations, by unraveling the social complexities that sanction and give purpose to violent behavior. Looking for the

connections between violent acts and the social order can be used to reveal linkages between the cultural production of violence, its purpose, and its performance. In this type of approach, Whitehead (2004) argues for an emphasis on the historical development of group identities and the ways in which violent behaviors become part of the social structure.

### THE CONTEXT OF CONFLICT: A BIOARCHAEOLOGICAL PERSPECTIVE OF VIOLENCE

The bioarchaeological record is filled with skeletal indicators of human violence suggesting a long history of inter-personal and inter-group conflict. Documenting these signs of violence provides an overview of events, but often framed in an etic perspective, from the view of the researcher observing or recording the violent interactions. In general, the cultural construction of violence has been coupled with emerging social spheres of power related to subsistence intensification, specialization, and the rise in social complexity (Farmer 2004; Parsons 2007; Whitehead 2004). By using fine-grained analyses that place trauma data in a particular place at a particular time, a more comprehensive view into the histories and experiences of cultural violence emerges. Moreover, identifying patterns related to age, sex, and perceived social status provide an increasingly inclusive picture of past lifeways. In addition to developing a greater understanding of who was doing what to whom, bioarchaeological data can shed light on the ways in which violence became part of a cultural landscape (Whitehead 2004).

Previous studies have used patterns of skeletal pathology (e.g., distribution by sex and age), as well as archaeological context (e.g., burial position or presence and type of grave goods) to examine who is most at risk of violence within a particular society (Martin et al. 2001). Viewed in cultural context, evidence of osteological trauma can provide insights into inequalities related to gender and social status, for example, where high status individuals came to dominate others through violent means (Whitehead 2004). This study focuses on the American Southwest where osteological and archaeological analyses of the La Plata site show evidence of violence that varies according to sex, burial position, and the number of associated artifacts. Questions that arise as a result of these correlations: Can bioarchaeology be used to distinguish patterns of violence that reflect gender and status identity within a society? What can be suggested by the correlation of increasing violence and disparities in gender and social status?

Investigating ways in which group relations and social stratification affect individual's daily lives involve understanding changing subsistence patterns, growing complexity, political economic spheres, and social organization (Farmer 1999; Goodman 1998; Martin 2008). In addition, the emergence of inflexible gender roles that constrain access to resources and assign unequal workloads can result in differential morbidity and mortality for certain segments of society (Martin 2000).

By developing an understanding of the interface between trauma, physiological stress, and culture, the intent of this article is to develop an alternative perspective in examining women and culturally sanctioned violence. Drawing upon data from the skeletal population of the La Plata River Valley in northern New Mexico, where captives were obtained, subdued (e.g., non-lethal cranial trauma), and literally worked to the bone, we examine the social contexts and roles of women both as victims and perpetrators.

## CAPTIVE AS COMMODITIES: A HISTORY OF RAIDING AND VIOLENCE IN THE ANCIENT SOUTHWEST

Raiding and more generally violence, are actions often linked with the increase in instability and insecurity in terms of resource unpredictability (Ember and Ember 1992; Lekson 2002). The notion is that as limitations develop in the ability of a group to obtain sufficient subsistence resources, they may resort to attacking neighboring groups as a strategy to procure more resources. This is supported by an extensive analysis of warfare in China (Zhang et al. 2007) that found that shifts in climate (e.g., temperature and aridity) resulted in an increase in violent conflicts as a consequence of resource depletion. In this article, we argue that the marginal environment, combined with social complexity in the Ancient Southwest, provide an optimal region to study the effects of stresses that might lead to raiding and violence. It has been recognized that the Ancestral Pueblo people showed great adaptability and proficiency subsisting in an arid landscape punctuated by episodic droughts. They were successful to such a degree that they were able to build elaborate public architecture and create highly formalized ceramic traditions indicating a complex social structure.

The complexity that developed in the Southwest also led to increases in the type and scale of conflict (e.g., continuous cycles of raiding, massacre sites that have promoted discussions of anthropophagy (i.e. cannibalism) and genocide, and differential distributions of violence among sites). Research by Kohler and Turner (2006) found evidence of disproportional amounts of women at sites to support the notion that women were being acquired through raids. Numerous analyses of burial sites in the Southwest have indicated that large numbers of the population were massacred (Turner and Turner 1999; Kuckelman, Lightfoot, and Martin 2002; Billman, Lambert, and Leonard 2000; Stodder, Osterholtz, and Mowrer 2010). The interpretation of these massacres varies considerably, producing arguments for cannibalism (Turner and Turner 1999; Billman, Lambert, and Leonard 2000), witchcraft killings (Dongoske, Martin, and Ferguson 2000; Darling 1998), and even ethnogenocide (Stodder, Osterholtz, and Mowrer 2010). Finally, research on the burial populations of various sites in the Southwest have found very different pictures of violence, with some sites having a large proportion of the populations

showing signs of interpersonal trauma, and others like Black Mesa, where there is little or no indication of violent encounters (Martin 1997).

Given the complexity of how violence is manifested in the American Southwest, an understanding of environment alone neglects the range of other factors that are just as likely to motivate people to engage in conflict. Numerous other studies have been conducted looking at violence and some of the motivations they found for conflict include hierarchy, sex inequalities, shifting political alliances, political dominance and power, population density, and competition (Wilcox and Haas 1994; Haas and Creamer 1997; LeBlanc 1999; Hegmon 2000; Turner and Turner 1999; Bullock 1998; Haas and Creamer 1995; LeBlanc and Rice 2001). While these studies are much more inclusive of cultural elements that motivate people to engage in conflict an element that underlies much of this research is the focus of men as agents of violence. The androcentric emphasis in much violence research perceives women as victims with little agency, overlooking the potential function of violent behavior for women as well as men. This trend to downplay the agency of women is something this research will attempt to address.

The archaeological record of the American Southwest is extensive because remarkable Pueblo architecture of the region has made it an area of interest since the late 19<sup>th</sup> century that persists to this day. Results from these in-depth analyses have indicated that the Southwest was a region of interaction characterized by trade networks and the exchange of ideologies between diverse cultural traditions (Ancestral Pueblo, Hohokam, Mogollon) (Lekson and Cameron 1995; Lipe 1995). The wealth of information gleaned from these studies has allowed a detailed reconstruction of the past (e.g., environment, demographics, socioeconomics, and subsistence patterns). From this we know that, between AD 900- 1300, the Southwest became a mosaic of interconnected cultural and linguistic groups. These groups thrived through the formation of alliances that provided risk-avoidance mechanisms, involving the exchange, and more important to this study, the capture and control over resources (e.g., raiding and feuding) (LeBlanc 1999).

This project focuses on an Ancestral Pueblo group from northern New Mexico that was contemporaneous with the Chacoan cultural system, but did not achieve the apparent levels of sociopolitical complexity evidenced at Chaco Canyon (Lekson 1999).

## CONSEQUENCES OF VIOLENCE: ANALYZING BODIES AND UNDERSTANDING BEHAVIOR

The identification of violence on the skeleton is not always a straightforward proposition. If the remains are well preserved however, it is possible to identify trauma to the skeleton in the form of perimortem and antemortem fractures (Galloway and Contributors 1999). Perimortem fractures are injuries that occur at or

around the time of death and are fairly easy to distinguish from postmortem fracturing or damage that happened to the skeletal remains after death (Moraitis and Spiliopoulou 2006). Depending on the severity and location of the injury, perimortem fractures can often be inferred as the cause of death. In contrast, antemortem fractures are those that happen during a person's lifetime that have healed and thus do not represent life threatening injuries (Merbs 1989). According to Merbs (1989) it typically takes three months for damaged bone to heal to a significant degree. Aside from being able to determine when an injury occurred, other significant factors of fractures that can be identified include severity of the force that caused the fracture, the extent of bone damage, the placement of the force relative to the body, stage of healing (if any), and timing of the trauma vis-à-vis age at death (Lovell 1997). Understanding the various factors of traumatic injuries is essential to bioarchaeology because it is an important method for determining a person's quality of life and providing insights to the degree and frequency of violence to which they were exposed in their lifetime (Table 2).

**TABLE 2: INDICATORS OF MORBIDITY AND MORTALITY**

Action	Skeletal Correlate
Capture and forced abduction (Combined with ambush, warfare, or raiding)	Non lethal blows to head Healed cranial depression fractures Broken ribs, Colle's fracture Demographic targets: women and children
Desire for prestige, trade, and/or concubines	High occurrence of young, strong, reproductive-aged women Increase in the amount of rare, exotic materials (e.g., turquoise, Macaw feathers, copper bells)
Subordination, beatings	Cranial and post-cranial fractures Recidivism, co-occurrence of trauma and pathology in various stages of healing Colle's and Parry fractures Broken hand, foot, rib, arm, leg bones
Indentured service and hard physical labor	Muscular stress markers (enthesopathies) Ossified ligaments
Subsistence activities and domestic or market tasks	Asymmetries Work related osteoarthritis Dental pathology related to occupations
Childrearing	Cranial and post-cranial trauma (accident/occupation related)
Punishment	Amputation of fingers Blood loss and non-specific infectious disease responses Frail osteoporotic bones Early death
Not recognized member of community	No cradle boarding No filed dentition No proper burial



	No grave goods
Food restriction, forced poverty	Iron deficiency anemia Non-specific infections Children with short stature
Poor sanitation, living conditions	Non-specific infections (staph and strep) Tuberculosis, treponematosi

**Table 2.** Activities related to captivity and slavery and loosely matched with possible signatures of these activities that may be on the human skeletal remains.

To understand violence, bioarchaeologists look at both cranial and post-cranial trauma, however injuries involving the head are of more interest because striking a person in the head is the most effective method of subduing an opponent or intended victim. In terms of head wounds, perimortem trauma has been considered of greater interest to researchers because it allows for the identification of the cause of death. Recently, however, more researchers have begun to shift their focus from perimortem to antemortem trauma. The value in analysis of antemortem trauma is that when a person is struck in the head with enough force to alter the bone but not result in death, inevitably there will be brain damage. The neurological trauma that can result from a blow to the head involves changes in a number of functions including speech, memory, vision, and more importantly for this research, behavior and motor control.

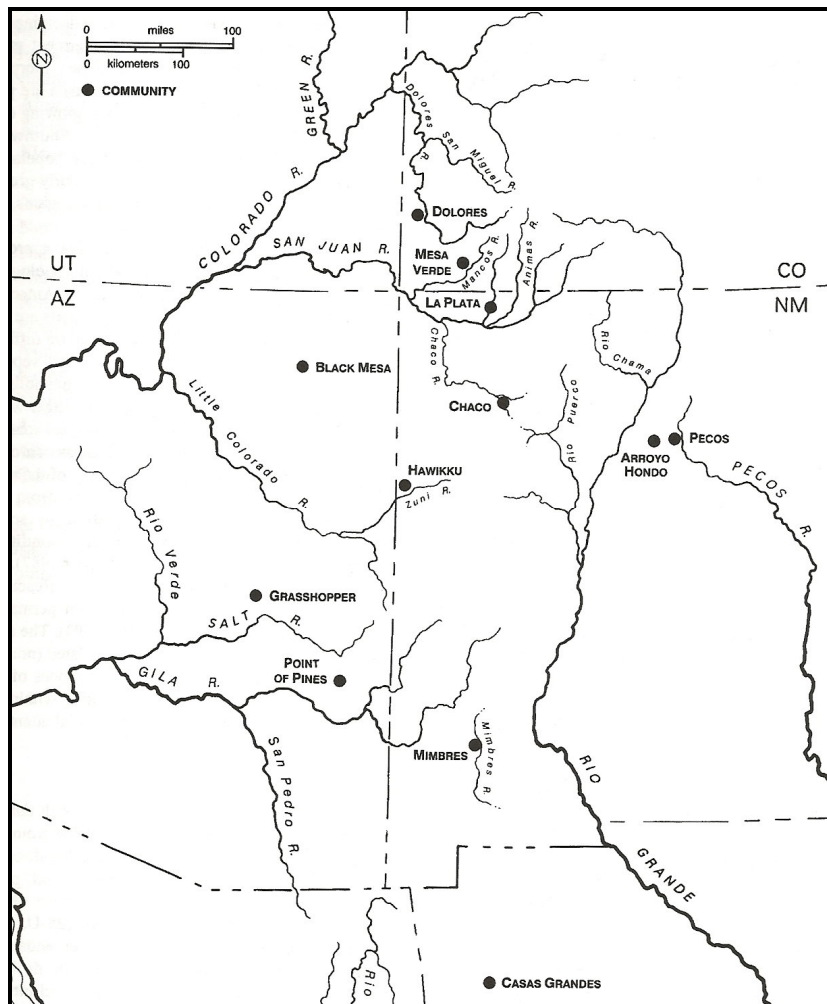
Behavioral changes (e.g., increase in violent behavior) and the degeneration of motor control places people at increased risk of repeated trauma due to a reduction in the ability to control one's actions or the increased reaction of others to these changes. This concept of receiving more injuries as a result of a significant prior injury is known as injury recidivism. Support for injury recidivism has primarily come from work among modern clinical populations in the United States and Canada. Research conducted by Caufeild et al. (2004) and Hedges et al. (1995) found hospital records supported a relationship between prior and future injuries. In bioarchaeology, this relationship has been most extensively explored by Judd (2002) who examined the demographic profile of a Kerma population in Sudanese Nubia. She found that people with multiple injuries were typically males, who receive their first injury by 20 years of age and the second before the age of 30, are generally from a lower socioeconomic background, and are usually from a minority population (2002, p. 97). The findings that males are most at risk seem logical given their tendency toward risky behavior and violence, but what is especially important in understanding injury recidivism at La Plata is the role of being in a minority.

While injuries to the head are highly emphasized in the investigation of violence in bioarchaeology, there is value in understanding trauma that affects the post-cranial skeleton. These injuries tend to provide clues to an individual's exposure to violence. The types of injuries most associated with violent interactions are fractures to the lower arm (e.g., Colle's and Parry), and to a lesser degree fractures to the hands and feet. Colles' and Parry fractures are more important for bioarchaeology

when correlated with cranial injury. For example, in looking at the co-occurrence of trauma, Larsen (1997, pp. 112-113) suggests that it is possible to distinguish accidental and occupational-related injuries from hand-on-hand combat and aggression related trauma.

### VIOLENCE IN PERSPECTIVE: LA PLATA VALLEY CAPTIVES

The La Plata Valley is a riverine region located near the modern city of Farmington, New Mexico in the Four Corners region of the American Southwest (Figure 1).



**Figure 1.** Map of the Greater Southwest, showing location of the La Plata Valley sites relative to other major archaeological sites.

The valley consists of five individual communities (e.g., Cottonwood Arroyo, Jackson Lake, Barker Arroyo, Morris 39, Holmes Group, and Morris 41), however only two communities, Jackson Lake and Barker Arroyo are of interest to this research. Analysis of 66 individuals from these two sites provides a snapshot of life of Ancestral Pueblo cultures inhabiting northern New Mexico (circa A.D. 1200). The following is an overview of trauma among the La Plata culture that was the result of violent encounters. Similar to the contemporary statistics on violence related crimes (Table 1), there was no evidence of fractures among the young children, and the violence-related injuries found among men were indicative of fighting, (e.g., three healed cranial depression fractures, and four healed post-cranial injuries including a broken rib, finger, and wrist). Finally analogous to modern data, women in the culture appear to have been the victims of violence (e.g., multiple head wounds, broken ribs, as well as traumatic lesions to the should, vertebrae, and hip) (Table 3).

<b>TABLE 3: TRAUMA AT LA PLATA</b>			
	<b>Children</b>	<b>Males</b>	<b>Females</b>
Cranial	1/16 [6.2%]	3/13 [23.1]	6/10 [60%]
Post-cranial	0/16 [0.0%]	3/15 [20%]	6/12 [50%]

**Table 3.** Frequency of healed trauma for La Plata population (Martin et al 2001).

Of particular importance is that six women all of peak reproductive age (20-38 years old) had healed cranial depression fractures, and of these women three had multiple cranial injuries and four had other traumatic lesions to the body, suggesting a pattern of injury recidivism. The age of the women and the repeated trauma also fit in with a model of raiding for women (Kohler and Turner 2006). The question however, is “Who was inflicting this trauma and why?” The question of who will be addressed later on in this report, but in terms of why it appears it was to subdue these women. The size and shape of the cranial depression fractures found on these women is quite variable, suggesting that there was no culturally prescribed weapon or implement that had to be utilized. Wilcox and Hass (1994, p. 223-224) conducted an extensive review of artifacts associated with warfare as well as hand-to-hand combat and found that there is little evidence, aside from a two bi-pointed ax at Aztec and a wooden sword at Chaco, that there were objects in the Southwest that solely functioned as weapons. Furthermore, research utilizing modern forensic techniques has found that the cranial depression fractures among Southwest populations could have been the result of attacks involving hammer stones, cores and choppers, or objects made out of wood or antler. These findings are supported by ethnographic work conducted by Harrod and colleagues (2010) among a population of extant Turkana. Though the Turkana are not agriculture but pastoral and live in Africa,

they being used as an analog for the Ancestral Pueblo because they are actively involved in raiding. The results of this study found that there was variation in the severity of the depression based on the object utilized during the conflict (Table 4).

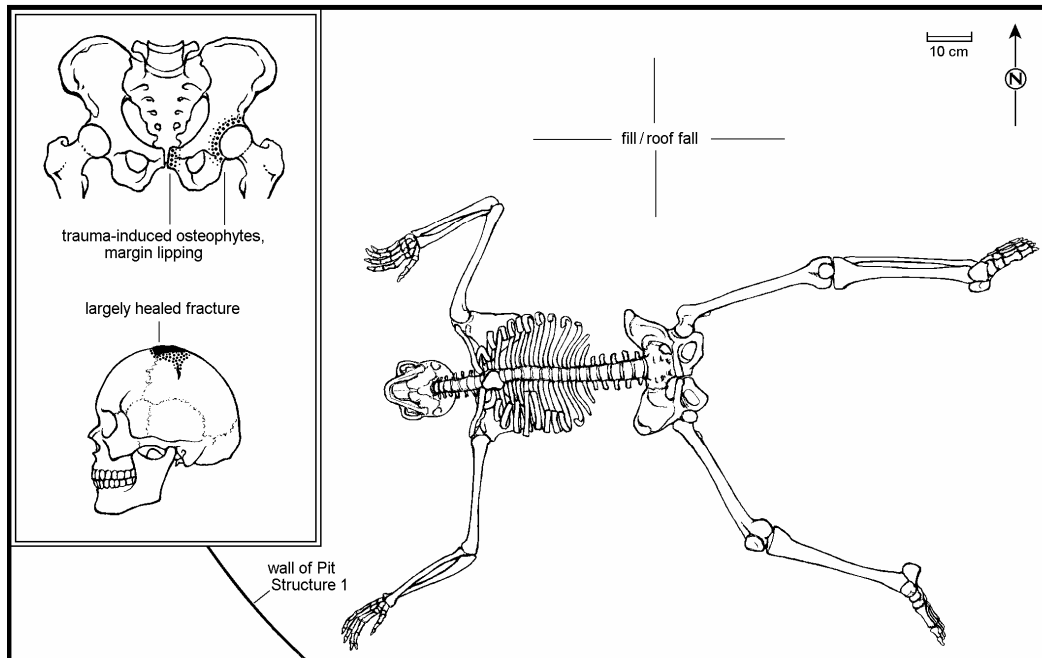
**TABLE 4: CRANIAL DEPRESSION INJURIES BY OBJECT**

Sex	Cranial Region	Weapon/Object	Injury Severity
M	Not Specified	Stick, Fighting (aburo)	Deep Depression
M	Left Side	Stick, Fighting (aburo)	Deep Depression
M	Left Side	Wrist Knife (abarait)	Deep Depression
M	Front	Bottle	Deep Depression
M	Front/Left Side	Stick, Herding (ebela)	Shallow Depression
M	Front	Stick, Herding (ebela)	Shallow Depression
M	Back	Stone	Shallow Depression
M	Front	Unidentified Bone	Shallow Depression
F	Right Side	Cup	Shallow Depression
F	Front	Stick, Herding (ebela)	Shallow Depression
F	Not Specified	Stone	Shallow Depression
F	Front/Left Side	Stone	Shallow Depression

**Table 4:** Cranial depression fracture severity by sex, location, and type of object utilized (Harrod et al., 2010).

It appears that overall, there is a relatively high percentage of violence-related trauma where expedient items are involved (e.g., stones and household objects). The implication of the Turkana data is that the context of the injury is important. For example, it could be that fighting during raids or arguments among rival males of the same, versus fighting among men of different status, men and women, or women of different status, determines the type of object utilized.

Aside from violence, another important finding associated with the women possessing cranial depression fractures was the burial orientation and grave good distribution. Unlike the majority of burials at La Plata, which were placed in a flexed position in structures and cists with grave offerings such as ceramic vessels or ground stone (Martin and Akins 2001) these women were found prostrate, sprawled, or loosely flexed in orientation (Figure 2) and with no associated grave goods.



**Figure 2.** Female, age 33, cranial and postcranial trauma, Pit Structure 1, lower fill, LA 65030, B9 (Martin et al 2001).

Thus, unlike the rest of the women at the La Plata Valley sites, these women were not treated with the same level of respect after death, as their bodies seemed to have been indiscriminately placed or thrown into abandoned pit structures. The implication of this lack of a proper treatment of the body seems to further support the notion that these women may have been captives of raids and never fully integrated as members of the society (see Table 2).

Given that half of the women with cranial depression fractures had multiple fractures at different stages of healing, Martin, et al. (2001) suggests that a number of culturally-based factors may have been at play within La Plata that promoted and supported the acceptability of violence against these women (e.g., structural violence).

## PASSIVE FEMALES? THE ROLE WOMEN PLAY IN VIOLENCE

The evidence of a subgroup of women being victimized within La Plata society suggests the presence of an outside group of ‘captive’ women (Martin 2008; Martin et al. 2001), which supports archaeological evidence for the presence of large-scale raiding for women in the Southwest (Kohler and Turner 2006). This however, is not the only explanation for why only certain women within the society were targeted for

violence. An alternative explanation for this pattern of violence directed against certain, but not all, women is that there was an established pecking order within the society where women of higher social status were not affected by violence to the same degree as women of lower status (Martin 2000). Instead of being slaves or captives, the female victims at La Plata may have been an unfortunate group of women within a not so egalitarian society. For example, among the Turkana, Harrod, et al. (2010) found evidence that the determining factor that separated women into different ranks was the number wife they were in the polygynous marriage, with second wives working harder and being beaten more often than first wives. It is particularly interesting that it is socially acceptable, and fairly common, for higher status women, such as the first wife, to beat lower status women (e.g., second wives). These findings further challenge the notion of males as the only violent members of society, as one third of Turkana women reported having been frequently beaten by a co-wife.

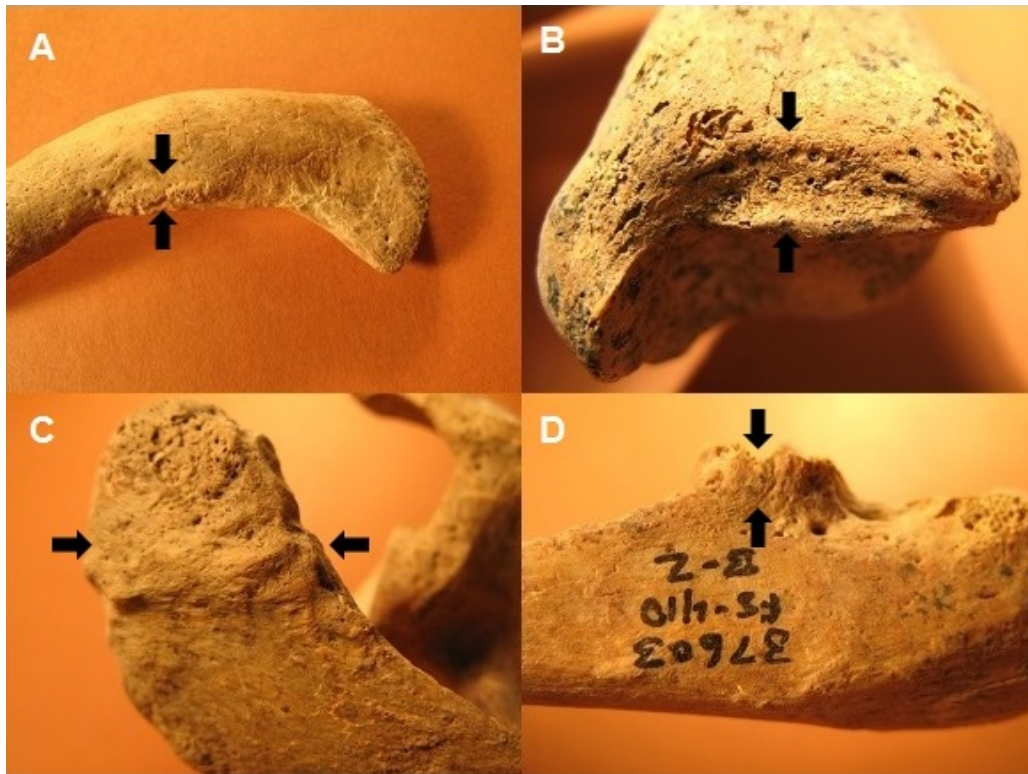
Problems with using the Turkana as a comparative population is that they practice polygyny, which is not a practice recorded among ethnographic populations inhabiting the Southwest. However, ethnohistoric records indicate that the Hopi and Zuni practiced matrilineal ranked control of resources with particular matrilineages retaining dominant positions over land (Dozier 1965, 1970; Eggan 1950). Moreover, the endogamous marriages of the Pueblo communities would have prevented immigrants from marrying into higher ranked matrilineages or gaining control over land or resources (Jorensen 2005).

While marriage may afford greater access for some and a level of anonymity to the perpetrator of violence, it may not be a necessity for female violent behavior. One only has to look to our closet relative the chimpanzee. In primate studies, research by several researchers (Pusey et al. 2008) has found that in certain situations, female chimps appeared to be as violent as males. These situations included violence toward immigrating females (e.g., captives in a raiding society), and violence toward postpartum females of the same community. Considering the first example, violence toward immigrating females is understandable in that these females are of reproductive age and typically, in estrus, increasing the likelihood that they will produce offspring with the community's males. In terms of attacking females that have recently given birth, the goal appears to be to infanticide, requiring a significant injury to the mother. An important note about these attacks is that the females who are victims of the violence are lower status and have less female alliances (e.g., adult daughters) than their attackers. In both of these situations, the evolutionary explanation for female violence towards other females has to do with limiting competition for and maintaining control over resources.

It could be argued that among the Turkana, the function of fighting among wives is to establish dominance, assert control over resources, and perhaps secure access to the husband. Likewise, this could be extended to the Southwest, where there existed

a matrilineal ranking of families. Given the environmental conditions, resources were extremely scarce, making female violence towards other females a possible way of securing and maintaining access. Another factor to consider in reference to the captivity of women is the role that women themselves might play in a raiding for women system. It is always assumed that men raid for women in order to capture more potential mates to spread their prospective seed. If this is indeed the sole motivation behind raiding for women, what role does the community's women play? Reviving the notion of "Man the Hunter" whereby women tend the home while men are the sole providers but with a new twist? Instead of hunting and providing protein, the men are raiding and bringing new women to the gene pool. The novel perspective that women may be involved in raiding, changes the reasoning and function of such behavior. There are cases of female chimpanzees accompanying males in raids (Wilson, Wallauer, and Pusey 2004) is not inconceivable that both men and women could have been involved in attacking rivals and capturing females. Another scenario might be, rather than actively raiding, women promoted the capture of young females to add to the labor force, thus reducing the burden on community women.

There are evident signs on the remains at La Plata indicating that some women were actually worked to the bone (Figure 3). As the photos demonstrate, La Plata women with the healed head wounds and other traumatic injuries were also the individuals who had highest frequencies of skeletal markers of habitual hard labor. For example Figure 3a, depicts a raised irregular area of the clavicle near the shoulder wear habitual use of the muscles in that region have created a muscular stress markers or enthesopathy. The indentation in Figure 3b is in the front portion of the lower leg bone (i.e., Tibia). This is caused is from habitually squatting and is known as a squatting facet. Similar to the irregularities seen Figure 3a, Figures 3c and 3d also show signs of muscular stress markers.



**Figure 3.** La Plata women showing evidence of having been worked to the bone through the development of enthesopathies (A. La Plata 37601 B4, female 25, clavicle; B. La Plata 65030 B6, female 38, distal tibia; C. La Plata 62030 B9, female 33, scapula; D. La Plata 37603 B2.1 Female 30, radius).

## CONCLUSIONS

The development of new hypotheses related to the root causes of violence takes a more nuanced approach as well as, at times, an interpretive leap in teasing apart the potential effects of social factors on violent behaviors. Considering the possibility of differing functional aspects of violence related to the role of gender opens up new perspectives in the understanding of socially sanctioned violence. Martin (2000) has argued for the possibility of a division of labor among women at La Plata, whereby a subgroup of women experienced more work-related skeletal trauma as well as evidence for cranial injuries that effectively subdue the women. Moreover, the cranial injuries would have left individuals with behavioral problems that could result in higher rates of recidivism. In this article, we have used bioarchaeological data in cultural context to suggest the possibility of women using violence as a means of dominating other women, maintaining control over resources, reducing their own work loads, and even deflecting violence from themselves.

We argue that the function of violence in a social system may develop differently for men and women. Regardless of the developmental trajectory however, women



can be as likely as men to resort to violence. Women, as well as men, have reasons for acting violently and are known to use violence to further their own ends, although it may be less confrontational it is violence nonetheless within the specific social context (Österman et al. 1998). Furthermore, there is evidence that certain behaviors might arise, where women become involved in violence, as perpetrators against other women. While evidence for these types of behaviors in ancient societies may not be readily apparent, finding evidence for this in past populations requires careful analysis of skeletal remains and the context in which they are found, paying close attention to mortuary treatment and other sociocultural elements. Of particular importance is an understanding of the work requirements associated with agricultural intensification and how they may shed light on what could have happened to a group of Ancestral Pueblo women who were ‘beaten down and worked to the bone’.

Raiding for women is not as straightforward as it may first seem to be, in addition the reasons why women become involved in the cycle of violence are also not well understood. In our view, it may be that these local women, who because of their position within the matrilineage are of higher status, may be attempting to reduce their own morbidity risks by subordinating captive women. These captives are crucial because they end up taking on the majority of the labor and the health consequences that that entails. The result is that the higher status local women are working less and thus have a lower morbidity. This works for the men as well because captives not only give access to more reproductive females but also provides more labor for resource production. Thus, both men and women see raiding in this context as one of the few means to increasing resource control. Control of resources creates access to power, status and prestige.

This study looked closely at the relationship between women, work and violence. These interrelated variables have proven to be a rich area to examine complexity in who is beaten, who does the beating and who suffers most. Looking at these relationships in living populations such as the Turkana, has shown that violence is highly relational and it depends where one is situated within the society. Thus, inter-personal violence is dynamic and fluid and it depends on context, sex, age, life history and social status. Therefore, we should expect to see variability in the bioarchaeological record, which is what we see at La Plata and other sites in the Southwest. For the La Plata women, size, shape and placement of head wounds varied supporting this notion that inter-personal violence is used to maintain the status quo. In a similar vein, work-related pathology intersects in important ways with the head wounds and other traumatic indicators of being beaten, thus requiring a methodology sensitive to all these major categories of data.

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