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ARCHAEOLOGICAL PERSPECTIVES ON HUMAN-HORSE DYNAMICS: REEXAMINATION AND ANALYSIS OF THE CA-SBR-2110 COLLECTION

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A Thesis

Presented to the

Faculty of

California State University,

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In Partial Fulfillment

of the Requirements for the Degree

Master of Arts

in

Applied Archaeology

by

Gabrielle Nicole Carpentier

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Approved by:

Dr. Danny Sosa Aguilar, Committee Chair, Anthropology

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ABSTRACT

In this thesis, I analyzed the CA-SBr-2110 collection which contains a human and a horse skeleton. The collection was excavated in 1965 from Yermo, California and is currently housed at San Bernardino County Museum in Redlands, California. This research explores human-horse relationships in an archaeological context. The human skeleton was not analyzed in this research due to unknown cultural affiliation and sensitivity towards potential indigeneity. My research examines the horse remains within this collection and utilizes radiocarbon dating on three samples. Dating two samples from the horse provided approximate dates of 1829–1900 cal AD and 1798–1942 cal AD while dating one textile sample provided an approximate date of 1721–1814 cal AD. These dates assisted in determining a date for the human skeleton without performing any testing on them. Radiocarbon dating the horse skeleton contributed to understanding the human-horse dynamic and provided a more nuanced understanding of the site and general area's history. The significance of this research stems from the uncertainty of the lives and subsequent deaths of the human and horse at CA-SBr-2110 as well as a need for reinterpretation of the collection utilizing decolonizing methodologies. Centering the horse asks not only what the horse did for the human, but also what the human did for the horse. My thesis poses pivotal research questions seeking to understand the human-horse relationship, gather insight into the identity of the human, establish a chronological framework for the collection, and re-interpret the site.

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DEDICATION

This thesis is dedicated to:

My mom, for without you none of this would have been possible. Thank you for your unconditional love and selflessness.

Andrew, for being a light in my darkest moments, my sanity, and my sounding board.

My sister, because I couldn’t let you be the only one with a Master’s degree.

My pets, both on Earth and in spirit, who have been at my side throughout. This is all for you.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER ONE

INTRODUCTION

CA-SBr-2110 is an archaeological collection housed at San Bernardino County Museum in Redlands, California which contains a human skeleton, a horse skeleton, historical objects, lithics, and unidentified faunal remains. Upon excavation, it was discovered that the human and horse appeared to have died simultaneously, as the human was still in the riding position on the horse's back. The cultural affiliation of the human and the horse is unknown. In this thesis, I re-evaluated the collection by centering my research on the horse and demystifying the collection. I inferred from the locality, materials, and skeletal remains that the human is of Spanish or Indigenous descent. In this research I acknowledge and include Indigenous peoples of Mexico under the category of Indigenous.

Research Objectives

The research offers a new perspective on analyzing sensitive archaeological collections that contain human skeletal remains by utilizing equine faunal analysis. Analyzing the equine skeleton in the CA-SBr-2110 collection shed light on the human skeleton, who rode the horse and likely cared for it. Examining the horse skeleton and associated material objects through radiocarbon dating provides a chronological context to the collection. In an

archaeological context, this research offers a more nuanced understanding of the site's history which will enrich our understanding of the intertwined roles of humans and horses in the Mojave Desert.

Research Questions

1. How does evidence from the equine skeleton provide insight on the relationship between the human and horse at CA-SBr-2110?
2. What can the horse skeleton and associated objects show us about the potential identity, role, or status of the rider?
3. How does radiocarbon dating the horse skeleton contribute to establishing a chronological framework for CA-SBr-2110, and what insights does it offer into the archaeological timeline of human-horse interactions at the site?
4. What challenges arise in the analysis and interpretation of CA-SBr-2110, considering the disturbance from the bulldozer, urgency of the excavation, and potential biases that have influenced the interpretation of the site?

Site CA-SBr-2110 Background

On October 4, 1965 on the J. D. Mitchell Ranch, a Mesquite Dune habitat along the Mojave and downstream from Yermo, a human skeleton and a horse skeleton were discovered after being disturbed by a bulldozer. Land records showed the first deed to the area of the site was granted to Sam Clark in 1856. The area where the skeletons were found was a camping spot for local

Indigenous communities for centuries and was known as Punta de Agua by traders from New Mexico on the Old Spanish Trail. Later, it was known as Forks in the Road, as one road went to Utah and the other went to Fort Mohave near Needles. The site itself is located on Serrano and Western Shoshone territory.

The San Bernardino County Museum director at the time, Dr. Gerald A. Smith, instructed Chuck Williams, a community college student and archaeologist, to excavate the skeletons quickly. Williams, an anthropology student at Barstow Junior College, was the only person close to the site with enough archaeological experience to excavate the skeletons before they got bulldozed even further or before more news reporters arrived. In the letter from Williams in the collection's file, he notes:

At first light I was ducking under yellow police tape thinking how nice it was of them to help keep out the looky-lous…when the Sheriff and Coroner arrived we were threatened with arrest. Luckily, one of them recognized me from the Calico Dig and after explaining my presence, and them palavering privately, it was decided we could all cooperatively dig it archeologically.

Initially, the sheriff and coroner believed the human skeleton to be a relatively recent homicide where the perpetrator attempted to burn the skeletons to avoid identification and hide evidence. Williams mentions the presence of a dark blue or indigo material that had adhered to and stained some of the bones, creating the appearance of burn marks. Williams also notes it is likely there were fragments of the skull in a dark sand path, which was further buried or dragged

away by the bulldozer. While Williams wanted to search the sand path for more remains, he insinuated that the sheriff and coroner intimidated him into ignoring that pursuit. A member of the Mitchell family brought out a sun-bleached half of a mandible which had allegedly been found on the property quite some time ago and had been sitting on a windowsill in their house. The other half of the mandible was found in the excavation process and fits together with the sun-bleached half. The minimum number of individuals, or MNI, is one for human remains.

According to Williams, the human skeleton was on its back on top of the horse's, with the head towards the horse's rear and at least their right leg over the horse's front (Figure 1). This makes it appear as if the person was knocked backward either before or after the horse went down. Williams stated some horse bones had old cuts at an angle as if struck by an axe, and at least one arrowhead was found beneath the skeletons. More recent breaks on the skeletons were likely caused by the bulldozer and dirt-hauling trailer. Williams assumed the cut marks on the horse's skeleton may have been caused by a surprise attack which caused the horse to spook and get cut even though the rider was the intended target. Afterward, he suggested, the attacker used a knife on the rider.

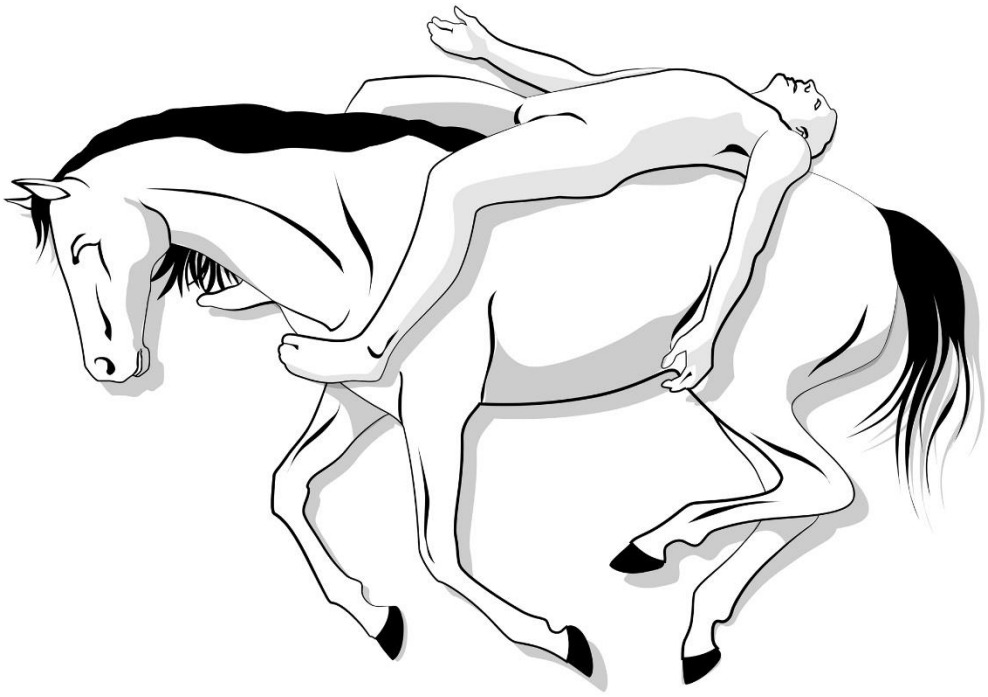


Figure 1. Depiction of human and horse (CA-SBr-2110). Illustration by Jean Pickard.

CHAPTER TWO

LITERATURE REVIEW OF THE IMPORTANCE OF HORSES IN THE ARCHAEOLOGICAL RECORD

Equine Archaeology in North America

Horses evolved in the Americas around 55 million years ago. The current view many archaeologists hold is that all horses in the Americas went extinct at the end of the Pleistocene Epoch and were later reintroduced by Spanish conquistadors in the late 1400s (De Steiguer 2011; Dewdney and Kidd 1962; Grayson 1991; Marsh 1874). The dates of horse remains from sites in Wyoming and Nebraska show that people far from the Spanish frontier had horses beginning sometime after 1550. They were integrated into Indigenous communities by 1650 (Curry 2023:1291). Curry (2023:1293) explained, “DNA recovered from soil in the Arctic suggests horses might have survived until at least 5000 years ago in parts of North America.” Therefore, with more research and excavations, the timeframe archaeologists once accepted is shifting.

Indigenous Horse Husbandry and Knowledge

Some Indigenous communities, such as the Anishinaabe, have cultural knowledge which states horses did not go extinct during the Pleistocene in North

America. Snowshoe and Starblanket (2016:62) acknowledged “numerous claims from traditional Elders and knowledge keepers that horses were vital to First Nations ways of life prior to European contact.” Europeans believed that anything civilized, such as horse husbandry, must have come from their homeland which thus invalidated the indigeneity of horses in the Americas (Snowshoe and Starblanket 2016:62). To the Anishinaabe, the Ojibwe horse indigeneity is not a belief to be argued but irrefutable cultural knowledge. Dr. Yvette Running Horse Collin, an Indigenous woman, conducted her PhD dissertation on Indigenous horse culture. She argued that the notion that the Spanish reintroduced horses to the Americas is a Eurocentric myth (2017). Lakota Chief Joe American Horse noted that “horses have been part of us since long before other cultures came to our lands…and we are a part of them” (Curry 2023:1293). Across Indigenous communities, we see the effect horses have had both in practical ways and spiritual ways.

European, Indigenous, and *Vaquero* Equestrians in Alta California

Alta California was explored by the Spanish Crown in the early 16th century but was not settled by the Spanish until 1769 (Lightfoot 2017:356). Spanish horses may have arrived as early as 1769 (Lacson 2015:207). Some Indigenous communities initially resented all livestock brought over by Spanish settlers, including horses. Father Vicente Fuster stated that Kumeyaay Indians

attacked Mission San Diego in 1775, where they also targeted the horses with their arrows (Lacson 2015:212).

The negative connotation some Indigenous communities in the area initially had with horses seemed, overall, impersonal and generally inconsistent with their attitudes toward the horses themselves. For example, Father Mariano Payeras reported in 1819 that their best horses were being stolen and that “in the Tulares all ride, even the women” (Lacson 2015:215). The Pechanga Band of Indians acknowledged that during the Pauma Massacre of 1846, 11 Mexican soldiers who had participated in the Battle of San Pasqual were killed at Warner Hot Springs for stealing horses from the Pauma people. Father Luís Gil y Taboado and Father José María de Zalvidea stated that the Tongva enjoyed riding horses from one ranch to another. Much like the Tongva, other Indigenous communities in California took to horses and the opportunities to gain the knowledge and skill required to ride them (Lacson 2015:220). In the late 1800s, a Chumash Indian named Kitsepawit from Mission San Buenaventura stated that Indigenous communities in California had some of the best horse riders in the region (Lacson 2015:212). This emphasizes that horses became an integral part of some Indigenous communities.

Most *vaqueros* were known to be *mestizo*, individuals of Indigenous and Spanish ancestry (Pearson 2021:5). Pearson (2021:5) noted *vaqueros* were also “African American, *mulatto,* or *criollo* (Spaniards born in North America).” Europeans initially, and hesitantly, relied on *vaqueros* to care for their horses. In

the early 19th century, Father José Señán of Mission San Buenaventura tracked clothing distributed to any Indigenous person baptized at Mission San Buenaventura. He recorded the names of Chumash *vaqueros*, the type of equestrian equipment distributed, and the dates when he supplied the equipment (Lacson 2015:216). Lacson (2015:223) stated the presence of the horses worked to “intensify connections between coastal and interior communities.” Horses connected baptized and non-baptized Indigenous peoples as well as Indigenous *vaqueros* with equestrian knowledge and interior Indigenous peoples wanting to learn about horses (Lacson 2015:223).

The Relationship between Horses and Humans

Robinson (1999:42) acknowledged the sacrifices that must be made to own and care for horses. Horses are herd animals, so they must be kept in herds. The average riding horse typically consumes at least 9 kilograms of hay or grass daily. Although hay can be purchased or grown, it is expensive to purchase and requires effort to grow. Additionally, domesticated horses require routine hoof trimming and teeth filing. That being said, horses require more physical and mental work than most other livestock animals and pets. The aforementioned sacrifices can be seen with all of these husbandry requirements. Given the nature of horses and all they require, some might wonder how they have maintained their status and relationships with humans. They seemingly fall

somewhere in between livestock and a pet. Horses have been and continue to be used in equestrian competitions, farming, racing, ranching, therapeutic programs, and travel.

“There's nothing so good for the inside of a man as the outside of a horse” (Russel 1906:218). The horse offers both emotional connection and practical utility that no other domesticated animal can reasonably provide. In general, relationships with horses must be earned. Hausberger and colleagues (2008:1) noted, “deficits in the management conditions (housing, feeding, possibilities for social contact, and training methods) may lead to relational problems between horses and humans.” In my own experience growing up with horses, a relationship is built on a series of interactions. Each interaction with a horse either builds, maintains, or damages the relationship, so remaining consciously aware of all reactions you have around and while riding a horse is important. For the most part, not just any person could mount any horse and ride them without issue. Horses allow a certain amount of consideration to humans whom they know and trust. To ride a horse outside of a controlled environment, where there are no fences and other humans or animals may spook the horse, requires a relationship as otherwise it can become dangerous.

The Relationship Between the Human and the Horse in the CA-SBr-2110 Collection

Regarding the CA-SBr-2110 collection, the positioning of the horse and human skeletons is indicative of a relationship between the two. Given the human's position, it is apparent that they died on top of their horse. In a situation where there is an ambush and subsequent attack, it would not be inconceivable for a horse to run away and potentially unseat their rider in the process, as they are prey animals. If this had been the case, the skeletons would not have been found in the position in which they were. It is possible that the horse died first and collapsed on top of the human which prevented them from moving. The attacker may have surprised the horse and human in an ambush at close enough range to deliver a fatal wound to the horse before targeting the human. In the case of an attack, the horse likely became spooked, which could have thwarted the full brunt of the attack and resulted in the attacker, perhaps unintentionally, injuring the horse. That being said, no such wounds were identified on the horse's skeleton. If the human and the horse in the CA-SBr-2110 collection were intentionally buried, their positioning may symbolize an element of spirituality or culture. Across the globe, horses have been buried alongside humans for centuries (Laffranchi et al. 2024; Ulriksen 2018; Leifsson 2018). Horses hold significant cultural, economic, and symbolic roles across many different cultures, which has led to their inclusion in human funerary practices.

Centering the Horse and Decolonizing Archaeology

Centering this research on the horse is the first step in proposing a decolonized view of this archaeological site. Euro-American society acknowledges a sharp division between humans and non-human animals, but Dr. Lindsay Stallones Marshall promotes decentering Western perspectives and emphasizes a profound interconnectedness between humans and horses (Marshall 2022). Marshall (2022:74) acknowledges that without breaching the line of anthropomorphism, there is a certain level of anthropocentrism present when one assumes that humans are so fundamentally different from horses that interpreting any thought or emotion from them is a mere human projection. Utilizing Indigenous knowledge in equine archaeology will allow archaeologists to see past Western narratives that claim the horse to be merely a tool used by humans rather than half of a partnership. Emphasizing the horse as a domesticated tool of humans originates from Euro-American ideologies of hierarchical power dynamics and the separation between humans and animals. A human-horse relationship based on control and material benefit reinforces Euro-American ideologies while negating the horse's full participation in the relationship (Marshall 2022:80). Recognizing the horse as a significant entity with its own agency creates an opportunity for the horse to make contributions within the literature. This horse-centered approach is another method of decolonizing anthropology.

CHAPTER THREE

DECONSTRUCTING CA-SBR-2110

Interpretations About the Life and Death of the CA-SBr-2110 Horse and Rider

Several theories about what happened to the human and horse in this collection have been presented over the years. Mrs. Hessel, a neighbor to the Mitchells, had a conversation with Williams where she forwarded a cold case from a local retired judge. The judge recalled the case about a young, recently married man who was just beginning to bring his herd upriver from Barstow when someone cut his fence and stole some of his livestock. It is said he had an old pistol which he took to track down the thief, not wanting to involve the sheriff. He followed the tracks past Barstow and returned home to his wife the next day just to supply himself with a blanket and jerky before resuming his pursuit, but he never returned. Williams explained this to Dee Simpson, an acquaintance of Smith's, who allegedly passed it on to him. Smith believed the human remains to be Indigenous. Williams claimed he saw no evidence other than the site's location to support such a speculation.

Smith's hypothesis involved a Walkara raid into San Bernardino Valley made by a party of 30 to 40 Ute Indians on January 27, 1851. This group allegedly stole several hundred fine horses owned by José María Lugo and others who had ranchos in San Bernardino Valley. Lugo then organized a pursuit

party of about 20 men, including his two sons, neighbors, *vaqueros*, and possibly members of Juan Antonio's band of Cahuillas. This party followed the Ute trail through Cajon Pass and camped the second day near Victorville. The next day, their advance guard who had been following the raiders was ambushed and one white man was killed. The pursuit party returned to San Bernardino Valley following the Ute ambush. Jack Nelson, principal of Jackson School in Riverside, disagreed with Smith. Nelson believed the Lugos would have returned to bury their fallen comrade. Smith stated their comrade was probably a *vaquero* and the Lugos would not have bothered to return to the ambush area to bury him (Schalfer 1965). Smith believed the skeletons could be a result of the Ute ambush on Lugo's advance guard.

My own interpretations about the life and death of CA-SBr-2110 are focused on the material record. That record includes the presence of a human and horse skeleton, historical objects, lithics, and unidentified faunal remains. Thus far, all theories on how the human and horse died involve homicide as a cause. While the skeletal remains are fragmented and incomplete, this is in large part due to the plow. Assuming the human and horse in this collection were victims of homicide, it is likely their attacker buried them afterwards. If the human and horse were left out in the elements, more sun-bleaching on the skeletons and disturbances caused by animals would be expected. As such, I would be remiss to ignore the possibility that this was an intentional burial. However, the typical Indigenous-associated funerary objects known to the region, such as

burned shell, are not present within the collection. Given the terrain, a grave marker may have been placed at one point but lost due to shifting sand dunes as well as the use of farming machinery throughout the area. Nevertheless, these are assumptions all the same. While we may not know how the human and horse died, we do know that they were found not only together but intertwined.

The Human Skeleton

Edward P. Doyle, noted as the San Bernardino County Coroner at the time of the excavation, analyzed the human skeleton in this collection. Dr. Edward Hunt and John Mavalwala, Professor of Anthropology at the University of California Riverside, also examined the bones on October 8, 1965. They believed the individual was a male, about 21–25 years old, and 5’1”–5’4.” They also noted the human’s teeth had considerably more wear than expected with their age. In my research, I confirmed the minimum number of individuals, or MNI, for human remains is one. I also confirmed the human was smaller in stature and likely a male. The indigeneity of the individual has been questioned because while the remains were found on Serrano and Western Shoshone territory, there are no skeletal markers that can positively identify them as Indigenous. Due to the uncertainty of the individual’s identity and cultural affiliation, I did not analyze the human skeleton in this thesis. Rather, I analyzed the horse skeleton.

The Horse Skeleton

The horse skeleton in the collection provided information about when the pair died, showed the effects of humans on the horse's skeleton, and gave insight into the relationship between the horse and the humans in its life. I sent a hair sample from the horse to the Texas A&M University Animal Genetics Laboratory for genotyping and breed testing. Additionally, I sent one horse rib fragment, one horse tooth, and one textile (fabric) sample to Beta Analytic Testing Laboratory for radiocarbon dating.

Artifacts in the Collection

Other items in the collection include buttons, unidentifiable metal fragments, knives, percussion caps, yellow ochre, and lithics. The Global Forensic and Justice Center at Florida International University (2008) stated that percussion caps were invented and in use by the early 1800s. This provides a chronological reference, at least for the percussion caps in the collection (Figure 2).

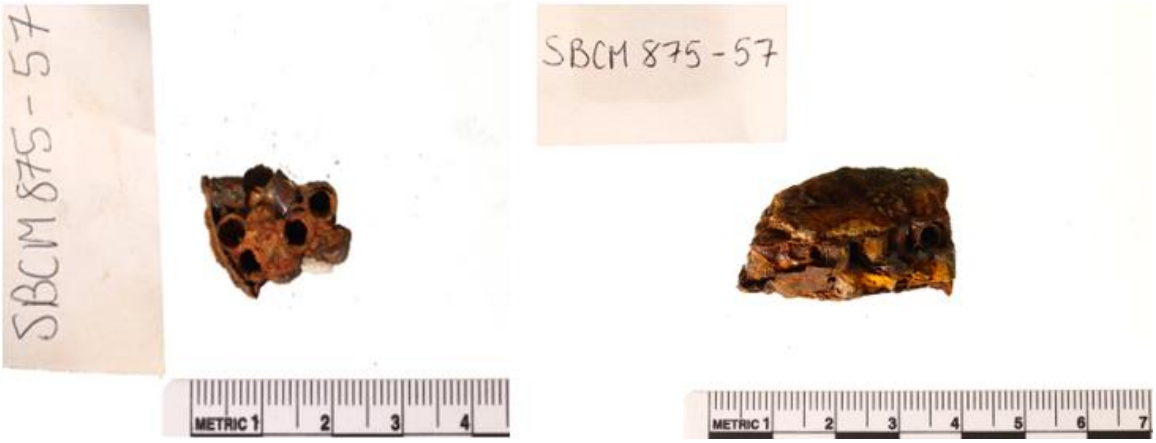


Figure 2. Percussion cap, SBCM 875-57 (CA-SBr-2110). Photo by author.

Four knives with wooden handles are part of this collection, three of which can be seen in *Figures 3* and *4*. The lithics consist of flakes and tools of chalcedony, jasper, obsidian, quartzite, and rhyolite (Figure 5). The lithic scatter was allegedly found in situ. It is important to note that this collection was found in an area of the desert with sand dunes, which shift over time and can make identifying associated objects nearly impossible. That is to say, it is not possible to determine with certainty if these objects were property of the person whose remains are in this collection.

Figure 3. Wooden knife handles, SBCM 875-43 and SBCM 875-44 (CA-SBr-2110). Photo by author.

Figure 4. Wooden knife handle with metal blade, SBCM 875-45 (CA-SBr-2110). Photo by author.

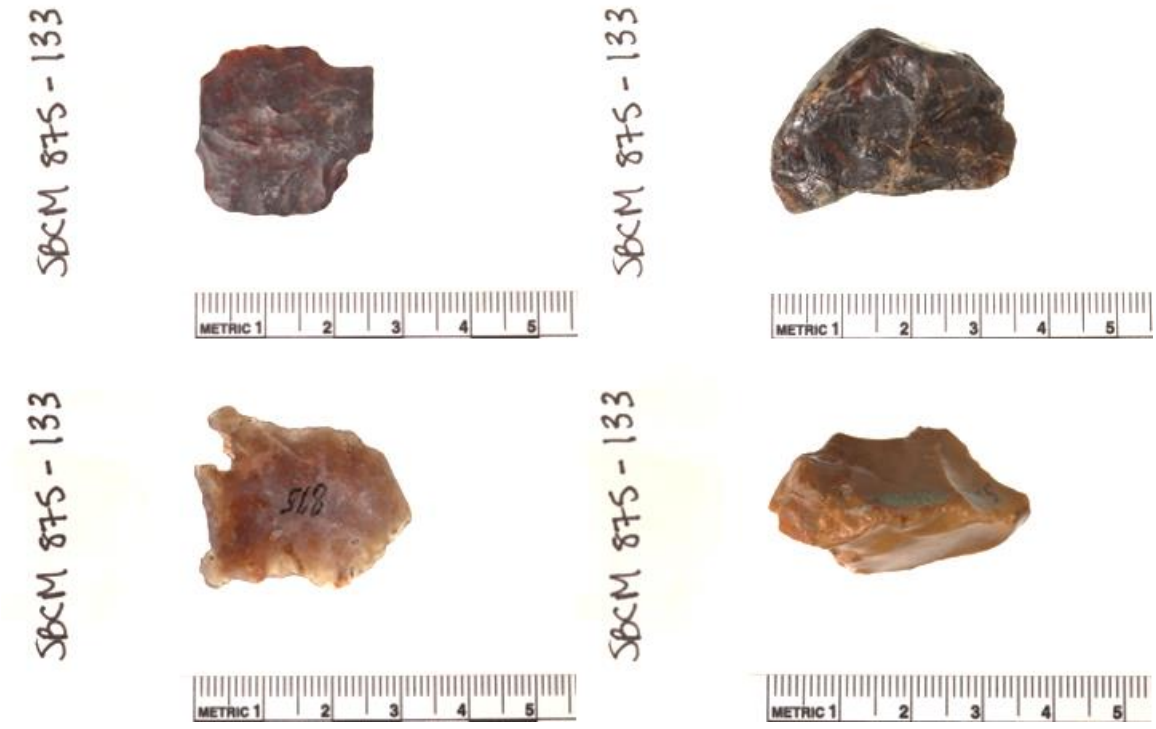


Figure 5. Lithics, SBCM 875-133 (CA-SBr-2110). Photo by author.

In the collection's file, Smith claimed there were possible remnants of a saddle, blanket, and lance. Hunt and Mavalwala also made a note in the collection's file which claimed, "not affluent – saddle shows no metal – not upper-class Mexican, could be *vaquero*."

That being said, I found nothing in the collection to indicate the presence of a saddle or lance. Saddles, particularly Western ones which would have been the most likely to be used in the region, are made of many pieces of thick leather and have large wooden trees and easily identifiable pieces of metal. I did not find any thick pieces of leather, large pieces of wood shaped like a saddle tree, or any metal that could be clearly identified as part of a saddle or bridle. There are

several metal fragments in the collection, though they are all severely corroded so I was unable to identify what they may have been (Figure 6). *Vaqueros* utilized Western saddles like the Spanish did. While all Indigenous communities eventually had saddles, they were slightly different from those of European and Spanish equestrians. Indigenous communities had two main types of saddles, one of which had a wooden tree and iron or rawhide-covered wooden stirrups (Worcester 1945:139). Worcester (1945:139) claimed, “the other type was composed merely of leather-covered pads of animal hair, generally with stirrups of wood or of rope.” The saddles with the wooden trees generally had tall pommels and cantles. When the Indigenous riders were going to mount their horses using the saddles with wooden trees, they would throw their buffalo robes over the saddles and ride on them, since otherwise the saddles would be uncomfortable. Salish people used a saddle that was a cushion of stuffed deer skin (Worcester 1945:142). During war or hunts, when it was necessary to ride quickly, some Indigenous communities would choose to ride without a saddle (Worcester 1945:141).

Figure 6. Metal fragments, SBCM 875-51 (CA-SBr-2110). Photo by author.

Additionally, I did not identify a bridle or a bit in the collection. European equestrians would have used large metal bits in their horses' mouths for both control and fashion. Ornately tooled leather, long-shanked bits, and elaborately pronged spurs were, and sometimes still are, common features in European tack (Lawrence 1984:59). *Vaqueros* and Indigenous equestrians would have been more likely to use a bitless bridle made out of leather, rope, or rawhide. The Timothy S. Y. Lam Museum of Anthropology stated that Plains Indians did not use bits, but rather looped the rope over the lower jaw or nose creating one or two reins. While Indigenous communities did switch to European-style tack at different times post-contact, some seemed to have kept their bridles the same even into the 20th century (Horse Capture and Her Many Horses 2006:36). Therefore, the absence of a bit in the collection coupled with the knowledge that the human died on top of the horse in the riding position may suggest the horse came from a *vaquero* or Indigenous community.

The *Cowboys vs. Indians* Narrative

This collection has been shrouded in mystery since the time it was excavated. News outlets caught wind of the story and spun it into their own *Cowboys vs. Indians* narrative. This narrative is problematic due to its dehumanizing nature and how it plays into stereotypes of Indigenous communities. The portrayal of Native Americans as savages in Western media and literature worked to justify the public's false perception of Indigenous communities. This *Cowboys vs. Indians* narrative was undoubtedly exacerbated by the political climate of the United States during the 1960s. Between 1819 and 1969, federal Indian boarding schools were in operation across 37 states (United States Department of the Interior Bureau of Indian Affairs [BIA] 2024). The construction of Indian boarding schools was spearheaded by Richard Henry Pratt in an attempt to "Kill the Indian, save the man" (Pratt 1892:46). It was not until the Indian Child Welfare Act of 1978 that Indigenous children were not forcibly removed from their parents and homes to be placed in an Indian boarding school. Simultaneously, Western television shows and films became popular. Elizabeth Atwood Lawrence (1984:49) acknowledged, "it is the cowboy who is considered to express the essence of the West, and who has come to symbolize…not only the country's westward expansion, but ultimately even America herself".

David Hitchcock, Sun-Telegram Staff Writer, wrote an article titled "Skeleton Rider Believed Victim of Indian Ambush" wherein he relayed Smith's

theory about CA-SBr-2110 being connected to the Walkara raid by Ute Indians. Jack Smith, Los Angeles Times Staff Writer, wrote an article titled “Killing by Indians 114 Years Ago Reconstructed by Museum Director” which explained how Dr. Gerald A. Smith discounted the first theory that the human skeleton had been decapitated or that an attempt to cremate the horse and rider had been made. Rather, he stated the Utes did not take the human’s skull and it was likely taken off by small animals (Smith 1965). Nevertheless, the damage was done by publishing these article titles.

Deconstructing Myths

Many assumptions have been made regarding this collection, perpetuating myths and enabling confirmation bias. These assumptions included misidentifications within the collection as well as Smith’s assumption that a group of Ute Indians stole several hundred horses from José María Lugo which left one of his white men dead. Prior to my research with this collection, the remains had not been dated. Therefore, Smith assigning the skeletons a death date of January 30, 1851 based on his undeveloped theory was premature. My research will address these assumptions and issues through deeper analysis of the collection through radiocarbon dating.

Williams noticed what he assumed to be cut marks on the horse skeleton during his excavation. He believed these were perhaps unintentionally caused by an attacker. The cut marks Williams was referring to were located on ribs. More

specifically, these cut ribs were from the ventral aspect of the horse's ribcage, by the sternum. For someone to have cut the horse in such a manner, the horse would have had to be rearing up on its hind legs. This assumption ignores the high probability of the attacker being seriously injured by the horse's front legs and hooves in such a position. This type of cut would be more typical of a butcher, where the animal would be hung on a metal hook to display the ventral surface. Professional osteologist, Patrick Stanton, assisted me in analyzing the skeletal remains of the horse. Examining the ribs that have these marks, Stanton identified that the cut marks were actually the result of the plow going over the skeletons. Referencing the photographs from 1965, I was able to locate the rib fragments and corroborate this information.

In Hitchcock's article, he wrote "A brushfire swept the area, burning the man's upper torso." However, what was initially believed to be burn marks of a failed cremation turned out to be dark blue or indigo fabric that adhered to the bones. Additionally, Hitchcock wrote "A bone awl was found near the skeleton." However, no such awl was found in my cataloging of the collection. What is present in the collection, which may have been confused for bone awls, were ossified pieces of rib cartilage (Figure 7).

Figure 7. Ossified faunal rib cartilage, SBCM 875-125 (CA-SBr-2110). Photo by author.

Smith's theory, as explained in Hitchcock's article, claimed, "The pursuit party…camped the second day (the 29th) at a ciénaga (watering-place) near the present site of Victorville," and, "The next day (the 30th) their advance guard…lost one white man." That being said, the distance from Victorville to Yermo, where the skeletons were found, was at least 42 miles. It is not typical for equestrians to ride horses at such distances, especially in such a short time frame. The only horseback sport that does this is called endurance riding. Endurance riders have 25, 50, and 100-mile rides. That being said, these distances are highly unusual and both horse and rider must train for months and

have strict exercise routines to physically be capable of completing such rides safely. Most horse and rider pairs would be unable to complete these long-distance rides. Hampson and colleagues (2010:582) measured the distance feral horses in outback Australia traveled every day, and they found the average distance traveled was approximately 15.9 km, or 9.9 miles, per day. According to Foreman (1998:206), “some horses are simply incapable of some types of endurance work”, and certain breeds, like Quarter Horses, are not as suitable for endurance riding. Typically, hot-blooded horses such as Arabians and Thoroughbreds are more successful in high-energy horse sports such as endurance riding and racing. These horses’ high energy levels generally make them less desirable as ranching and trail horses, where a calmer disposition is often preferred. Since Lugo owned a rancho, there would have been an emphasis on livestock and agriculture. The horses owned and ridden by Lugo and his men were most likely not hot-blooded horses which would have had the energy and stamina to endure such a trek. As such, it would be improbable that Lugo’s entire advance guard could reach the raiding party in under a day.

Archaeologists like Smith might unintentionally favor evidence that supports their preconceived beliefs, overlooking or downplaying data that contradicts their ideas. Moreover, archaeologists influenced by confirmation bias might communicate their findings in a way that reinforces their beliefs, potentially leading to misrepresentations of events or cultures in public discourse.

CHAPTER FOUR

THEORY

In my research of the CA-SBr-2110 collection, I have incorporated several concepts including decolonizing methodologies, zooarchaeology, and totemism and animism which each possess distinct tenets aiming to highlight human interactions. My research synthesizes these concepts while aiming to understand the human-horse relationship within an archaeological context and challenge traditional Western-centric interpretations.

Decolonizing Methodologies

Centering Indigenous knowledge that challenges Western assumptions is still relatively new in the field of archaeology. Smith (2012:63) stated the West views itself as the center of legitimate and 'civilized' knowledge, with this perspective continuously being supported through the globalization of knowledge and Western culture. Centering Western epistemologies and asserting this equates to them being more legitimate inherently works to reduce Indigenous epistemologies to a place of illegitimacy. Such propositions aid in the cyclical Western rejection of Indigenous epistemologies.

Colwell-Chanthaphonh and colleagues (2010:229) recognized that decolonizing methodologies in Indigenous archaeology employ "archaeological

practices undertaken by, for, and with Indigenous communities." These methodologies challenge archaeology's historical inequities and increase the discipline's depth of understanding regarding Indigenous archaeology. In my opinion, decolonizing means actively challenging Western epistemologies through the involvement of Indigenous communities and individuals. Colwell-Chanthaphonh and colleagues (2010:234) asserted decolonizing archaeology requires "an acknowledgment that Indigenous communities are bound by responsibilities to their ancestors" and archaeologists should not disregard those responsibilities. McNiven (2016:34) argued that Indigenous archaeology requires finesse to evade a simplistic dichotomy of Western versus Indigenous worldviews, and nuanced discussions are necessary to facilitate cross-cultural dialogue and understanding. A prerequisite for this cross-cultural dialogue is a process involving confronting injustices and inequalities and understanding diverse cultural perspectives. Even within the field of archaeology itself, there are barriers – placed and protected by colonialism – to push through before we can push forward.

On Indigenous methodologies, Morgensen (2012:805) recognized that, "by exposing normative knowledge production as being not only non-Indigenous but colonial, they denaturalize power within settler societies and ground knowledge production in decolonization". As such, these methodologies lay the foundation of decolonizing anthropology. Atalay (2006:283) stated that archaeology is not just a tool for understanding the past, but that "archaeological

practice and the knowledge it produces are part of the history and heritage of living people". As a result, complex contemporary implications can and do arise, which are still relevant to the aforementioned living people. Colonization in the Americas is not simply an isolated event that occurred in the 15th and 16th centuries, but an ongoing encounter.

Taschereau Mamers (2019:12) noted through the example of bison extermination, "the historical horror of settler colonization has always been a multispecies endeavor." As such, decolonization must comprehensively analyze human-animal relationships. I believe this same notion of colonization of non-humans can be, and has been, expanded into horses as well.

For this research specifically, challenging Western assumptions and centering the horse are the foundations of decolonizing archaeology. While the indigeneity of this collection cannot be determined at this time with any degree of certainty, acknowledging epistemologies beyond Western ones is the foundation of all future archaeological endeavors.

Zooarchaeology

Zooarchaeology truly became recognized as a subdiscipline in the 1970s, following the development of processualism (Hill 2013:118). Although zooarchaeology has started expanding, it was initially subsistence-focused. Archaeologists specializing in zooarchaeology utilize different methods based on

their specific goals. Faunal remains can be used to understand how animals provided food to communities and how they created commodities that implied status and were ideological symbols of power (deFrance 2009:106).

Brewer (1992:229) claimed that new methods are borrowed from other disciplines which aid in zooarchaeology research. These related disciplines include biology and paleontology. The influence of paleontology and its methods have opened doors in zooarchaeology, particularly in researching horses. Utilizing knowledge of horses as well as methods for analyzing them has provided new information on opposing theories in horse indigeneity, domestication, and human-horse relationships in an archaeological context. Rather than the horses being markers of human social status, Argent (2010) identified horses as individuals within a culture (Hill 2013:123).

Overton and Hamilakis (2013:114) acknowledged a new zooarchaeology, social zooarchaeology, wherein animals are not just economic resources and must be appreciated as "agentic entities that engage in human/non-human social relationships". Shaw (2013:151) noted two reasons for asking whether animals have agency: "first, they just might and second, people might once have thought they did." Western culture posits all animals are similar while humans have culture and diversity. Overton and Hamilakis (2013:115) pointed out that in Indigenous communities, "humans, other animals, and non-animate beings all possess a soul, and are therefore understood as intrinsically the same." The

concept of animal agency both challenges Western narratives and promotes a cohesive blend into zooarchaeology.

In my research, rather than focusing on subsistence strategies and how horses provided for communities as meat to be consumed, I would like to pivot to a perspective wherein horses are seen as non-human community members with agency and impact. Instead of reading the skeleton for what the horse offered the humans, we can see what the humans offered the horse.

Totemism and Animism

Totemism follows a system of belief that posits humans are spiritually connected to plants and animals. Totemism is derived from the Ojibwe language, Anishinaabemowin, where the word *odoodeman* roughly translates to clan or totem – implying kinship (Insoll 2011:1007). Claude Levi-Strauss (1991:93) claimed totemism is not zoolatry, though it asserts humans may treat certain animals with a degree of deference similar to that in religion. Totemism is often found in Indigenous communities that hold certain plants and animals as sacred. Levi-Strauss addressed totemism, which includes aspects of animism, a belief that animals, objects, and plants can have a spirit (Bird-David 1999:70). Animism claims natural beings have human social attributes and dispositions, while totemism organizes aspects of nature by differentiating between species in an effort to make sense of society. Insoll (2011:1014) claimed that ‘animistic’ is

preferable over ‘animism’ and ‘totem’ and ‘totemism’ are more practical but not popular in an archaeological context.

Watts (2013:21) referenced Place-Thought, “a non-distinctive space where place and thought were never separated because they never could or can be separated,” then acknowledges that land is sentient and both humans and non-humans acquire agency through the land’s sentience. She highlighted the differences between Indigenous and Western epistemologies through association with animals – while many Indigenous peoples view being aligned with the animal world as a position worthy of respect and honor, many people in Western societies view being associated with animals as provincial.

Indigenous communities have long recognized horses to be sacred spirits, while Western viewpoints often perceive horses primarily as utilitarian in transportation and trade, disregarding their spiritual significance. Lawrence (1984:8) referenced Clark Wissler’s 1914 work on the horse in Plains Indian culture wherein his consideration of the horse as a tool did not take into account the influence of the animal’s requirements as a large herbivore nor the psychological or spiritual effects of horses on humans. Understanding horse husbandry and the intricate dynamics of human-horse interaction from a totemism/animism perspective was crucial in the archaeological analysis of the horse skeleton from the CA-SBr-2110 collection.

CHAPTER FIVE

METHODOLOGY

Lawrence (1984:8) stated, “human relationships with animals merit more precise attention at the level of concrete observable mutual interactions”. Utilizing this in an archaeological context, I analyzed the horse for antemortem injuries, sent a sample of preserved skin and hair from the horse to the Texas A&M University Animal Genetics Laboratory for genotyping and breed testing, visually and physically analyzed the teeth, and sent three samples to Beta Analytic to form a chronology of the site. Due to disturbance caused by other animals and damage from machinery, the horse skeleton is not complete; however, I determined an MNI of one horse.

Analyses of the Horse Skeleton

Dr. William Taylor stated, “Every little aspect of human activity and relationship to horses leaves a signature, if we can find it” (Curry 2023:1292). Analysis of the horse skeleton is an integral component of this research. My intention is to learn what the horse can tell us about CA-SBr-2110.

The evidence proving the horse is indeed a horse and not a burro, or ass, can be found in the teeth. Specifically, a spot on the horse’s teeth called the linguaflexid can provide criteria to distinguish horses and asses. Asses display a

V-shaped linguaflexid compared to the more U-shape found on horses (Cucchi et al. 2017:9). Refer to *Figure 8* to view the linguaflexid which proves the equine in the collection to be a horse.

Figure 8. Linguaflexid on horse tooth outlined in red, SBCM 875-127 (CA-SBr-2110). Photo by author.

There were eight horse teeth in the collection and after radiocarbon dating one of the horse teeth, there are now seven (Figure 9). These teeth can tell us about the horse's lifestyle through a physical analysis to check for sharp points on the teeth. Sharp points would indicate the horse had a diet of softer grasses that did not wear down its teeth. In turn, this would indicate domesticity both of the grasses in the horse's diet and of the horse itself.

Horse dentistry began as early as 1150 BCE (Taylor et al. 2018). No evidence of teeth floating – a common practice in horse husbandry which

involves filing down horse teeth as they grow – was observed. That being said, adult horse teeth grow quickly, usually forming sharp points after one to two years without being floated. A few of the horse teeth present in CA-SBr-2110 do have small sharp points. As such, the horse could have had its teeth floated in the past, but the teeth then grew out. Since the horse did have sharp points, it likely ate softer hays and grasses as bark, coarse grasses, and weeds would work to keep the teeth naturally filed down.

Figure 9. Horse teeth, SBCM 875-127 (CA-SBr-2110). Photo by author.

Antemortem injuries on the horse's skeleton were not observed, despite Williams' claims of cut bones on the horse. Rather, the marks observed on the bones are not believed to have been from an axe or knife, but from the plow which unearthed the collection. The cut marks can be seen on several different rib fragments, all cut at the same angle (Figure 10). Some of these horse rib fragments are also visible in the original photographs of the site from 1965 (Figure 11). This works to emphasize the point that the plow caused the cut marks.

Figure 10. Horse rib fragments (cut by plow), SBCM 875-125 (CA-SBr-2110). Photo by author.

Figure 11. Horse rib fragments (cut by plow), CA-SBr-2110. Photo from 1965.

Additionally, I discovered a fragment of the horse's skull containing the external sagittal crest, nuchal crest, and external occipital protuberance (Figure 12). The external occipital protuberance for the attachment of the nuchal ligament lies halfway between the nuchal crest and the foramen magnum (Budras et al. 2012:32). The nuchal ligament funicular cord, part of the nuchal ligament, "extends from the external occipital protuberance to the summits of the 3rd, 4th, or 5th thoracic vertebrae where it is continued by the…supraspinous ligament that ends at the sacrum" (Budras et al. 2012:56). In the way humans can be right or left-handed, horses also tend to have stronger and weaker sides

of their bodies. Horses can develop a stronger side naturally or it can be a result of human training. For example, Thoroughbred racehorses in the United States all gallop counter-clockwise, so they tend to have an easier time bending and moving to the left even after retiring from racing. Historically speaking, most riding horses owned by Europeans were mounted from the left side. This is because most people were right-handed, so they carried their swords on their left sides. As such, mounting from the left was easier when someone had a sword hanging on their left side. How horses move and are trained can directly affect their skeletal morphology. While I present this as an assumption due to the lack of literature on the topic, I speculate the height and robusticity of the nuchal crest may help determine which side a horse had an easier time bending to. If the nuchal ligament funicular cord pulled the external occipital protuberance and nuchal crest one way more frequently than another, pathologies indicating this repetitive movement may be visible on the skull fragment. To clarify, if the aforementioned assumption were true, the nuchal crest may be able to indicate the side of the horse that was most influenced by humans.

Figure 12. Horse skull fragment, SBCM 875-112 (CA-SBr-2110). Photo by author.

Horse DNA Testing

Through both visual and skeletal examination, I found the horse was a small, adult animal and likely bay or chestnut in color. The most effective way to determine the horse's ancestry would be through DNA testing of a sample of the horsehair (Figure 13). A 1.47 g sample of the preserved horse skin and hair was sent to the Texas A&M University Animal Genetics Laboratory. The Texas A&M University Animal Genetics Laboratory noted their horse ancestry testing is based upon comparing the DNA genotype of the subject horse to a reference panel of 50 horse breeds. From there, an analysis is completed which reports the

three most probable ancestral breeds. Due to the degradation of the sample and the lack of hair follicles, the sample did not yield results. The remainder of the sample was returned to San Bernardino County Museum.

Figure 13. Horsehair on horse bone fragment, SBCM 875-124 (CA-SBr-2110). Photo by author.

Radiocarbon Dating

Beta Analytic (2015) explained that carbon 14 is continuously being formed in the upper atmosphere and plants and animals gain carbon 14 from

carbon dioxide throughout their lifetimes, so when they die they stop exchanging carbon with the biosphere. Their carbon 14 content then decreases at a rate determined by the law of radioactive decay. In 1946, physical chemist Willard Libby proposed a method for dating organic materials by measuring their content of carbon 14 (Romig and Lindblom 2016:2). Saitoh and colleagues (2019:97) explained “atmospheric radiocarbon (14C) levels increased from 1955 to 1963 due to atmospheric nuclear weapon tests, and then decreased.” Measuring the residual radioactivity in carbon-based samples from living organisms provides age estimates.

Three samples weighing 5.91 g, 47.57 g, and 1.97 g were taken from one horse rib fragment, one horse tooth, and one piece of fabric – respectively – and sent to Beta Analytic for radiocarbon dating. The inclusion of these three separate aspects of the collection allows for a broader understanding of the context of the collection as a whole. Having three radiocarbon dates is useful for cross-referencing and comparing results, developing a chronological framework, and understanding the history of the site.

Since there is little information about where each object was found stratigraphically and with the presence of sand dunes which shift objects around, dating objects in the collection proves challenging. Rather than taking a chance on radiocarbon dating objects in the collection at random, I chose to utilize a sample of fabric from the collection, as seen in *Figure 14*, in addition to the horse rib fragment and horse tooth. Because there is visually similar fabric adhered to

the skeletons, the fabric was likely with the skeletons upon their passing. The fabric sample I chose to get radiocarbon dated was not adhered to the skeletons, but attached to a metal fragment, and appeared to be the same dark fabric found adhered to various bones of the skeletons. However, after Beta Analytic began their pretreatment process on the textile – or fabric – sample, they discovered the fabric was blue and white striped with a light sheen in appearance (Figure 15). Initially, and solely based upon the uncovered appearance of the fabric, it was believed the fabric was modern.

Figure 14. Fabric (textile) sample, SBCM 875-57 (CA-SBr-2110). Photo by author.

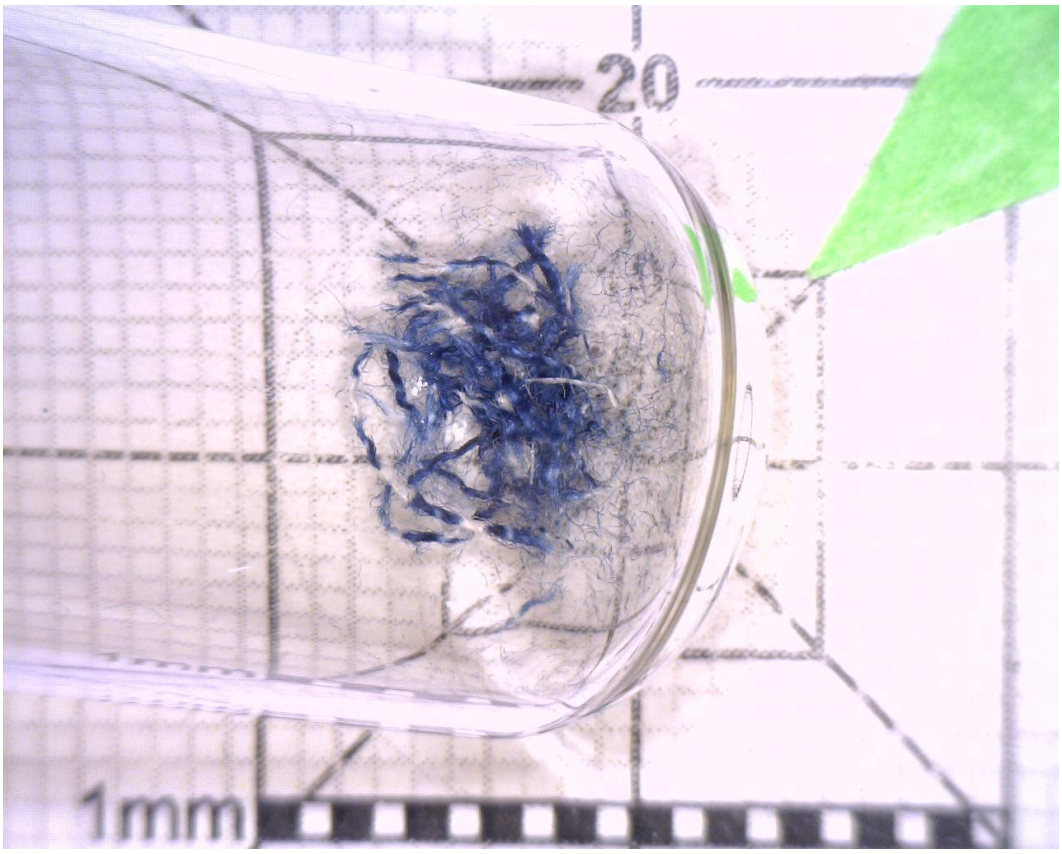


Figure 15. Fabric (textile) sample after pretreatment process, SBCM 875-57 (CA-SBr-2110). Photo by Beta Analytic Testing Laboratory.

The samples from the horse skeleton included one tooth and one rib fragment. I chose to send in one of the horse teeth (Figure 16) for radiocarbon dating because there is no turnover of enamel after it is formed, so 14C levels in the enamel represent 14C levels in the atmosphere when the enamel was formed (Buchholz and Spalding 2010:1). Buchholz and Spalding (2010:2) noted that bone is a living tissue that exhibits low but variable turnover and “older individuals tend to lose more bone than they replace during the bone recycling

process.” The horse rib fragment I sent in for radiocarbon dating can be seen in *Figure 17*.

Figure 16. Horse tooth sample, SBCM 875-127 (CA-SBr-2110). Photo by author.

Figure 17. Horse rib fragment, SBCM 875-118 (CA-SBr-2110). Photo by author.

Due to the diversity of objects within CA-SBr-2110, while bearing in mind the geography of the site at the time of excavation, I expected certain results from the radiocarbon dating. I anticipated the horse rib fragment and horse tooth would date similarly to each other, with the horse tooth dating slightly older. Given the appearance of the fabric after pretreatment, I expected it would date to around the time of excavation – the mid-1900s. Perhaps the fabric wound up close to the skeletons due to shifting of sand dunes or discarded refuse and was not associated with them initially.

CHAPTER SIX

RESULTS

The three samples from CA-SBr-2110 – a piece of fabric, a horse rib fragment, and a horse tooth – were sent to Beta Analytic for radiocarbon dating. The dating results indicate that the human and horse skeletons of CA-SBr-2110 date to the early to mid-19th century. The dates for each sample were placed in Table 1. Given that CA-SBr-2110 was excavated in 1965, coupled with the stage of decomposition of the skeletons, it is practical to eliminate the possibility of the collection being from the 20th century.

Table 1 ^{14}C dating results for the samples from CA-SBr-2110: textile, horse rib fragment, and horse tooth.

AMS radiocarbon date	**2σ calibration cal AD**	**1σ calibration cal AD**	**Material / lab number**
170 ± 30[1]	1721–1814 (p = 45.7) 1908–1954 (p = 20.3) 1660–1699 (p = .17.1) 1834–1889 (p = .12.3	1728 – 1782 (p = 32.2) 1922 – 1949 (p = 15.2) 1667 – 1690 (p = .131) 1796 – 1809 (p = .73) 1952 – 1953 (p = .04)	Textile (Beta – 689416)
140 ± 30 BP	1829–1900 (p = .296)	1834 – 1890 (p = . 258)	Bone (Beta – 689418)

[1] (Bronk Ramsey 2009; Hua et al. 2022; Reimer et al. 2020)

	1717–1768 (p = .186) 1903–1945 (p = .173) 1671–1714 (p = .159) 1798–1827 (p = .108) 1771–1779 (p = .22) 1946–1948 (p = .06) 1952–1954 (p = .05)	1908 – 1940 (p = .146) 1681 – 1699 (p = .86) 1721 – 1739 (p = .83) 1800 – 1814 (p = .68) 1753 – 1762 (p = .37) 1953 – 1954 (p = .04)	
130 ± 30 BP	1798–1942 (p = .629) 1673–1743 (p = .264) 1750–1765 (p = .42) 1773–1778 (p = .08) 1952–1954 (p = .05) 1943–1945 (p = .02) 1947–1948 (p = .02)	1832 – 1892 (p = .308) 1685 – 1710 (p = .116) 1905 – 1927 (p = .107) 1804 – 1824 (p = .86) 1719 – 1732 (p = .62) 1953 – 1954 (p = .04)	Tooth (Beta – 689417)

The piece of fabric, or textile, most likely dates to 1721–1814 cal AD with a median probability of 1775. The horse rib fragment most likely dates to 1829–1900 cal AD with a median probability of 1825. The horse tooth most likely dates to 1798–1942 cal AD with a median probability of 1835. These values are shown in *Figure 18*.

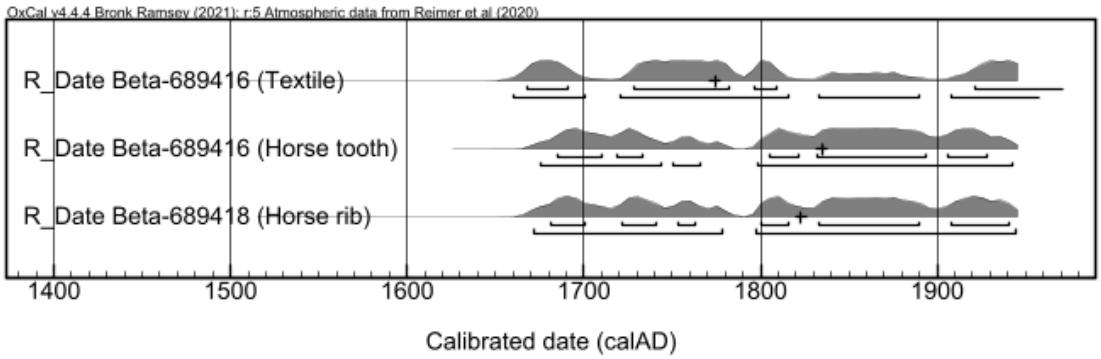


Figure 18. Radiocarbon dates, SBCM 875-118 (CA-SBr-2110). Plot by OxCal.

CHAPTER SEVEN

DISCUSSION

The CA-SBr-2110 collection has, for the most part, been sitting on a shelf since its excavation in 1965. Almost 60 years later, I re-examined this collection through a new anthropological perspective and analyzed through radiocarbon dating. Radiocarbon dating of the horse rib fragment, horse tooth, and fabric provided chronological context and offered more perspective on the site's history.

As expected, the horse rib fragment and horse tooth dated similarly to each other with the tooth dating slightly older. Both the bone and tooth are most likely from the early 19th century. The textile dating older than the horse bone and tooth was an unexpected result. Due to the physical appearance of the fabric as well as the associated data from Beta Analytic, I question if the textile may have been denim. Additionally, with the textile dating earlier than the horse samples and since the human was presumably a young adult, I theorize the textile may have been a family heirloom passed down to the human.

Based on the dating results presented in this thesis, the human and horse were neither from the pre-contact period nor were they modern at the time of excavation in 1965. Their most likely date range, the early to mid-19th century, coincides with the Louisiana Purchase, the California Gold Rush, and the Mexican-American War. During the Mexican-American War, starting in 1846, California was still loosely under the control of the Mexican government. During

that time, California's population consisted of approximately 150,000 Native Americans, 6,500 Californios (people of Spanish or Mexican descent), and 700 foreigners – or Americans (Public Broadcasting Service 2024). Additionally, the other items in the collection help to paint a picture of the site as well as the human and the horse skeletons. The lack of identifiable metal and wood fragments suggests the horse was not wearing a saddle of any type, nor was the horse carrying a metal bit. The presence of lithics in the collection is also worth reiterating when discussing the potential identity of the human as they are usually found in an Indigenous context. Seeing as the radiocarbon dating results date the skeletons to the early 19th century, an Indigenous person from that period with buttons, metal knife blades, and percussion caps is entirely conceivable. Given the estimated date of the collection, its geographic location, events occurring in that time and place, the aforementioned population, and objects at the site, there is a reasonable argument that the human in the CA-SBr-2110 collection was of Spanish or Indigenous descent.

Through centering the horse, utilizing decolonizing methodologies, and reexamining the site of CA-SBr-2110, this research has shed light on the human-horse relationship. Whether the human and horse in this collection were victims of homicide or intentionally buried, the proximity of the human and horse within this assemblage resonates with the bond they shared. If they were victims of homicide, the position in which their skeletons were found speaks of their mutual dependence. If they were intentionally buried, their position suggests cultural

significance. The human and horse skeletons of CA-SBr-2110 show a relationship between humans and horses that extends far beyond utilitarian purposes. From an archaeological perspective, this knowledge emphasizes the need for further research into human-animal relationships and the cultural significance of these relationships. Archaeology is not solely about human actions towards animals, but also about the profound impact animals have on shaping human cultures.

CHAPTER EIGHT

CONCLUSION

Review of Research

In Chapter One I presented four research questions that aimed to center the horse in an archaeological context in an effort to learn more about the horse-human dynamics in the CA-SBr-2110 collection.

Research Objectives

1. Analyze a sensitive archaeological collection which contains human skeletal remains by utilizing faunal analysis
2. Examine the horse skeleton and material objects through radiocarbon dating to obtain chronological context of the collection
3. Gain a more nuanced understanding of the site's history which will enrich our understanding of the intertwined roles of humans and horses in an archaeological context

Research Questions

1. How does evidence from the equine skeleton provide insight on the relationship between the human and horse at CA-SBr-2110?

The horse teeth in CA-SBr-2110 have signs of a close relationship between the human and the horse. While there are a few horse teeth with small sharp points

which suggest the teeth had not been floated, at least in some time, the sharp points also suggest a diet of softer hays and grasses. From this, it can be assumed that the human cared for the horse by either providing or locating forage for them.

2. What can the horse skeleton and associated objects show us about the potential identity, role, or status of the rider?

Through the analysis of the horse skeleton and associated objects, it is reasonable to assume that the individual was a skilled equestrian during a tumultuous time in the western United States. Falling off a horse is much easier than staying on and this would be especially true if the human and horse were attacked while riding. If this was not an intentional burial, the fact that the human was still in the riding position on the horse upon death suggests they were a skilled equestrian as they did not fall off during the attack. The metal, wooden knives with metal blades, and percussion caps make it clear the human in this collection was not from pre-contact times. That being said, the lithics, lack of traditional Western/English horse equipment, and locality may be indicative of Indigenous cultural affiliation.

3. How does radiocarbon dating the horse skeleton contribute to establishing a chronological framework for CA-SBr-2110, and what insights does it offer into the archaeological timeline of human-horse interactions at the site?

Radiocarbon dating the horse skeleton contributes to establishing a chronological framework for CA-SBr-2110 by providing dates which can then be compared to the textile sample as a way to understand more about the site's history. Remaining cognizant of what was happening in the area environmentally, socially, and politically during the period allows insights into what may have affected the human and horse's lives and deaths.

4. What challenges arise in the analysis and interpretation of CA-SBr-2110, considering the disturbance from the bulldozer, urgency of the excavation, and potential biases that have influenced the interpretation of the site?

There have been several challenges in the analysis and interpretation of the CA-SBr-2110 collection. Due to the disturbance from the bulldozer, the human and horse skeletons are not complete. Many bones are fragmented, meaning that skeletal markers which could more accurately indicate ancestry were absent. Despite this, analyzing the skeletons still brought forth new information. The urgency of the excavation paired with a young archaeologist led to some objects being lost during the excavation. Perhaps there is a future opportunity here to potentially return to the site for further survey and excavation. Biases had a large influence on the interpretation of the site, mostly caused by Dr. Gerald A. Smith and his assumptions about Indigenous communities, which he perpetuated through communicating with journalists. Utilizing decolonizing methodologies, centering the horse, and deconstructing some of the myths put forth by Smith allowed me space to challenge these biased interpretations.

Concluding Summary

My findings in this research challenge the Western narrative that has followed the CA-SBr-2110 collection since its excavation in 1965. My research changed the Western narratives and perspectives on the collection by incorporating decolonizing methodologies, analyzing the horse's skeleton, and utilizing radiocarbon dating. Several previously held beliefs and conspiracies have been challenged or disproven with my research. Horse bones initially thought to have been cut from an intentional attack are now interpreted as having been cut from a plow. What were once believed to be bone awls are now known to be ossified pieces of horse rib cartilage. Furthermore, by analyzing the skeletons and radiocarbon dating the textile, we know there are no burn or failed cremation marks on either skeleton. Rather, the dark material on the skeletons was a blue fabric, or textile, that had adhered to several bones. This textile dated to 1721–1814 cal AD, which is slightly older than the horse skeleton. While the radiocarbon dates show the human and horse may have lived to the mid-1800s – which does match Smith's theory that the human skeleton was one of Lugo's white men who died from a raiding party ambush on January 30, 1851 – there are still flaws in his theory. Given the timeline of the attack and the distance needed to travel to get there, it is unlikely anyone on horseback – let alone an entire advance guard – could have reached the raiding party. The assumptions

about CA-SBr-2110 came from a Western perspective which played into the *Cowboys vs. Indians* narrative perpetuated both by Western media and the political climate of the United States. To further illustrate how the social and political climate at the time would have affected archaeology, when the collection was excavated in 1965, Indian boarding schools were still in operation in the United States. These perspectives led to the misrepresentations of CA-SBr-2110.

I re-examined and analyzed the collection from CA-SBr-2110 utilizing radiocarbon dating. Centering the horse provided a new perspective for archaeological research, particularly in the case of collections with sensitive content such as human skeletal remains of unknown cultural affiliation. Through this research, I gained a deeper understanding of the human-horse relationship in the CA-SBr-2110 collection. By analyzing the horse's skeleton and examining the original excavation photographs from 1965, I established that this human and horse were intrinsically intertwined in both life and death. Radiocarbon dating of the fabric, horse rib fragment, and horse tooth worked to provide the chronological context of the collection and enhanced our understanding of the site's history as a whole. While there are still opportunities for more research to be done with this collection, this research has brought forth a significant amount of previously unknown information and data.

APPENDIX A

OBJECT CATALOG

The human remains in the collection were not included in the object catalog.

Catalog #	Quantity	Description
SBCM 875-3	1	Hair & fabric
SBCM 875-4	1	Fiber, soil, & hair
SBCM 875-5	1	Hair
SBCM 875-6	1	Fabric & soil
SBCM 875-7	1	Wood & fabric
SBCM 875-8	1	Wood & fabric
SBCM 875-9	3	Wood & horsehair
SBCM 875-10	1	Woof & fabric
SBCM 875-11	1	Wood & fiber
SBCM 875-12	1	Woof & fabric
SBCM 875-13	1	Wood, fiber, & hair
SBCM 875-14	1	Woof & fabric
SBCM 875-15	1	Woof & fabric
SBCM 875-16	1	Hair
SBCM 875-17	1	Wood
SBCM 875-18	1	Wood & fibers
SBCM 875-19	1	Wood & fabric
SBCM 875-20	1	Wood

SBCM 875-21	1	Wood
SBCM 875-22	1	Wood
SBCM 875-23	1	Wood
SBCM 875-24	1	Soil
SBCM 875-25	1	Wood
SBCM 875-26	1	Wood
SBCM 875-27	1	Horsehair & fibers
SBCM 875-28	1	Hair, wood, & fiber
SBCM 875-29	1	Wood & fabric
SBCM 875-30	1	Wood & fabric
SBCM 875-31	1	Fibers
SBCM 875-32	1	Wood
SBCM 875-33	1	Fabric
SBCM 875-34	1	Wood & fabric
SBCM 875-35	1	Soil & fabric
SBCM 875-36	1	Fabric
SBCM 875-37	1	Hair
SBCM 875-38	1	Fabric & organic
SBCM 875-39	1	Soil & fabric
SBCM 875-40	1	Soil & hair
SBCM 875-41	1	Clear glass fragment

SBCM 875-42	1	Metal blade with adhered bone
SBCM 875-43	1	Wood knife handle
SBCM 875-44	1	Wood knife handle with blade in handle
SBCM 875-45	1	Knife with wood handle and metal blade
SBCM 875-46	3	Metal
SBCM 875-47	16	Metal, organic, & wood
SBCM 875-48	1	Soil sample
SBCM 875-49	21	Wood & fiber
SBCM 875-51	2	Metal & fibers
SBCM 875-52	3	Metal
SBCM 875-53	3	Metal
SBCM 875-54	12	Metal
SBCM 875-55	5	Fired stones
SBCM 875-56	2	Metal & wood
SBCM 875-57	3	Percussion caps
SBCM 875-79	12	Faunal bone (not horse)
SBCM 875-80	1	“Cut” bone
SBCM 875-81	1	Rib fragment
SBCM 875-82	1	Stone
SBCM 875-83	1	Cloth & hair
SBCM 875-92	21	Ossified faunal cartilage

SBCM 875-93	27	Metal & wood
SBCM 875-98	36	Cattle bone mixed with horse
SBCM 875-99	13	Bone fragments
SBCM 875-100	1	Soil & bone
SBCM 875-102	3	Metal buttons
SBCM 875-106	29	Metal & wood handle
SBCM 875-108	5	Horse bones
SBCM 875-109	66	Horse long bone fragments
SBCM 875-112	32	Mixed faunal
SBCM 875-117	1	Horse scapula
SBCM 875-118	22	Horse ribs
SBCM 875-119	2	Horse radius
SBCM 875-120	2	Horse long bones
SBCM 875-121	13	Misc. horse bones
SBCM 875-123	2	Horse distal phalanges
SBCM 875-124	1	Horse bone with hair
SBCM 875-125	36	Ossified faunal cartilage
SBCM 875-126	1	“Cut” faunal bone
SBCM 875-127	8	Horse teeth
SBCM 875-128	1	Horse middle phalanx
SBCM 875-129	6	Misc. horse bone fragments

SBCM 875-130A	1	Horse middle phalanx
SBCM 875-130B	1	Horse proximal phalanx
SBCM 875-131	1	Rib
SBCM 875-133	57	Flakes & cores
SBCM 875-144	2	Horse middle phalanges
SBCM 875-145	2	Horse proximal phalanges
SBCM 875-146	1	Rib

APPENDIX B

RADIOCARBON DATING DATA

(Variables: d13C = -23.8 o/oo)

Laboratory number **Beta-689416**

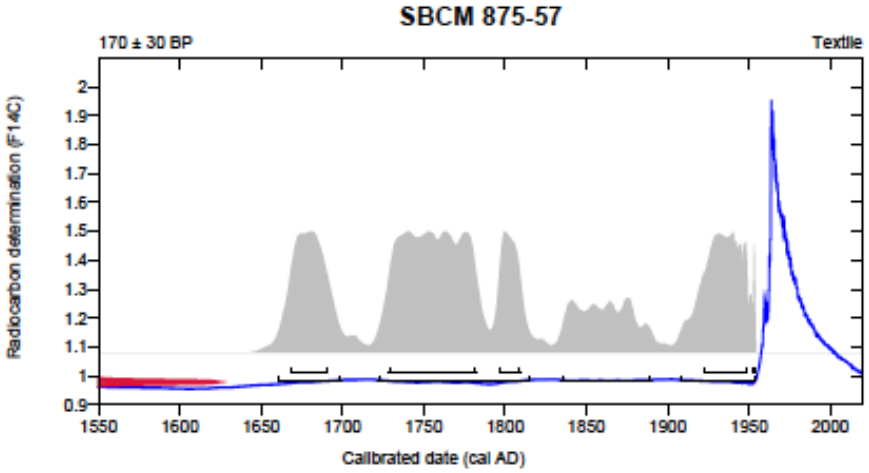
Conventional radiocarbon age **170 ± 30 BP**

95.4% probability

(45.7%)	1721 - 1814 cal AD	(228 - 135 cal BP)
(20.3%)	1908 - 1954 cal AD	(41 - -5 cal BP)
(17.1%)	1660 - 1699 cal AD	(289 - 250 cal BP)
(12.3%)	1834 - 1889 cal AD	(115 - 60 cal BP)

68.2% probability

(32.2%)	1728 - 1782 cal AD	(221 - 167 cal BP)
(15.2%)	1922 - 1949 cal AD	(27 - 0 cal BP)
(13.1%)	1667 - 1690 cal AD	(282 - 259 cal BP)
(7.3%)	1796 - 1809 cal AD	(153 - 140 cal BP)
(0.4%)	1952 - 1953 cal AD	(-3 - -4 cal BP)



(Variables: d13C = -18.7 o/oo)

Laboratory number **Beta-689417**

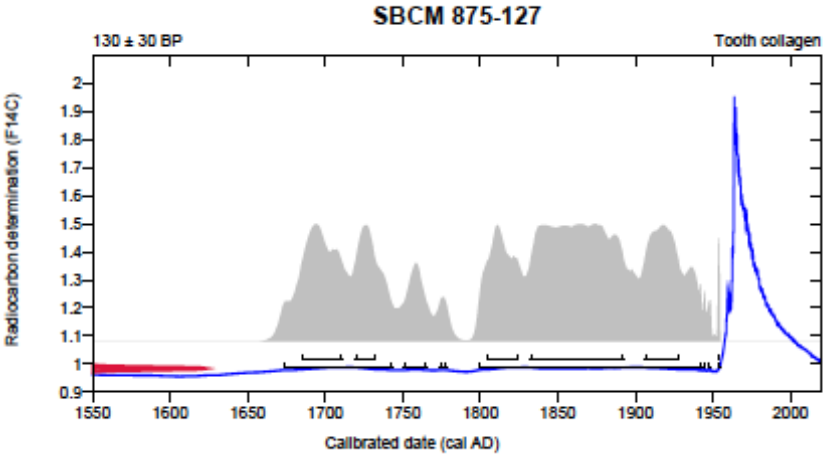
Conventional radiocarbon age **130 ± 30 BP**

95.4% probability

(62.9%)	1798 - 1942 cal AD	(151 - 7 cal BP)
(26.4%)	1673 - 1743 cal AD	(276 - 206 cal BP)
(4.2%)	1750 - 1765 cal AD	(199 - 184 cal BP)
(0.8%)	1773 - 1778 cal AD	(176 - 171 cal BP)
(0.5%)	1952 - 1954 cal AD	(-3 - -5 cal BP)
(0.2%)	1943 - 1945 cal AD	(6 - 4 cal BP)
(0.2%)	1947 - 1948 cal AD	(2 - 1 cal BP)

68.2% probability

(30.8%)	1832 - 1892 cal AD	(117 - 57 cal BP)
(11.6%)	1685 - 1710 cal AD	(264 - 239 cal BP)
(10.7%)	1905 - 1927 cal AD	(44 - 22 cal BP)
(8.6%)	1804 - 1824 cal AD	(145 - 125 cal BP)
(6.2%)	1719 - 1732 cal AD	(230 - 217 cal BP)
(0.4%)	1953 - 1954 cal AD	(-4 - -5 cal BP)



(Variables: d13C = -19.0 o/oo)

Laboratory number **Beta-689418**

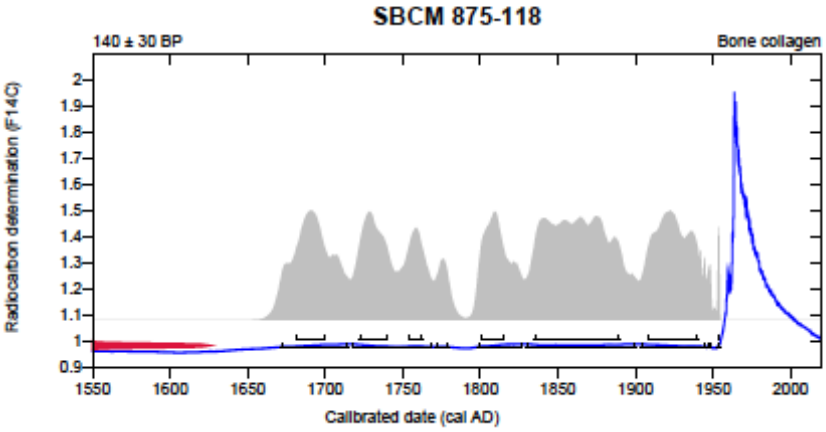
Conventional radiocarbon age **140 ± 30 BP**

95.4% probability

(29.6%)	1829 - 1900 cal AD	(120 - 49 cal BP)
(18.6%)	1717 - 1768 cal AD	(232 - 181 cal BP)
(17.3%)	1903 - 1945 cal AD	(46 - 4 cal BP)
(15.9%)	1671 - 1714 cal AD	(278 - 235 cal BP)
(10.8%)	1798 - 1827 cal AD	(151 - 122 cal BP)
(2.2%)	1771 - 1779 cal AD	(178 - 170 cal BP)
(0.6%)	1946 - 1948 cal AD	(3 - 1 cal BP)
(0.5%)	1952 - 1954 cal AD	(-3 - -5 cal BP)

68.2% probability

(25.8%)	1834 - 1890 cal AD	(115 - 59 cal BP)
(14.6%)	1908 - 1940 cal AD	(41 - 9 cal BP)
(8.6%)	1681 - 1699 cal AD	(268 - 250 cal BP)
(8.3%)	1721 - 1739 cal AD	(228 - 210 cal BP)
(6.8%)	1800 - 1814 cal AD	(149 - 135 cal BP)
(3.7%)	1753 - 1762 cal AD	(196 - 187 cal BP)
(0.4%)	1953 - 1954 cal AD	(-4 - -5 cal BP)



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