Wholesome Food in Porcelain Dishes

A Zooarchaeological Investigation of the Loma Prieta Lumber Company Camp

A Project Report

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By

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Abstract

This project is a partnership between San Jose State University (SJSU), California State Parks (CSP), and the Aptos History Museum. Implementation consists of four main components: 1) the zooarchaeological investigation of a faunal assemblage excavated from the Gilded Age Loma Prieta Lumber Company camp (1885-1920) located in the CSP Forest of Nisene Marks State Park, California; 2) public interpretation of the findings through the Aptos History Museum, CSP publication, and presentation at the Society for California Archeology annual conference; 3) archaeological survey of previously undocumented areas associated with the Loma Prieta Lumber Company camp; and 4) assembly of an historical faunal comparative collection for the SJSU Anthropology Department. Historical accounts depict the lumber workers as a largely unskilled group, perceived by their contemporaries as a mobile underclass that partook in vices and lived in squalor in refutation of Victorian ideals. However, archaeological evidence and historical documentation demonstrates that the lumber workers employed strategies of resistance against stratified tiers of the company hierarchy to make demands for better food and living conditions. Established zooarchaeological methodologies used to rank and evaluate butchery units recovered from the Loma Prieta Company employee housing and cook house sites reveal a large percentage of high-ranking cuts of meat that corroborate negotiations of class structure. In coordination with historical artifact analyses, these studies demonstrate how racialized groups express agency and solidarity within institutionalized gendered, racialized, and class-based stratification.

Acknowledgements

I would like to thank Mark Hylkema at California State Parks for providing access to the Loma Prieta collection and facilitating survey work at the Forest of Nisene Marks State Park, California. Thank you to John Hibble at the Aptos History Museum for the opportunity to present my findings and for sharing the Museum's remarkable archive of photos with me. To Cristie Boone, Sarah Peelo and the Albion Environmental team, thank you for your continued support and encouragement. I am grateful to the Anthropology department at San Jose State University who gave me a place to focus all my attention for two long years of the COVID epidemic. Thank you to the department faculty and staff, especially A.J. Faas for being a steady voice of reason and schooling me on how to write; Charlotte Sunseri and Jan English-Lueck for their guidance and recommendations for research; and my advisor Marco Meniketti, without whom I would not have had access to this project. Marco has been endlessly kind and patient in guiding me through presentation at an academic conference, stinging nettles at the Loma Prieta site, and countless hours over Zoom calming my anxieties and offering insight.

I owe an immense debt of gratitude to both Diane Gifford-Gonzalez and Anneke Janzen for introducing me to the field of zooarchaeology and being constant sources of information, support, and inspiration. To my brilliant, dependable, kind, and generous friends Emily Bales and Ryan Phillip, who risked poison oak and trench foot to help me, you are the best kind of people. Thank you, friends. Most of all, thank you to my partner Tyler Meine who paid the paid the bills, cooked dinner, proofread assignments, listened to my rants, and made martinis for two years so that I could complete this project. If I have done anything of value here, it is only because I have all of you.

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Chapter 1: Introduction

In collaboration with the cultural resources division of California State Parks (CSP), I conducted a zooarchaeological investigation of the fauna excavated from the archaeological site of Loma Prieta, located in the Forest of Nisene Marks State Park in Aptos, California. The Loma Prieta camp is associated with the Loma Prieta Lumber Company that owned and operated the lumber mill in the Santa Cruz Mountains during a period known as the American Gilded Age. In the time following the American Civil War, the Gilded Age (1870 to 1900) was a period of industrial capitalism, wealth consolidation, and accelerating resource extraction, marked by rising inequality, anti-immigrant sentiment, and corporate influence in politics. Embodiment of Victorian ideals of behavior and refinement served to reinforce class stratifications along lines of race and wealth (Baxter 2012; Orser 2011; Shackel and Palus 2006).

In this project investigation, I utilize existing archaeological collections and build off previous research conducted at the Loma Prieta site (Heathcote 2019; Meniketti 2020a; 2020b) to explore how the company camp's diverse population negotiated the effects of Gilded Age capitalism and Victorian social ideals through consumption and diet. To facilitate CSP compliance with federal laws requiring site preservation, interpretation, and public engagement (King 2013), I conducted noninvasive archaeological survey of the areas surrounding the Loma Preita Mill. In coordination with historical artifact analyses conducted by Dr. Marco Meniketti (2020b) I conducted faunal analyses to examine the diet and material culture of the lumber camp employees. By using established zooarchaeological methodologies to rank and evaluate nineteenth century butchery units (Schulz and Gust 1983; Lyman 1979; 1987; Diehl et al. 1998; Van Bueren et al. 1999) I address the research questions: 1) How were gender, class and racialized identity negotiated through foodways and material culture in the company camp? 2) How did the racialized and class-based groups at Loma Prieta experience impacts of Victorian paternalism and class stratification? 3) How was solidarity communicated among the stratified groups within this capitalist socioeconomic system?

To further investigate how food is used in nonbinary negotiations of power, I apply the concept of alimentary dignity, as defined by Hanna Garth (2019) in a study of what constitutes dignified, culturally appropriate foods. The lumbermen lived at an intersection of race, gender, and class within the paternalistic principles of nineteenth century capitalism. By demanding access to high-quality foods served in an aesthetic manner appropriate to Victorian society, the workers produced identities that both challenged and validated paternalistic practices. By sharing the same foods across lumber camps, workers practiced solidarity through homogenization.

Problem Statement

In recent years, multiple publications have advocated for the examination and analysis of existing archaeological collections rather than conducting new excavations (Friberg and Huvila 2019; Kersel 2015; MacFarland and Vokes 2016). CSP has limited resources to document, process, analyze, curate, and interpret the multiple cultural resources that fall within their jurisdiction. By taking on the faunal analysis and reporting portion of the Loma Prieta project and public interpretation, as well as conducting non-invasive archaeological survey of previously undocumented CSP properties, I support the CSP cultural resources division mission statement to preserve and manage cultural resources that represent California's history, and foster the public's appreciation for California's cultural heritage through education, access, and stewardship (State of California 2020).

Archaeological investigations into industrialism and company towns of nineteenth century America have traditionally prioritized industrialism and the elite, reinforcing ideals of U.S. capitalism while overlooking the impacts of company town paternalism and stratification on the daily lives of the working-class. However, recent archaeological investigations into the material culture and foodways of Gilded Age labor camp and company town employees have explored questions about how laborers and their families navigated racialized, gendered, and class-based inequalities; how rejection of or adherence to Victorian ideals demonstrates assert agency and solidarity; and how assimilation and persistence of cultural traditions and foodways are complicated by identity flux (Baxter 2012; Merritt et al. 2012; Orser 2011; Sunseri 2020b).

Within the framework of the research questions outlined above, I apply archaeological and zooarchaeological methods to address how the stratifying and homogenizing effects of capitalism in a pluralistic Gilded Age company town were negotiated through consumption practices in the public and domestic spheres. I expand on the narratives of how gender, class and racialized identity were negotiated through foodways and material culture; how solidarity is expressed among stratified groups within capitalist socioeconomic systems; and how racialized and class-based groups negotiate impacts of racialized stratification and homogenization. This research informs broader questions about gender, racialized identities, and worker stratification under capitalism, and how these factors are negotiated in the workplace and home (Amrute 2016; Baxter 2012; Gupta 2008; Orser 2011).

Deliverables, Future Outcomes, and Project Significance

Deliverables included with this report are a submission for publication to the Society for California Archaeology (SCA) following a paper presentation at their 2022 annual conference and a historical faunal comparative collection for SJSU comprised of faunal specimens from the Loma Prieta assemblage. In partnership with SJSU, an historical zooarchaeological comparative collection provides future students with a tool to address questions about consumption, historical butchery, and taphonomic processes in archaeological assemblages. By presenting my findings at the SCA annual conference and submitting a journal article for peer review to California Archaeology I contribute to the academic shift away from a traditional focus on capitalist industrialists of the Gilded Age (Shackel 2009). By applying the theoretical concept of alimentary dignity to a zooarchaeological assemblage, I connect current cultural anthropological research with historical zooarchaeology (Garth 2019).

Future outcomes connected to this project include a chapter in the Loma Prieta volume of the California Department of Parks and Recreation Publications in Cultural Heritage (CDPRPCH) authored by Dr. Marco Meniketti; an interpretive poster and accompanying educational presentation for the Aptos History Museum incorporating my zooarchaeological research about the lives of the Loma Prieta lumber company town workers and their families; and site survey records of the CSP Loma Prieta site to facilitate regulatory compliance and site trinomial acquisition. For over fifty years, the California Department of Parks and Recreation has published the results of archaeological investigations and research in their Publications in Cultural Heritage series that are made accessible to the public through free download or purchase from the CSP website. By providing the faunal analysis and reporting portion of the CDPRPCH Loma Prieta project and conducting archaeological survey at CSP properties, I support public education efforts concerning California's archaeological sites. Through partnership with the Aptos History Museum, I produce a presentation and educational poster of my research and findings, expressed in accessible language, to connect with the immigrant and descendant communities of the Loma Prieta townsite. Through public education components summarizing my research and findings, I disseminate knowledge about the immigrant and minority communities' participation in California history. By highlighting the daily lives of the timbermen and their families that lived and worked in the company town, I introduce a nuanced perspective of the immigrant and minority populations' heritage and contribution to California history. I provide estimated dates for completion for pending project elements in Chapter 3.

Project History

The Loma Prieta townsite assemblage collected by Meniketti (2020b) is the property of CSP and is housed at SJSU. Archaeological investigations into the townsite conducted by Meniketti between 2015 and 2017 surveyed forty-one domestic and industrial features including the mill, blacksmith shop, boiler house, crib dam, waste furnace, cookhouse, and laborers housing privies. Historical documentation suggests that the workers' housing was stratified along ethnic and hierarchical lines of skilled and unskilled labor, with separate housing for bachelors and married couples. The Company preferred married men in part because they were less likely to strike (Meniketti 2020b). The investigation uncovered evidence of an ethnically diverse population, with women clearly represented in the artifact assemblage along with patent medicine bottles and social status indicators of the Victorian age. Features associated with the cookhouse and laborers housing produced a total of 238 faunal bone specimens amassing a total of 6,304.4 grams that I analyzed for this investigation.

Literature Review

Gilded Age racialization and stratification under industrial capitalism

Coined by Mark Twain (Twain and Warner 1873), the Gilded Age refers to the period in United States history following the end of the Civil War. Exact date ranges vary depending on the source. Paul Shackel and Matthew Palus (2006) loosely define the Gilded Age as the late nineteenth and early twentieth centuries. Charles Orser (2011) identifies the Gilded Age as spanning from the Reconstruction Period beginning in 1865 and ending post-World War I in 1925, while other sources use a more conservative time frame of 1860s to 1896 or 1860 to 1900.

During the Gilded Age, extraordinary developments in technology, urbanization, and unchecked industrialization led to deterioration of living conditions for the poor and working-class. Industrial capitalists gained unprecedented power through consolidation of wealth, control of natural resources and transportation routes, and the economy at large (Orser 2011; Shackel and Palus 2006). The growth of industrialism had an enormous impact on the skilled, unskilled, organized, and unorganized labor force deemed "the working-class." Shackel and Palus (2006) discussed how dangerous working conditions, overcrowding, and poor sanitation lead to an increase in death among the urban poor and immigrant populations, even as improvements of these very conditions increased life expectancy among the elite. Orser (2011) argued that a new set of social relations formed under these capitalist influences that embodied hierarchical essentialized racialization along lines of wealth and class relations. Essentialization characterizes a single trait or suite of attributes as fundamental or essential to a type of person. Orser (2011) identifies essentialized racialization as a conjunction of class and race where the disparities between wealth and anti-immigrant sentiment were overtly expressed. Immigrant groups were placed in positions of social inferiority based on the order of arrival and perceived collective attributes. Racialized groups without African heritage were able to move up hierarchically as new immigrant groups arrived to take their place. Social classifications based on us/them, white/non-white binaries readily identified characteristics used to stratify or construct groups out of men and women viewed as socially unequal and biologically inferior. This racialized stratification was manifested in the classification of Europeans as “white” and all others as “colored.”

According to Orser (2011), this system was characterized by a division, or arrangement, into social strata based on racialized identity and class that essentialized the “poor” as a stratified category. Jane Eva Baxter (2012) argues that stratification of classes based in wealth consolidation and Victorian ideals surrounding work, wealth, and moral standing positioned poverty as an individual personal failure rather than a product of class hierarchies. Working-class identity emerged in the nineteenth century as a subculture in response to alienation and subjugation under capitalism as lower-class workers believed that their work ethic and immigrant traditions fueled American success.

Class-based labor organizations struggled against alienation under capitalism to resist the atomizing forces of capitalism and sustain solidarity, but racialized stratification persisted through lower- and working-class hierarchies. White labor forces organized to exclude African American, Japanese and Chinese immigrants, and Native Americans. Shackel and Palus (2006) argued that these excluded groups were then used by employers as a check on labor forces. Undercut wages paid to immigrant workers fueled virulent anti-immigrant sentiment that congealed in the Chinese Exclusion and anti-miscegenation laws of the 1800s, while the hard-won privileges of union solidarity were exclusively for white workers. The Industrial Workers of the World (IWW) formed in 1905 as an alternative to the exclusively white, skilled worker AFL.

Commonly known as the "Wobblies," the IWW differed from craft unions in that it opened its membership to all workers, regardless of skill, race, or gender. Their members comprised forty-three industrial worker and craft groups, including the Lumber Workers Union.

Meniketti (2020b) found evidence for an ethnically diverse population with women clearly represented at the Loma Prieta townsite. Most of the men working at the sawmill were of Italian heritage, but there were also a diverse mix of Irish, Mexican, French, and other nationalities. Immigrant Chinese laborers constructed and maintained the railroad connecting Loma Prieta with Los Gatos and neighboring Aptos. Men of African heritage worked as mule team drivers as well as unskilled cutters and limbers. Racialized and class-based stratification is evident in the layout of the company town in adherence to nineteenth century paternalistic capitalist ideals. However, Heathcote (2019) argues that the workers housing built into the hillsides in Loma Prieta was visually obscured from the watchful gaze of company bosses, signify a rejection of paternalistic supervisory efforts.

Company town paternalism

Paternalistic control of the workers' home and family lives as well as public behavior characterized the emerging corporate structure of American Gilded Age company towns. Paternalism is a system of authority that regulates the conduct and social interactions of those under its control. Guided by Victorian ideals and a fear of the lower-class in urban areas, industrialists sought to refine the social standard of the working-class by enculturation, monitoring worker behavior, and restricting access to vices (Baxter 2012). Donald Hardesty (1985) argues that Victorian attitudes served as a template for industrial environments. To maximize profit, exploitation of lumber camp workers' labor was central to the exploitation of resources.

The design of company towns centered on supervisory control. Living quarters were often built adjacent to the industrial buildings, with the supervisors' homes facing the workers housing, or positioned at a vantage point where the workers could be observed. Lumber camp workers came as immigrants to California from a diversity of nations, initiated into the work force at the lowest rank (Meniketti 2020a). Situated housing reinforced status and rank that adhered to principles of nineteenth century capitalism. Stratification of the workers' housing further enforced racialized and hierarchical lines of skilled and unskilled labor, as well as marital status (Meniketti 2020b; Sportman 2014).

Shackel and Palus (2006) found that paternalism in U.S. industry was widespread throughout the Gilded Age, with pressure on families to function in an efficient and socially acceptable manner within the domestic and public spheres. Paternalistic supervision in company towns enforced careful observation of socialized norms within the home as well as in public places. Baxter (2012) argues that the company town model affected the working-class inhabitants by alienating them from individuals and communities, and geographically isolating people from broad community networks and other employment as a capitalist failsafe. Paternalism within the company towns transformed power relations into a system of mutual obligations that manifested as social roles and moral duties. In many Gilded Age industries, these obligations materialized in racialized stratification of the workforce, fostering inequality by constant comparison to the upper- and middle-classes and galvanizing the workers within a racialized working-class solidarity (Orser 2011; Baxter 2012; Colloredo-Mansfeld 2005).

Victorian ideals and consumptive behavior

The rise of industrialism led to an increase of purchasing power during the late nineteenth and early twentieth centuries as lower-income families worked harder, longer hours to accumulate material wealth. Consumption became key to Victorian identity as purchasing power increased (Baxter 2012). Conspicuous consumption prioritizes spending above saving, and is widely participatory, even as the dispersal of goods are necessarily unequal (Colloredo-Mansfeld 2005). The importance of quality in consumer decision making intensified as mass-produced goods became cheaper and more widely available and the Victorians habitually scrutinized each other's consumer behavior (Baxter 2012).

In summarizing Pierre Bourdieu, Rudi Colloredo-Mansfeld (2005) points out that class-based systems of consumption form in relation to each other. An individual's social position forms through habitual collection and action involving both material and immaterial marks of distinction. Consumption is significant in these differentiations because this distinction can be obtained in part without the necessity of occupation, training, or heredity. Through these partially subconscious discriminations and selections of material and immaterial resources, the consumer produces their social position while consistency in goods fosters social order and conformity to a standardized code.

As middle-class tastes came to dominate the U.S. and European cultures, the ritual of Victorian era dining symbolized membership in civilized society (Walker 2008). As Charlotte Sunseri (2020b) states, interpretations of class relations emphasize polyvocality of material culture in Victorian America in its potential to carry multiple messages and meaning. Middle-class artifacts may be interpreted as proud or defiant statements of equality and solidarity as well as an adherence to Victorian ideals. In their analysis of domestic assemblages excavated from a Gilded Age working-class community, Shackel and Palus (2006) assert that plate size and variety of functional ceramic categories served as a key indicator of wealth and status. Choice of dinnerware signified adherence to or rejection of Victorian domestic ideals. Mass consumption of goods shapes identities and social groups by expressing individual taste and membership within a cohesive group (Colloredo-Mansfeld 2005).

Shackel and Palus (2006) contextualize the use of patent medicine, cosmetics, and creams in the company town through Michel Foucault's concepts of personal discipline, arguing that Victorian era use of hygiene and health products served to control and correct body operations. The presence of these in archaeological assemblages suggest an internalization of Victorian ideals of cleanliness and health. Expenditures function as statements of self, to persuade onlookers of social allegiance (Colloredo-Mansfeld 2005) as evidenced by working-class households that emulated Victorian behaviors through consumption of material goods related to personal health and hygiene (Shackel and Palus 2006).

Sunseri (2020b) argues that Gilded Age company town employee/employer relationships involved constant negotiations of power rather than a simplistic binary. In researching the history of U.S. lumber camps, Conlin (1979) identifies that timbermen were considered an under-class that were feared and loathed by the polite society of the Gilded Age. The timbermen were a largely unskilled group of recent immigrants who were perceived by polite society to as mobile group that moved from camp to camp, partook in vices, and lived in squalor in refutation of the Victorian ideals of accumulation of material wealth, temperance, and self-maintained health. However, the timbermen also insisted on some of the niceties of elite Victorian society. Written into the Wobblies Lumber Workers Union agreements was a demand for "wholesome food in porcelain dishes" (Conlin 1979, 169); meals were eaten in pious silence, and the cooks would serve leftovers to the company bosses rather than feed it to the men.

Homogenization and solidarity in the archaeological record

Sunseri (2020b) illustrates how resistance, agency, and abstract awareness of the shared experience in public and private spheres can be detected in the archeological record through examination of symbolic solidarity through homogenization of consumer goods; and discusses how collective action and solidarity are represented in archaeological investigations. Capitalism values individuals, isolation, segregation, gendered spheres of work and home, and competition over social ties, cultural obligation, and community. Capitalist industry alienates workers from the products of labor, abstracts labor value as wage earning, and fosters insecurity among the low-wage workers. Intersectional relationships in company towns strengthened worker solidarity that motivated collective action to value labor over capital.

Identity flux complicates ideas of assimilation and persistence of cultural traditions. Pluralistic Gilded Age communities negotiated fluid class and ethnic identities through material culture and social interactions (Sunseri 2015). Immigrant groups could employ conspicuous consumption of American goods to gain acceptance through adherence to Victorian cultural tastes. This does not mean that all immigrant groups or individuals repeated this behavior, or that adopting material culture necessarily signified adherence to the dominant cultural beliefs (Shackel and Palus 2006). On the contrary, homogenization of material culture can symbolize how the lower-class negotiate and subvert political dimensions constructed in service of the upper-class (Sunseri 2015). Variant behavior hidden within daily practice undermines dominant social ideals while functioning within them (de Certeau 1984). As Kevin Yelvington (1996) notes, participatory behaviors can undermine authoritative values by providing the participant with a measure of control in non-binary negotiations of power.

Sunseri (2020b) argues that class-based collective action reflects hierarchical struggles against exploitation under capitalism by resisting atomizing forces and sustaining solidarity that values labor over capital. Solidarity and the power of labor is expressed in the domestic sphere through consumption. Archaeological researchers tend to ignore gender-based collective action in the segregation of work and domesticity (Shackel 2009). Households experience pressures of stratification and employer paternalism through domestic ties to the workers and building community solidarity utilizes both spheres of domesticity and employment. Voting, social connections, and forming organizations are negotiations of power and expressions of community solidarity that are expressed in the gendered domestic sphere through consumer choices (Sunseri 2020b).

Food and alimentary dignity

Food articulates social environments of communities of cultures that symbolize both homo and heterogeneity. Archaeological investigation should view foodways as a series of choices, opportunities, and negotiations that are dependent on localized context. In a multiscalar zooarchaeological comparison of rural and urban Chinese communities, Sunseri (2020a) argues that through the sharing of diverse food types and food sources, marginalized groups demonstrate solidarity and flexibility to mitigate impacts of racialization and combat social and economic isolation. Horizontal exchange between racialized groups builds pluralistic solidarity to ease the social and economic isolation experienced under hierarchical, racialized stratification (Sunseri 2015). The mass consumption of goods shapes identities and social groups by expressing individual taste and membership within a cohesive group (Colloredo-Mansfeld 2005).

In a study of what constitutes dignified, culturally appropriate foods to post-Soviet Cuban households Hanna Garth (2019) introduces the concept of alimentary dignity as "a way of giving social meaning to particular forms of consumption as the availability of everyday food shifts with larger scale socioeconomic change" (424). Garth (2019) found that by insisting on certain culturally specific foods served in a particular combination and aesthetic manner, households critique political and economic forces by demonstrating a demand for living standards while subscribing to cultural ideals of health and class. Consumption choices made by racialized groups can be interpreted as a negotiation of access and availability, as well as an identity marker (Sunseri 2020a). For Victorians, dining was the crux of social life and domestic life where identity was produced. The ideal Victorian mealtime was a time-intensive affair, served in multiple courses utilizing small, specialized ceramic vessels and plates (Shackel and Palus 2006). As middle-class tastes came to dominate the U.S. and European cultures, the ritual of Victorian era dining symbolized membership in civilized society (Walker 2008). Alimentary dignity situates the importance of culturally appropriate foods and the right to define food systems as central to the standards for a socially acceptable and respectable life (Garth 2019).

Methods

Faunal Analyses

I received the Loma Prieta faunal assemblage from Dr. Marco Meniketti on December 1st, 2020 and completed analysis on August 13th, 2021. I entered all analyses data using a coding system (Appendix A. Faunal Analysis Codes for Data Entry) into a Microsoft 2010 Access Database that will be stored in digital and print version with the Loma Prieta faunal assemblage at SJSU (Appendix B. Loma Prieta Faunal Data). For best preservation quality, I rinsed and dried all the faunal specimens to remove detritus. On elements where removal efforts would have caused damage to the bone, I left the organic material attached to the surface. Post analysis I bagged all specimens in inert polyethylene plastic bags with corresponding labels listing provenience data and specimen numbers printed in archival ink on acid-free cardstock.

Identification. Following standard zooarchaeological procedure, I sorted the specimens into broad groups of fish, bird, and mammal and then identified each specimen to the lowest taxonomic classification possible. To identify elements, I used a personal comparative skeletal collection and the faunal comparative collection housed at the University of California, Santa Cruz (UCSC). I referred to osteological texts (Boessneck 1969; Cohen and Serjeantson 1996; Gilbert 1993; Gilbert et al. 1996; Howard 1929; Simonds 1854) to determine terminology and verify identifications. When I could not determine the species with certainty I entered "confer" (c.f.) to qualify probable taxonomy.

In addition to taxonomic information, I recorded element data including osteological element, side, portion, size, and epiphyseal fusion (see Appendix A. Faunal Analysis Codes for Data Entry for complete analyses perimeters and coding). I grouped mammal and bird elements according to size (Table 1.1. Fauna Methods. Size Classes and Representative Taxa for Mammals and Birds) and noted epiphyseal fusion for medium and large mammal bone to estimate age at slaughter (Zeder 2006; Zeder et al. 2015). The assemblage did not include any teeth eligible for dental wear or eruption analyses, nor did any of the specimens display sexually diagnostic morphological markers.

Table 1.1. Faunal Methods. Size Classes and Representative Taxa for Mammals and Birds

Size and Class	Example Taxa
Mammals	
Very Small (V)	Shrew (*Sorex* sp.) to vole (*Microtus* sp.)
Small (S)	House mouse (*Mus musculus*) to domestic cat (*Felis domesticus*)
Medium (M)	Raccoon (*Procyon lotor*) to mule deer (*Odocoileus hemionus*)
Large (L)	Elk (*Cervus canadensis*) to cattle (*Bos taurus*)
Birds	
Very Small (V)	Anna's hummingbird (*Calypte anna*)
Small (S)	Dark-eyed junco (*Junco hyemalis*) to pigeon (*Columba livia*)
Medium (M)	Common murre (*Uria aalge*) to chicken (*Gallus gallus*)
Large (L)	Canada goose (*Branta Canadensis*) to condor (*Gymnogyps californicus*)

Animal and environmental modifications. To address questions about site formation and preservation, I recorded animal and environmental modifications observable on the specimens including thermal alteration, presence or absence of carnivore modifications or rodent gnawing, breakage, and weathering stage for large and medium mammal specimens according to Anna Behrensmeyer (1978). Breakage can be evidence of human modifications; green fractures occur when the bone is still fresh and are often evidence of culinary processing or disposal, while dry fractures are often evidence of post-depository taphonomic processes. Fresh fractures denote that the element was broken recently, likely during excavation or archeological processing, and are not considered archaeological (Gifford-Gonzalez 2018; Reitz and Wing 2008). Due to differences in bone composition, small mammal, fish, and bird bone are not eligible for weathering stage or fracture morphology analyses.

Butchery mark identification. Butchery mark identification comprised classification and quantification of saw, chop, cut, and scrape surface modifications as described by Diane Gifford-

Gonzalez (2018). I noted and quantified all observable butchery marks, but only classified marks observed on medium and large mammal specimens. Like the other modification analyses, morphological differences in bird, fish, and small mammal bone preclude butchery mark classification. For butchery marks too abraded to categorize with confidence, I noted and quantified them as indeterminate.

Butcher unit identification. Peter Schulz and Sherri Gust (1983) introduced a standardized American period zooarchaeological analysis methodology with their comparative study of nineteenth century deposits in Sacramento that has been used consistently in studies of archaeologically contemporaneous faunal deposits (Sportman 2014; Sunseri 2020a; Walker 2001). Schulz and Gust (1983) illustrate how differential access to food sources is a factor in the complex investigations of socioeconomic organizations. Schulz and Gust's (1983) examination of butchery units assumes that a faunal deposit linked to a group of low socioeconomic status will be dominated by evidence of low-ranking cuts of meat. However, R. Lee Lyman (1987) points out that those with limited purchasing power would prefer to obtain the meat cut with the maximum yield at the lowest cost to minimize waste. This reasoning identifies an individual purchase of a single serving steak, an example of a high-price, high-yield cut, as a demonstration of purchasing power. Low-cost, high-yield cuts such as roasts would be more economically consumed by a group, and a low-price low-yield cut such as the neck is best suited for soup or stew. For this reason, I also examine specimens assigned to meat cut for evidence of secondary butchery according to Lyman (1987).

For this investigation, I first identified butchery units from large and medium sized meat animals identified to family, genus, or species. I then ranked them in order of retail value according to Schulz and Gust (1983) under the hypotheses that: 1) frequency of consumption of variously priced cuts has a quantifiable, positive relationship with socioeconomic status; and 2) the frequency and variation are detectable archaeologically (45). I also assigned medium mammal specimens to butchery unit according to Lyman (1979) and Howard Swatland (2004) and ranked them according to Michael Diehl et al. (1998) and Thad Van Bueren et al. (1999). I excluded specimens that I could not confidently identify to butchery unit from the ranking but did include them in the total number of identified specimens (NISP).

Butchery unit calculations and quantification. To clarify the relative occurrence of cuts of meat, I calculated approximate meat weights for all butchery units using a method introduced by Charles Reed (1963) and revised by Hans-Peter Uerpmann (1973). These studies estimate that the bone weight constitutes 7% to 7.7% of the weight of the live individual animal. To simplify the data presentation for this analysis, I estimated that the bone contributes 7.35% of total live weight as an average of the differential meat to bone ratios of various elements and taxa. I then subtracted the relative weight of skin, viscera, and connective tissues not commonly consumed from the live weight for a conservative estimate of the consumed meat weight according to Lyman (1979).

This method provides a strategy to estimate dietary contribution of varied meat cuts identified from fragmented archaeofaunas that is superior to other strategies for two reasons. First, using minimum number of individuals (MNI) or minimum number of elements (MNE) to estimate butchery units overestimates the taxon's dietary contribution. MNI includes the entirety of the animal, and MNE represents the entire bony element rather than the butchered portion represented by the specimen. Second, certain skeletal components such as ribs and vertebrae repeat within the skeletal anatomy of the live animal. Because of their relative frequency, those elements are often overrepresented in the archaeofaunal assemblage. Therefore, butchery unit calculations composed of those elements based solely on NISP will likely be over-estimated. For example, a short rib butchery unit may comprise sections including up to seven ribs. If using NISP alone, the presence of seven rib fragments would indicate the presence of seven short rib butchery units rather than a single unit.

However, as discussed by Lyman (1979), this method is not without its problems. NISP weights can be affected by several modification and taphonomic factors including burning, weathering, and mineralization. Plant matter and soil attached to the outer surface or adhered to internal cavities can also affect meat weights. Additionally, the calculated meat weights in ratio to the element do not account for differences in culinary preparation and varied cultural consumption practices. For these reasons, I present all meat weights as estimates to illustrate relative abundance.

Comparative Collection

My selection criteria for comparative specimens from the Loma Prieta faunal assemblage are that the specimen be diagnostic of either 1) modification (thermal alteration, animal modification, butcher mark, or fracture), 2) taphonomic process (weathering), 3) butchery unit, or 4) taxonomic species. Several specimens met more than one criterion and I labeled them as such. I designed and printed standardized labels with provenience data and diagnostic information for each comparative specimen. The list of specimens selected for the comparative collection are included in Appendix C. Loma Prieta Specimens Selected for SJSU Faunal Comparative Collection.

Archaeological survey of the Forest of Nisene Marks State Park, California

To assist the CSP Cultural Resource Department in securing a site trinomial, I conducted field survey and archaeological data collection at the Forest of Nisene Marks State Park, California. Field survey focused on identification of previously undocumented historical period features and artifact deposits associated with the Loma Prieta Company Town workers housing sites. Along with Dr. Marco Meniketti and a small team of volunteers, I completed a transect pedestrian survey at ten meter intervals of an area off of Aptos Creek Road located north of Margaret's Bridge and South of the Loma Prieta Company Mill site (Hester, Shafer, and Feder 1997). During survey, we marked discovery of artifacts and features with a pin flag and recorded the Universal Transverse Mercator projection (UTM) longitudinal and latitudinal location using a GPS unit. Employing a "catch-and-release" strategy promoted by CSP, we photographed, and recorded defining attributes and location of artifacts discovered during survey and left them in place. We took photos of all features and recorded location, datum, shape, size, and components.

Roadmap

This project report consists of three chapters. Chapter 1 has outlined the project history, problem statement, project significance and impact, project deliverables, relevant research, and methods. In Chapter 2, "Wholesome Food in Porcelain Dishes," my journal article submission to California Archeology, I present my zooarchaeological analyses of the faunal component of the Loma Prieta assemblage. In Chapter 3 I discuss the project outcomes as well as the impacts and limitations of my research and present suggestion for future research endeavors.

Chapter 2: "Wholesome Food on Porcelain Dishes"

Abstract

The Loma Prieta Lumber Company camp (1885-1920), located in the Forest of Nisene Marks State Park, California, housed and employed a diverse group of African American, Chinese, Mexican, and European immigrants. Historical accounts depict the lumber workers as a largely unskilled group, perceived by their contemporaries as a mobile underclass that partook in vices and lived in squalor in refutation of Victorian ideals. In adherence to paternalistic principles of nineteenth century industrial capitalism, Loma Prieta Company Town housing was situated to reinforce status and rank and facilitate supervisory control of the workers home and family life as well as public behavior. However, historical records show that the lumber workers employed strategies of resistance against stratified tiers of the company hierarchy to make demands for better food and living conditions. Viewed through the lens of alimentary dignity, established zooarchaeological methodologies used to rank and evaluate butchery units recovered from the Loma Prieta Company employee housing and cook house sites reveal a large percentage of high-ranking cuts of meat that corroborate negotiations of class structure. In coordination with historical artifact analyses, these studies demonstrate how racialized groups express agency and solidarity within institutionalized gendered, racialized, and class-based stratification through consumption practices.

Keywords: Company town, Lumber industry, Alimentary dignity, Zooarchaeology

In partnership with California State Parks (CSP) and San Jose State University (SJSU), I conducted analysis on a historical faunal assemblage collected from the Loma Prieta Lumber Company site located in the CSP Forest of Nisene Marks (Figure 2.1. Location Map: The Forest of Nisene Marks State Park, California). In correlation with artifact analyses and research conducted by SJSU Professor Marco Meniketti and previous SJSU students (Heathcote 2019; Meniketti 2020b), I have examined the faunal evidence to explore how food was used as a negotiation of power, homogenization, and subscription to Victorian ideals by the lumber company employees. To further investigate how food is used in nonbinary negotiations of power, I apply the concept of alimentary dignity, as defined by Hanna Garth (2019) in a study of what constitutes dignified, culturally appropriate foods.

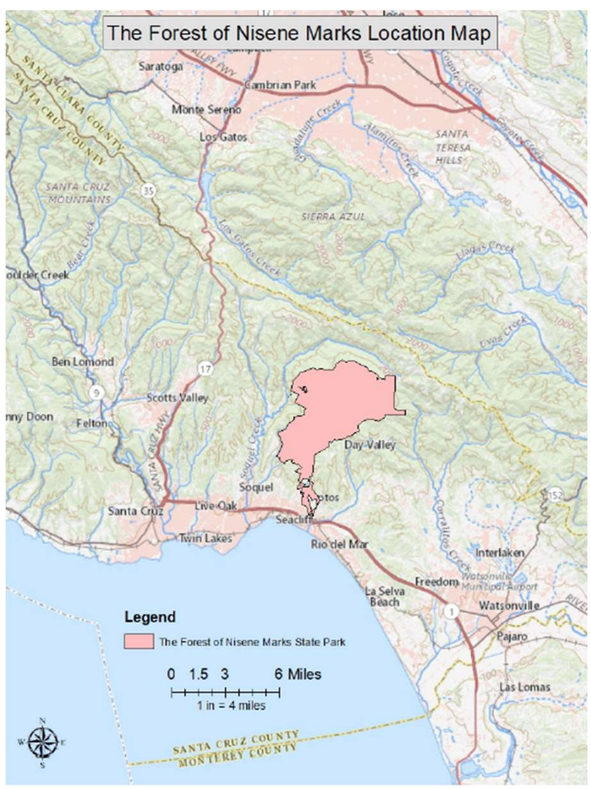

Figure 2.1. Location Map: The Forest of Nisene Marks State Park, California (adapted from Heathcote 2018)

The lumbermen existed at an intersection of race, gender, and class within the paternalistic principles of nineteenth century capitalism. By demanding access to high-quality foods served in an aesthetic manner appropriate to Victorian society, the workers produced identities that both challenged and validated paternalistic practices. By sharing the same foods across lumber camps, workers practiced solidarity through homogenization.

Project Background

Over the course of three field seasons between 2015 and 2017, the SJSU archaeological field school, led by Dr. Marco Meniketti, conducted field survey and excavation within the boundaries of the Loma Prieta Company Mill and housing areas comprising three sites. Site 1 is the lumber mill, site 2 is laborers housing and cookhouse site, and site 3 incorporates additional housing situated along the hillside across the creek from the mill. The survey identified 41 domestic and industrial features associated with the mill, blacksmith shop, boiler house, crib dam, waste furnace, cookhouse, and laborers housing privies. Exploratory units were excavated at 10 cm increments and screened through ¼” mesh.

Meniketti (2020b) recovered evidence of a diverse population and a variety of domestic and personal use artifacts from excavations at site 2 that included alcohol and soda water bottles, pharmaceutical and patent medicine bottles, plain whiteware and decorative dinner ware. A food storage container with Kanji characters is evidence of Chinese or Japanese inhabitants. Records research on the Loma Prieta demography revealed that most men working at the sawmill were of Italian heritage, but the workforce also included a diverse mix of Irish, Mexican, French, and other nationalities. Immigrant Chinese laborers constructed and maintained the railroad connecting Loma Prieta with Los Gatos and the neighboring Aptos and men of African heritage worked as mule team drivers as well as unskilled cutters and limbers. Child sized tea set fragments and a bisque doll head indicate the presence of children, and the discovery of a woman's silk stocking in a feature associated with worker's housing suggests that women were present within the camp. Arianna Heathcote (2019) noted the presence of women in historical records research of the Loma Prieta Company town, and women are observable in several photos depicting Loma Prieta Company town life (Figure 2.2. Women at Loma Prieta).

Figure 2.2. Women at Loma Prieta (courtesy of John Hibble of the Aptos History Museum)

Features associated with the cookhouse and laborers housing produced a total of 238 faunal bone specimens amassing a total of 6,304.4 g that I analyzed for this investigation. In addition to faunal bone, the field school recovered six clam and four snail shell specimens that are not included in my analyses. Meniketti (2020b) interpreted clam shells recovered from the cookhouse site as evidence for Chinese and/or Portuguese immigrant labor supplementing a meat-heavy camp diet with foraged foods. In 1880 there was a Chinese fishing camp located in the adjacent town of Aptos known as “China Beach” that was later occupied by the Portuguese. While the Portuguese fishermen were able to eventually buy land and transition into farm work, the Chinese were excluded from land ownership and most occupations. Discriminatory legislature that culminated in the Chinese Exclusion Act of 1890 and the Geary Act of 1892 pushed the Chinese into increasingly marginalized labor that eventually led them to the dangerous work of railroad construction throughout the Santa Cruz County (Figure 2.3. Chinese Railroad Workers at Loma Prieta).

Figure 2.3. Chinese Railroad Workers at Loma Prieta (courtesy of John Hibble of the Aptos History Museum)

Gilded Age paternalism and racialization in company towns

The Loma Prieta Company town operated from 1885 to 1920 during the American Gilded Age; a period of industrial capitalism, wealth consolidation, and accelerated resource extraction, marked by rising inequality, anti-immigrant sentiment, and corporate influence in politics. American agricultural landscapes underwent a drastic change from food production to industrialism, signaling the beginning of a great divide in wealth for American citizens. Embodiment of Victorian ideals of behavior and refinement reinforced class stratifications along lines of race and wealth (Shackel and Palus 2006). Company towns were situated to allow for supervisory control, as well as reinforcement of status and rank that adhered to paternalistic principles of nineteenth century capitalism. Guided by Victorian ideals and a fear of the lower-class in urban areas, industrialists sought to refine the social standard of the working-class by enculturation, monitoring worker behavior, and restricting access to vices (Baxter 2012).

Rather than situating skin color as the sole determination of racialization, Charles Orser (2011) identified racialization as based on a conjunction of class and race where the disparities between wealth and antiimmigrant sentiment are overtly expressed. During the Gilded Age, immigrant groups were placed in positions of social inferiority based on the order of arrival and perceived collective attributes. Racialized groups of European heritage were able to move up hierarchically as new immigrant groups arrived to take their place while African Americans and Chinese immigrants were socially demobilized. Social classifications based on us/them, white/nonwhite binaries readily identified characteristics used to stratify or construct groups out of men and women viewed as socially unequal and biologically inferior. Paul Shackel (2009) argues that corporate paternalism reproduced racial inequalities as African Americans and Chinese immigrants were excluded from employment with the understanding that the white labor force remain compliant. The white, working-class identity formed in adversarial contrast to the nonwhite other (Sunseri 2020b).

Racialized and class-based stratification is evident in the layout of the company town in adherence to nineteenth century paternalistic capitalist ideals. However, archeological and documentary evidence suggest that the Loma Prieta Company bosses were lenient in the enforcement of traditionally paternalistic rules of conduct and behavior. Heathcote (2019) argued that workers housing built scattered into the hills in Loma Prieta were visually obscured from the company and signify a rejection of paternalistic supervisory efforts. Alcohol consumption was officially prohibited within the camp, but the company owners permitted a tavern in the adjacent company town (Figure 2.4. Loma Prieta Tavern). Archaeological evidence including wine and beer bottles in camp deposits demonstrate that alcohol was either consumed in private in defiance of rules governing temperance, or possibly enjoyed with the tacit permission of company bosses (Meniketti 2020b).

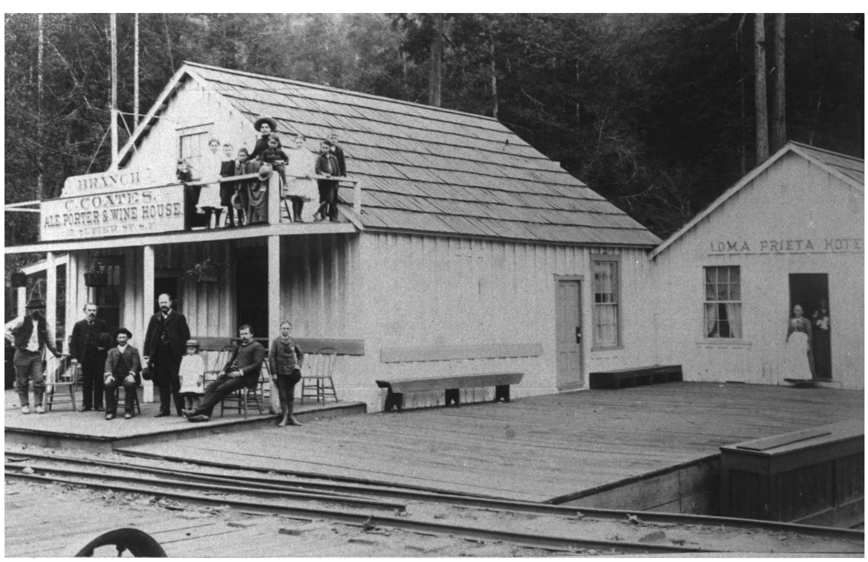

Figure 2.4. Loma Prieta Tavern (courtesy of John Hibble of the Aptos History Museum)

Historical documentation suggests that the workers' housing was stratified along ethnic and hierarchical lines of skilled and unskilled labor, with separate housing for bachelors and married couples (Meniketti 2020b). Married men were preferred by the employers, since they were viewed as less likely to strike. Paternalism within the company towns transformed power relations into a system of mutual obligations that manifested as social roles and moral duties. In many Gilded Age industries, these obligations materialized in racialized stratification of the workforce, fostering inequality by constant comparison to the upper- and middle-classes and galvanizing the workers within a racialized working-class solidarity (Baxter 2012; Colloredo-Mansfeld 2005; Orser 2011).

Jane Eva Baxter (2012) argues that working-class identity emerged in the nineteenth century as a subculture in response to alienation and subjugation under capitalism as lower-class workers believed that their work ethic and immigrant traditions fueled American success. As discussed by Charlotte Sunseri (2015), class-based collective action through labor organizations struggled against alienation to resist the atomizing forces of capitalism and sustain solidarity. However, racialized stratification persisted through lower- and working-class hierarchies as white labor forces organized to exclude African American, Japanese and Chinese immigrants, and Native Americans. Paul Shackel and Matthew Palus (2006) contend that employers used these excluded groups as a check on labor forces. Undercut wages paid to immigrant workers fueled virulent anti-immigrant sentiment that congealed in the Chinese Exclusion and anti-miscegenation laws of the 1800s and racially exclusive privileges of the American Federation of Labor (AFL) union solidarity. The Industrial Workers of the World (IWW) formed in 1905 as an alternative to the exclusively white, skilled worker AFL. Commonly known as the "Wobblies," the IWW differed from craft unions in that it opened its membership to all workers, regardless of skills, race, or gender. Their members comprised 43 industrial worker and craft groups, including the Lumber Workers Union.

Alimentary dignity in lumber camp life

The timbermen were a largely unskilled set of recent immigrants that were widely perceived by the urban elite to be a mobile group that moved from camp to camp, partook in vices, and lived in squalor in refutation of the Victorian ideals of accumulation of material wealth, temperance, and self-maintained health (Conlin 1979). However, historical documents and archaeological evidence depict another facet of lumber camp life. Patent medicine and soda water bottles recovered at the Loma Prieta townsite signify Victorian consumer behaviors based in ideas about health and wellness (Meniketti 2020c). In union agreements the lumber workers demanded "wholesome food in porcelain dishes" (Conlin 1979, 169). Meals were eaten in pious silence. As viewed through the lens of alimentary dignity, food and consumption practices are situated as central to the lumber worker identity. The demand that the food was not only wholesome, but also served in a manner that indicated class status was an assertation of power nested within the class-based power structure of elite Victorian society and ideas about health and wellness.

As demonstrated in the study of culturally appropriate foods to post-Soviet Cuban households, Garth (2019) presents alimentary dignity as an aspirational ideal of a categorically complete meal particular to individual cultural perimeters. For Victorians, dining was the crux of social life and domestic life where identity was produced. The ideal Victorian mealtime was a time-intensive affair, served in multiple courses utilizing small, specialized ceramic vessels and plates (Shackel and Palus 2006). As Rudi Colloredo-Mansfeld (2005) points out, consistency in goods can serve to foster social order and conformity to a standardized code. As middle-class tastes came to dominate the U.S. and European cultures, the ritual of Victorian era dining symbolized membership in civilized society (Walker 2008). The mass consumption of goods shapes identities and social groups by expressing individual taste and membership within a cohesive group (Colloredo-Mansfeld 2005).

For the Loma Prieta lumbermen living under the stratifying pressures of Victorian culture, dining served to indoctrinate workers into U.S. social norms of behavior that included a formation of identity through consumption. Shackel and Paulus (2006) discuss the use of patent medicine, cosmetics, and creams in the company towns in context of Michel Foucault's concepts of personal discipline that were apparent in the Victorian era use of hygiene and health products to control and correct body operations. The presence of these in archaeological assemblages suggest an internalization of Victorian ideals of cleanliness and health that is reproduced through the social practice of dining.

Alimentary dignity frames proper food as more than an assemblage of calories and nutrients. Quality food and proper dining etiquette serve as a social markers while homogenization of diet symbolizes group allegiance (Garth 2019; Orser 2011; Shackel and Palus 2006). Solidarity and the power of labor is expressed in the domestic sphere through consumption (Sunseri 2020a). Insistence on alimentary dignity through high quality food served on consciously selected appropriate dinnerware can be interpreted as a demand for access to the signifiers of social status. By insisting on certain culturally specific foods served in a particular combination and aesthetic manner, households critique political and economic forces through demonstrating a demand for living standards that subscribes to cultural ideals of health and class. By demonstrating an understanding of proper Victorian mealtimes and producing homogeneity through consumption, the lumber workers established solidarity and claimed membership in Victorian society.

Camp food

The list of foods that were available at any given time in any camp from Michigan to the California coast rivaled the finest hotels of the period (Conlin 1979). Salt pork and other preserved foods such as pickled beef, dried fruits, and grains comprised a large portion of the diet. However, the camp cookhouses needed steady supplies of all manners of fresh foods to appease hungry and discerning lumber workers. In an interview conducted by the Regional History Project, former Loma Prieta lumber mill worker Michael Bergazzi described elements of lumber camp life in the Santa Cruz mountains during the early 1900s and related an average dinner at the camps. “Well, we generally had meat. Sometimes we had steak or stew, and they had potatoes and bread and butter. They always had dessert – pudding or pie, or something like that” (Calciano 1964). Lumbermen would consume an estimated 5,000 to 9,000 calories per day (Conlin 1979), so having a ready supply of cakes, pies, doughnuts, and other high calorie foods was a necessity. But no food was more important than meat. The Loma Prieta Company town kept a farm and dairy to supply fresh meat and dairy products to feed the men.

Cooking for that many hungry men was intensely hard work. Kitchen workers woke up before the lumber workers and went to bed well after the lumber men had retired for the night. If the lumber workers did not care for the food, they would make their grievances known in any number of manners. According to Edwin Van Syckle (1980) hard biscuits, burned beef, or soggy potatoes would be tossed out the window without bothering to lift the shade. In one account of a Wisconsin lumber camp the men poured kerosene into the liver barrels and then assaulted the cook after being fed what they had decided was “too much liver” (Rosholt 1980, 99).

Low pay and hard work accelerated a heavy turnover in camp kitchens, and women and minorities were commonly hired to fill vacancies. Negotiations of race and gender across lumber camps were nuanced and solidarity did not necessarily align with race-based stratification. Conlin (1979) recounted when the lumber workers at a Washington camp went on strike to remove the Chinese kitchen staff and hire a white cook. However, when the white replacement kitchen staff could not produce pies in acceptable quantity, the lumber workers demanded that the camp rehire the Chinese cook.

A bad cook was dubbed "gut-robber," and entire crews would sometimes pull up and leave camp if their cook was accused of gut-robbing. Some cook names became infamous among the camps, and lumber workers moving from camp to camp, were likely to ask who the cook was before they would agree to employment (Conlin 1979; Van Syckle 1980). When the workers did strike, it was more often over food, length of mealtimes, and living conditions than pay disputes (Calciano 1964; Meniketti 2020b).

Methods

Identification

Following standard zooarchaeological procedure, I sorted the vertebrate elements into broad groups of fish, bird, and mammal and then identified each specimen to the lowest taxonomic classification possible. I grouped mammal and bird elements according to size. To identify elements, I used a personal comparative skeletal collection and the faunal comparative collection housed at UCSC. I referred to osteological texts (Boessneck 1969; Cohen and Serjeantson 1996; Gilbert 1993; Gilbert, Martin, and Savage 1996; Simonds 1854) to determine terminology and verify identifications. In addition to taxonomic information, I recorded specimen data including osteological element, side, portion, and length measured in millimeters.

Animal and environmental modifications

To address questions about site formation and preservation, I recorded animal and environmental modifications observable on the specimens including thermal alteration, presence or absence of carnivore modifications or rodent gnawing, breakage, and weathering stage for large and medium mammal specimens according to Anna Behrensmeyer (1978). Breakage can be evidence of human modifications or taphonomic processes. Green fractures can be interpreted as evidence of culinary processing or disposal, while dry fractures are likely evidence of post-depository taphonomic processes. However, fresh fractures denote that the element was broken recently, probably during excavation or archeological processing, and are not considered archaeological (Gifford-Gonzalez 2018; Reitz and Wing 2008). Due to variations in bone composition, small mammal, fish, and bird bone are not eligible for weathering stage or fracture morphology analyses (Gifford-Gonzalez 2018).

Butchery mark identification

Butchery mark identification comprised classification and quantification of saw, chop, cut, and scrape surface modifications as described by Diane Gifford-Gonzalez (2018). I noted and quantified observable butchery marks on all specimens, but only classified marks observed on medium and large mammal specimens. Like the other modification analyses, morphological differences in bird, fish, and small mammal bone precluded butchery mark classification. For butchery marks too abraded to categorize with confidence, I noted and quantified them as indeterminate.

To understand how butchery units in the assemblage were subdivided during culinary processing, I examined specimens assigned to meat cut for evidence of primary, secondary, and tertiary butchery according to R. Lee Lyman (1987). Primary butchery, usually consisting of chop or saw marks, sever the bone into primary butchery units. Secondary butchery subdivides the primary butchery unit for culinary processing or serving by severing the bony element into a smaller segment, or by cutting meat from the intact bone for serving. Tertiary butchery consists of breaking or splitting the bone, likely for marrow extraction or stew, although disposal practices may also cause breakage (Gifford-Gonzalez 2018).

Butchery unit identification

Peter Schulz and Sherri Gust's (1983) examination of butchery units assumes that a faunal deposit linked to a group of low socioeconomic status would be dominated by evidence of low-ranking cuts of meat. However, Lyman (1987) points out that those with limited purchasing power would prefer to obtain the meat cut with the maximum yield at the lowest cost to minimize waste. This reasoning characterizes an individual purchase of a single serving steak, an example of a high-price, high-yield cut, as a demonstration of purchasing power. Low-cost, high-yield cuts such as roasts would be more economically consumed by a group, and a low-price low-yield cut such as the neck is best suited for soup or stew.

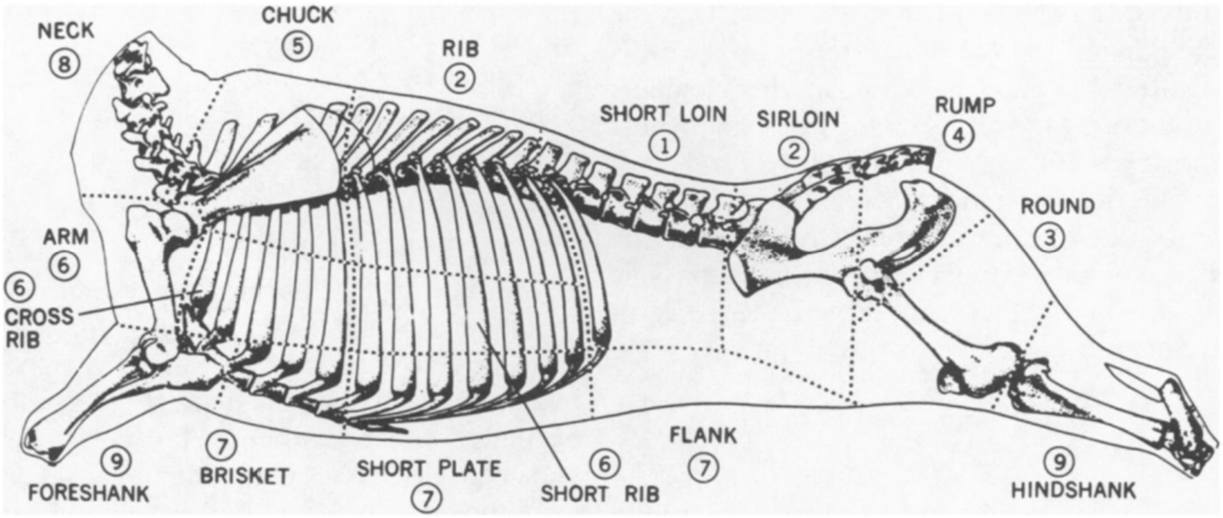

Figure 2.5. Butchery Units. Major Beef Cuts and Ranking (Schulz and Gust 1983)

According to established zooarchaeological methods, I identified butchery units from large and medium-sized meat animals identified to family, genus, or species. I used Schulz and Gust's (1983) retail beef cut ranking system (Figure 2.5. Butchery Units. Major Beef Cuts and Ranking) to categorically arrange beef butchery units in order of retail value under the hypotheses that: 1) frequency of consumption of variously priced cuts has a quantifiable, positive relationship with socioeconomic status; and 2) the frequency and variation are detectable archaeologically (45). I also assigned pig and sheep/goat specimens to butchery unit according to Howard Swatland (2004) and Lyman (1979) and ranked them according to Michael Diehl et al. (1998) and Thad Van Bueren et al. (1999). Specimens that I could not confidently identify to butchery unit were excluded from the ranking. Bird, fish, and small mammal specimens are not eligible for butchery unit analyses, and I did not include them in the ranking.

Butchery unit calculations and quantification

To clarify the relative occurrence of cuts of meat, I calculated approximate meat weights for all butchery units using a method introduced by Charles Reed (1963) and revised by Hans-Peter Uerpmann (1973). These studies estimate that the bone weight constitutes 7% to 7.7% of the live weight of the animal. To uncomplicate the data presentation for this analysis, I selected 7.35% as an average of meat to bone ratios of the various elements and taxa. I then subtracted the relative weight of skin, viscera, and connective tissues not commonly consumed from the live weight for a conservative estimate of the consumed meat weight according to Lyman (1979, 543).

This method provides a strategy to estimate dietary contribution of differential meat cuts identified from fragmented archaeofaunas that is superior to other strategies for a few reasons. First, utilizing quantification strategies of minimum number of individuals (MNI) or minimum number of elements (MNE) to estimate butchery units overestimate dietary contribution. MNI comprises the entirety of the animal, and MNE consists of the full weight of the element rather than the butchered portion represented by the specimen. Second, skeletal components such as ribs and vertebrae repeat within the skeletal anatomy of the live animal. Because of their relative frequency, those elements are often overrepresented in archaeofaunal assemblages. Therefore, meat cut quantifications based solely on number of identified specimens (NISP) will likely overestimate dietary contribution of those elements. For example, a short rib butchery unit may include portions of up to seven ribs. If using NISP alone, the presence of seven rib fragments indicates seven short rib butchery units rather than a single butchery unit.

However, as discussed by Lyman (1979), this method is not without its problems. Specimen weights can be affected by several modification and taphonomic factors. Burning, weathering, and mineralization affect bone composition while plant matter and soil attached to the outer surface or adhered to internal cavities add to specimen weights and skew calculations of relative meat weight. Additionally, the calculated meat weights in ratio to the element do not account for differences in culinary preparation and varied cultural consumption practices. For these reasons, I present all meat weights as estimates to illustrate relative abundance.

Results

Overall faunal assemblage

The faunal assemblage is composed almost entirely of specimens collected from features associated with the workers housing and cookhouse (Table 2.1. Taxon Distribution by Site). Site 2 includes excavation of test unit 7 associated with the cookhouse that produced most of the assemblage's faunal specimens and all the faunal diversity, as discussed in the following section. Faunal specimens from site 3, associated with scattered workers housing and deposits along the creek, were not collected in a systematic manner and are all identified as cattle. A single beef hindshank fragment collected from the mill site 1 is likely a discarded remnant from a worker's lunch.

Table 2.1. Overall Assemblage. Taxon Distribution by Site

	Taxon	Common Name	Site 1 NISP	Site 2 NISP	Site 3 NISP	***Total NISP***	***% Total NISP***
Identified to Family or Species	Artiodactyla	Even-toed ungulate	-	1	-	*1*	*0.4%*
	Caprinae/*Ovis aries*	Sheep/goat	-	14	-	*14*	*5.9%*
	Bos taurus	Cattle	1	56	41	*98*	*41.0%*
	Sus scrofa	Pig	-	10	-	*10*	*4.2%*
	Gallus gallus	Chicken	-	12	-	*12*	*5.0%*
	Anatidae	Duck	-	1	-	*1*	*0.4%*
		Subtotal	*1*	*94*	*41*	*136*	*56.9%*
Identified to Class	Mammalia large	Large-sized mammal	-	22	-	*22*	*9.2%*
	Mammalia medium	Medium-sized mammal	-	34	-	*34*	*14.2%*
	Mammalia small	Small-sized mammal	-	1	-	*1*	*0.4%*
	Mammalia indeterminate	Indeterminate-sized mammal	-	35	-	*35*	*14.6%*
	Aves medium	Bird	-	9	-	*9*	*3.8%*
	Actinopterygii	Bony fish	-	2	-	*2*	*0.8%*
		Total	*1*	*197*	*41*	*239*	*100.0%*

While 79.9% of the elements eligible for analysis of weathering stage show some evidence of weathering, only a 10.0% display signs of advanced weathering including deep cracks and flaking. The assemblage was well preserved, and I was able to identify over half of the specimens to taxonomic family or species. Heavy rodent modifications are present on a few elements (N=6), most notably on those elements collected from the side of the creek. Rodent gnawing can be evidence of deteriorating conditions in industrial and domestic settings (Shackel 2009). However, these elements are surface collections that have been damaged over time by the creek water. The rodent gnawing may have occurred well after the camp had long ago been dismantled.

Much of the assemblage are surface collections and are biased toward large mammal, specifically cattle. Elements collected from the creek bed are heavily abraded, and it is very likely that any bird, fish, or small mammal bone originally in the deposit would have long ago been displaced by the elements. Additionally, the ¼" screen size used to process excavated matrices precludes the possibility of recovering many fish species due to their diminutive size and lack of robusticity. Only one fish bone was recovered, but it is likely that fish and seafood played at least some part in camp diet according to recorded accounts of camp life. Meniketti (2020b) noted the inclusion of clam shells, and the identification of a sardine can among the artifacts recovered at Loma Prieta, and records of camp diet often include fresh fish (Conlin 1979).

Except for a single duck element, nearly all the specimens identified to species or family are domesticates. Hunting in the camps was rare because most lumber workers did not have rifles, however, game meat was not unheard of. There are reports of venison served at some camps and accounts of foremen encouraging the men to hunt on their downtime (Rosholt 1980). In an interview regarding lumber camp life, Michael Bergazzi spoke of hunting in the Santa Cruz mountains as a popular past time for small game such as quail, rabbit, wild pigeons, and squirrels (Calciano 1964). It is possible that the duck was either killed for consumption by one of the workers or purchased as game meat (Simons 1982).

A little over half of the mammal specimens (54.4%) have visible evidence of butchery (Table 2.2. Mammalia Fragmentation and Butchery Marks). Bandsaw cut marks with clear, parallel striations are the most abundant evidence of primary butchery with 21.4% of the mammal displaying saw cut marks. Evidence of additional modifications that likely occurred during meal preparation or serving are also evident as chop, cut, and scrape marks. A smaller percentage of the bird specimens (18.2%) display clear evidence of butchery, including the single duck element. The relatively reduced number of butchered bird specimens is not surprising since most chicken and game bird elements are prepared with the bone relatively intact. Most of the faunal assemblage is fractured; 95.5% of the bird and 89.8% of the mammal specimens have some degree of breakage. Of the mammalian bone fractures, nearly one third are green fractures, meaning that the bone was broken while fresh, likely as part of culinary processing for marrow extraction and bone broth.

Table 2.2. Mammalia Fragmentation and Butchery Marks

	Fracture Type	**Site 2 Unit 7 NISP**	**% Site 2 Unit 7 NISP**	**Overall NISP**	**% Overall NISP**
	Fresh	79	51.6%	86	40.0%
	Green	51	33.3%	60	27.9%
	Dry	90	58.8%	131	60.9%
	Indeterminate	6	3.9%	38	17.7%
Total Mammalia Fractured		*142*	*92.8%*	*193*	*89.8%*
	Butchery Mark				
	Saw	45	29.4%	46	21.4%
	Chop	13	8.5%	8	3.7%
	Cut	26	17.0%	20	9.3%
	Scrape	1	0.7%	2	0.9%
	Indeterminate	60	39.2%	43	20.0%
Total Mammalia Butchered		*78*	*51.0%*	*117*	*54.4%*
Total Mammalia		*153*	*100.0%*	*215*	*100.0%*

Site 2, unit 7 assemblage

Of the entire assemblage, unit 7 was the only systematically excavated unit that produced a quantity of faunal bone. In addition to generating the greatest quantity of faunal specimens, unit 7 also produced all the faunal diversity including 100.0% of the sheep/goat, fish, and bird bone, 90.0% of the pig bone, and 38.8% of the cattle bone (Table 2.1. Overall Taxon Distribution by Site). Of unit 7, 12.5% consists of bird bone. All bird bone recovered is medium-sized, 59.2% of which is identifiable to species or family. Although most of the identifiable bird bone is chicken, the positive identification of a butchered duck tibiotarsus precludes any assumptions about the bird bone identifiable only to class. Prior to the spread of modern poultry production, chicken was prohibitively expensive. In California between 1850 and 1880 the price of chicken was more than double the price of wild fowl, resulting in a high proportion of duck and geese in contemporaneous deposits (Simons 1982). However, after 1880, the spread of modern poultry production led to an increased supply and reduction in price of chicken. Meanwhile, wetland reclamation and overhunting reduced availability of wild fowl and their prices increased (McGowen 1961).

Analysis of unit 7 revealed a relatively large percentage of high-ranking butchery units that corroborate accounts of negotiations of class structure (Table 2.3. Site 2 Unit 7 Cookhouse: Butchery Units Ranked by Price). In their analysis of four faunal assemblages from nineteenth century Sacramento sites comprising the City Jail, an Irish immigrant owned working-class saloon, a German immigrant owned upper-class saloon, and an affluent hotel, Schulz and Gust (1983) found that the relative percentage of high-ranking butchery units aligned with the socioeconomic status of the facility. Of the meat cuts identified from the four faunal deposits, 65.3% of those from the hotel, 44.2% from the upper-class saloon, 34.0% from the working-class saloon, and 24.5% from the City Jail were high-ranking butchery units (49). Of the Loma Prieta Lumber Company camp assemblage, over half of the consumable meat weight in unit 7 (55.7%) is composed of high-ranking butchery units, placing the cookhouse offerings squarely between those of the upper-class hotel and German immigrant owed saloon of Old Sacramento.

Table 2.3. Site 2 Unit 7 Cookhouse: Butchery Units Ranked by Price (estimated meat weight in grams)

	Butchery Unit	Cattle (g)	Sheep/ Goat (g)	Pig (g)	Total (g)	% Total
Higher Priced Cuts	Loin			11.0	*11.0*	*0.2%*
	Loin/sirloin		38.4		*38.4*	*0.7%*
	Sirloin	546.0	68.3		*614.3*	*12.0%*
	Rib	372.3	133.7		*506.0*	*9.9%*
	Round	1593.6			*1593.6*	*31.1%*
	Rump	95.5			*95.5*	*1.9%*
	Subtotal	*2607.4*	*240.4*	*11.0*	*2858.8*	*55.7%*
Lower Priced Cuts	Chuck	357.7			*357.7*	*7.0%*
	Cross rib/short rib	489.6			*489.6*	*9.5%*
	Short plate	164.8			*164.8*	*3.2%*
	Breast		3.2		*3.2*	*0.1%*
	Brisket	74.0			*74.0*	*1.4%*
	Neck	142.2			*142.2*	*2.8%*
	Hindshank	51.4	291.7		*343.1*	*6.7%*
	Foreshank	60.6	12.4		*73.0*	*1.4%*
	Shoulder			64.6	*64.6*	*1.3%*
	Picnic shoulder			538.4	*538.4*	*10.5%*
	Foot			9.2	*9.2*	*0.2%*
	Belly			9.5	*9.5*	*0.2%*
	Subtotal	*1340.3*	*307.3*	*621.7*	*2269.2*	*44.3%*
	Total	*3947.7*	*547.7*	*632.7*	*5128.0*	*100.0%*

Of the butchered specimens from unit 7, 37.2% have evidence of secondary or tertiary culinary processing or marrow extraction, such as cut or scrape marks or green fractures (Table 2.2. Mammalia Fragmentation and Butchery Marks). The average specimen length is 38.5 mm indicating heavy subdivision of butchery units for individual serving and tertiary processing for marrow extraction and stew. The most intact specimen in unit 7 was a pig humerus, identified as a picnic shoulder cut, that measured 148.2 mm (Figure 2.6. Site 2 Unit 7. Picnic Shoulder). The element displays multiple parallel marks cut marks diagonally along the shaft; evidence of a secondary spiral cut culinary preparation.

Figure 2.6. Picnic Shoulder (photo by author)

Discussion

The Loma Prieta cookhouse supplied a diverse selection of beef, pork, mutton, and fowl to feed the lumber company employees. Beef round butchery units compose the largest percentage, making up nearly one third of the total estimated meat weights, followed by beef sirloin and pork picnic shoulder making up the next largest percentages (Table 2.3. Site 2 Unit 7 Cookhouse: Butchery Units Ranked by Price). Although both round and sirloin are relatively high-ranking butchery units, Lyman (1987) notes that cost-effective meat cut selections maximize yield to minimize waste. Both beef round and sirloin are high yield butchery units that can be prepared as individually portioned steaks, or more economically as a roast to serve a group, as shown in Figure 2.6. Picnic Shoulder. The analysis found evidence of preparations of both individually portioned steaks and larger roasts that would need to be sliced prior to serving, suggesting that the camp kitchen employed flexible cooking practices in preparation and distribution of meat cuts.

Sunseri (2020a) argues that meat cut selection is affected by availability and desired culinary preparation as well as price. The nearby dairy and farm located in the Loma Prieta company town may have provided relatively easy access to whole animal carcasses. If proximity to the farm meant that cattle, pigs, and sheep were portioned onsite rather than obtained by butchery unit, this concession would have allowed the company town to feed their workers higher ranking butchery units at a lower cost than procuring from an outside food distributor. It is unclear if the cookhouse was responsible for primary butchery of the carcass, or if the individual butchery units were sectioned prior to their arrival at the cookhouse. However, the mix of butchery marks, as shown in Table 2.2. Mammalia Fragmentation and Butchery Marks, are likely evidence a combination of primary professional butchery, as evidenced by bandsaw marks, and secondary portioning at the camp cookhouse with more standard kitchen tools. Primary butchery requires an electric bandsaw, as well as physical space for storage, processing, and disposal.

Regardless of whether the camp cookhouse obtained whole carcasses for portioning on-site or procured individual butchery units based on lumber worker preference, the company camp made strategic choices in location and preparation to provide a diverse selection of high-quality meat cuts to the workers. By providing an assortment of meat animals as well as selected butchery units, the company cookhouse supplied variety as well as quality for the men.

Individual portioning prior to serving prioritizes efficient mealtimes over kitchen labor. The relatively small average specimen size and high occurrence of secondary butchery indicates heavy subdivision of butchery units for individual serving and tertiary processing for marrow extraction and stew. The camp cookhouse maximized yield through tertiary processing of meat bones that provide supplementary value as soup and stew.

The company town employee/employer relationships involved constant negotiations of power rather than a simplistic binary (Sunseri 2020b). The timbermen insisted on large quantities of high-quality food on porcelain dishes in what was more than a biological need, it was also a negotiation of power in adherence to Victorian ideals. The inclusion of ceramic dinnerware in the assemblage corroborates the Wobblies demand for porcelain dishes. In this case, the porcelain was utilitarian ironstone, but other contemporaneous industrial camps served food on enameled tin plates (Meniketti 2020b). Garth (2019) argued that alimentary dignity and what constitutes a culturally appropriate meal can be used to critique shifting political relationships and socioeconomic change. By centering food and mealtime as central to power negotiations, the lumber men expressed critiques of camp labor practices. Reports of labor disputes at the camp focused on living conditions and mealtimes. At Loma Prieta, the lumbermen went on strike for an increase in pay as well as extended mealtime. They returned to work with a longer lunch hour, but without the pay increase (Calciano 1964).

Alimentary dignity situates both food and dining as more than consumption for survival, but as a production site for aspirational cultural ideals (Garth 2019). For Victorians, the act of dining reified social roles of gender and class that were produced through the performance of public consumption. The standardized rule of silent, orderly mealtimes at lumber camps served a utilitarian role to promote efficiency and discourage quarrels, but also reinforced Victorian rules of etiquette. Conversely, by throwing food out the window or confronting the cooks, the lumbermen defied decorum to public critique the food that ultimately symbolized their participation in Victorian society.

Women are conventionally excluded from narratives concerning the lumber industry, but both Heathcote (2019) and Meniketti (2020b) found strong evidence for women's contribution in work camp life. Photos of Loma Prieta often feature women, and the presence of gendered artifacts in the archaeological assemblage demonstrate that women participated in camp life. Although there are no surviving records of women working in the Loma Prieta camp cookhouse, narratives of other camps affirm that women often served as camp cooks (Conlin 1979; Rosholt 1980). The multi-gendered population reframes the camp as both a domestic and public sphere. Camp bosses preferred married men who were less likely to strike, and the domestic sphere served as a space for indoctrination into Victorian ideals through consumption and paternalistic supervision. In this way, the inclusion of women and production of the domestic sphere served as a negotiation of power to socialize a male, immigrant workforce.

Meniketti (2020b) interpreted clamshells in the faunal assemblage as evidence of Chinese and/or Portuguese camp employees. The paternalistic supervision of immigrant and unskilled labor in company towns included a supervised diet. Inclusion of non-standard camp food can be interpreted as dietary negotiations of power. Pluralistic Gilded Age communities negotiated fluid class and ethnic identities through material culture and social interactions (Sunseri 2015). By allowing immigrant workers to exploit natural resources and collect seafood as in traditional foodways, company bosses eased transition to American diet and Victorian behaviors (Meniketti 2020b). By supplementing their diet with gathered food sources, the workers produced alimentary dignity by assembling their own, non-Victorian version of a culturally appropriate and dignified meal.

Participatory behaviors can undermine authoritative values by providing the participant with a measure of control in non-binary negotiations of power (Sunseri 2020b). Emphasizing alimentary dignity through union agreements and interpersonal negotiations, the lumbermen demanded cuisine that not only provided adequate nourishment but was perceived as categorically complete and served as an aesthetically plated meal (Garth 2019). The workforce was a diverse mix of ethnicities and recent immigrants, but cookhouse offerings were relatively homogenous across camps. By eating the same food, the timbermen negotiated fluid class and ethnic identities to reinforce solidarity (Sunseri 2015). Through the sharing of diverse food types and food sources, marginalized groups demonstrate solidarity and flexibility to mitigate impacts of racialization and combat social and economic isolation (Sunseri 2020b). The consistency of food provided in lumber camps across the U.S. further homogenized the diverse workforce, indoctrinating the population of recent immigrants into a standardized labor force that reproduced and embodied Victorian ideals of behavior and consumption.

Conclusion

Expressed through union solidarity and non-binary negotiations of power, the lumber workers employed strategies of resistance against stratified tiers of the company hierarchy to make demands for better food and living conditions. Alimentary dignity situates the importance of healthy, culturally appropriate foods and the right to define food systems as central to the standards for a dignified and decent life (Garth 2019). By demanding high-ranking foods served in a manner appropriate to Victorian dining, the lumber company town employees asserted a demand for living standards while subscribing to cultural ideals of health and class. The lumber company was likely able to offset high food costs by utilizing products from the onsite farm and dairy, and concentration of kitchen labor. Through discriminations and selections of material and immaterial resources, the company town inhabitants participated in non-binary negotiations of power that produced and reinforced class-based social positions and values.

Chapter 3: Conclusion

In this chapter, I first summarize the outcomes and key findings of my zooarchaeological investigation of the Loma Prieta Company camp faunal deposits. I then present a review of my archaeological survey of the Loma Prieta area. Finally, I discuss the challenges and limitations of my investigation, and provide suggestions for future research.

Summary of Findings

Zooarchaeological analyses reveal two factors that are key in my interpretation of the Loma Prieta faunal assemblage recovered from the cookhouse unit 7: 1) high-ranking cuts of meat make up more than half (55.7% unit 7 NISP) of the faunal specimens, and 2) heavy processing for individual serving and marrow extraction is visible on much of the assemblage (37.2% unit 7 NISP). Compared to contemporaneous deposits discussed by Schulz and Gust (1983), the Loma Prieta camp cookhouse produced high-ranking butchery units at a rate between that of an upper-class saloon and an exclusive hotel. This corroborates historical accounts and documentation that although the lumbermen were a low-class group of recent immigrants, they were able to negotiate compensation for their labor that included a diet that rivaled the finest hotels of the period.

As viewed through the lenses of historical context and alimentary dignity, the timbermen negotiated the racialized hierarchy of company town paternalism through a complex set of interactions that centered on consumption and a strong cultural connection to food. The concept of alimentary dignity situates culturally appropriate food served in an aesthetic manner as central to a dignified and decent life (Garth 2019). By demanding in union agreements that food not only be “wholesome” but also plated in a manner culturally appropriate to Victorian society, the timbermen participated in non-binary negotiations of power that both subverted and subscribed to Victorian ideals of health and class. By centering mealtimes in labor disputes, the lumber company employees used food to critique labor practices and the effects of racialized hierarchy. The relatively homogenous provisions in lumber camps across the U.S. emphasized solidarity among the various ethnic identities represented in camp life.

The Loma Prieta Lumber Company bosses participated in negotiations with employees while asserting a level of control. The employers balanced demands for quality provisions with cost saving measures. Access to the nearby farm likely reduced costs of high-ranking butchery units, as did the emphasis on kitchen labor to heavily process meat cuts for efficient mealtimes. The additional value of meat bones for soup and stews stretched valuable resources to provide wholesome, culturally appropriate, high-calorie meals for the workers. The clam shells discussed by Meniketti (2020b) are evidence that there were allocations in the assimilation process that allowed recent immigrants and minorities to maintain elements of native foodways while integrating Victorian ideals. The inclusion of women in the camp served to neutralize the male workforce by incorporating the domestic sphere into camp life that further indoctrinated an immigrant workforce through patriarchal supervision and Victorian consumption practices.

Comparative Collection

The SJSU comparative collection consists of 73 specimens selected under the criteria that the specimen be diagnostic of either 1) modification (thermal alteration, animal modification, butcher mark, or fracture), 2) taphonomic process (weathering), 3) butchery unit, or 4) taxonomic species. Specimens selected under these criteria are labeled with an identifying tag printed on acid free cardstock that provides identifying information including taxon, element, modification, weathering stage, and/or butchery unit. Specimens can be identified by the corresponding Faunal Bone ID listed on the tables C.1 through C.6 in Appendix C. Loma Prieta Specimens Selected for SJSU Faunal Comparative Collection. Suggestions for expanding the collection are included in Appendix D. Suggestions for an Historical Faunal Comparative Collection.

Review of the Archaeological Survey at Loma Prieta

On Friday April 15, 2022, I, along with Dr. Marco Meniketti and a small team of volunteer archaeologists, hiked into the Forest of Nisene Marks State Park, California to conduct a site survey. Our goal was to locate surface scatter and structural evidence within a previously undocumented section of the Loma Prieta Lumber Company camp. Dr. Meniketti had found a sketch in an archived volume of Harper's Weekly portraying areas surrounding the Loma Prieta Mill site. The drawing depicted structures that appeared to be workers' housing located within a previously undocumented area. With this drawing in mind, we selected an entry point into the tangles of stinging nettle, blackberry brambles, and poison oak to conduct a cross transect survey at intervals of 10 meters. The dense vegetation and thick groundcover of fallen leaves and plant matter obscured visibility and precluded successful survey of most of the area. However, despite the obstacles, we were able to find and document six features that included domestic and industrial refuse embedded in the creek sidewalls, a historical refuse deposit, a milled creek bank reinforcement, the remnants of a structure, and a depressed area that appears to be the remains of a spur line off the narrow-gauge railroad that once ran along the Aptos Creek fire road (Table 3.1. Loma Prieta Site 5 Survey. Features).

Table 3.1. Loma Prieta Site 5 Survey. Features

Feature	Type	Description	Components
1	Creek bed scatter	artifact scatter	milled wood, bottle glass, domestic ceramics, and metal hardware
2	Structure	four pieces of milled wood arranged in a rectangular formation	milled wood
3	Creek bed scatter	mass of cut and milled wood	milled wood
4	Structure	historical creek reinforcements made of milled wood	milled wood
5	Industrial	potential narrow gauge railroad spur	flat, depressed area with minimal vegetation
6	Refuse deposit	domestic refuse	faunal shell, brick, bottle glass, domestic metal, and ceramics

Most of the features are identified by the presence and arrangement of milled redwood, but the survey also found a substantial number of domestic and industrial artifacts (Appendix E. Loma Prieta Site 5 Survey. Table E.1. Loma Prieta Site 5 Survey. Artifacts). The industrial metal artifacts are heavily corroded with few identifying characteristics, but the domestic glass and ceramic artifacts preserved well with identifiable features including maker's marks. Among the artifacts with datable maker's marks or other discernable text are a square embossed bottle, a ceramic Carter's Ink bottle, and a whiteware plate (Figure 3.1. Loma Prieta Site 5 Survey. Maker's Marks).

Figure 3.1. Loma Prieta Site 5 Survey. Maker's Marks

Photos clockwise from top left: bottle embossed with Jones-Paddock Co San Francisco logo; whiteware plate in situ with John Maddock & Sons, Burslem maker's mark; detail of Carter's Ink bottle J. Bourne & Son Denby Potteries maker's mark; complete Carter's Ink bottle. All photos by the author.

The Jones-Paddock Company was included in the Annual Report of the Department of Food and Drugs Inspection, 1910. According to the report, Jones-Paddock sold lemon extract in a two-ounce bottle for 25 cents. At the time of the report, lemon extract was commonly a flavorless solution that was colored bright yellow with coal tar that rendered it useless for flavoring purposes. A few simple tests involving the addition of water or setting the solution on fire demonstrated the quality of the product. According to the report, the Jones-Paddock extract passed the tests admirably as a quality product (Dinsmore 1911). Carter's Ink was established in Boston Massachusetts in the late nineteenth century (Hinkel 2019), but the ceramic bottle was manufactured in England by J. Bourne and Sons. The maker's mark stamped near the base dates its production between 1869 and 1898 (Kowalsky and Kowalsky 1999). A whiteware plate discovered in the creek bed is typical of other ceramic tableware in the Loma Prieta deposits recovered and analyzed by Meniketti and is also imported from England (2020b). The maker's mark visible on the base is from John Maddock & Sons, England, and dates manufacturing to 1906 or later (Kowalsky and Kowalsky 1999). Other domestic artifacts of interest include a wine bottle with an applied blob lip, a complete mold-blown aqua glass bottle, a fragment of a porcelain pitcher, a fermentation crock, an enamelware cooking pot, and a type two ceramic teacup with a handle intact. Further descriptions of artifacts and features are included in site records for CSP for application for site designation with the California Office of Historic Preservation (OHP).

Other Project Outcomes

At the time of writing this report, there are three remaining project outcomes to be addressed. First, the zooarchaeological analyses and results as discussed in Chapter 2 of this report will be summarized for a chapter in the Loma Prieta volume of CDPRPCH, edited by Dr. Marco Meniketti. Second is a presentation for public education for the Aptos History Museum featuring my zooarchaeological research about the lives of the Loma Prieta lumber company workers. The presentation date and location are to be determined pending local COVID restrictions. The third project outcome is submission of the CSP Loma Prieta Site 5 survey site records with the California Office of Historic Preservation (OHP). Expected date for submission is to be determined pending approval from Santa Cruz District Archaeologist at CSP.

Limitations

There are several limitations to my research. Although archaeological investigations offer insight into past lifeways and foster narratives around groups traditionally obscured from historical records, such as women, minorities, and immigrants, the findings and applications are limited by the evidence. First, zooarchaeological investigations are often the most reliable if not only source of dietary information for historical sites. Many dietary elements do not preserve well in the archaeological record. The baked goods, soups, pasta, grains, dairy, preserved fruits and vegetables, salt pork, and pickled beef that composed most of the calories consumed by the population are not evident in archaeological deposits. Archival research of menus, grocer ledgers, and other historical documents as well as analyses of ceramic dinnerware and food storage containers add nuance to historical interpretation of diet; but it is important to be cautious while interpreting site information and in understanding the limitation of analyses based in archaeofaunal evidence.

The second limitation is the relatively small sample size. One of my original research objectives was to compare the faunal evidence from domestic (workers' housing) and public (cookhouse) deposits in the Loma Prieta assemblage. However, once I had conducted an initial inventory of the faunal specimens it became clear that the only deposit that was both systematically excavated and large enough to support interpretation was the single unit associated with the cookhouse. Potential dietary research based on the assemblage is restricted because the assemblage represents only a small fraction of overall diet; many of the specimens were collected from the surface; and the ¼" mesh size used to screen excavated matrices precluded recovery of many fish, small mammal, and bird bone.

Lastly, I want to address the limitations of the faunal comparative collection that I have drafted using the Loma Preita faunal assemblage. A good comparative collection consists of a diverse taxonomic selection of osteological specimens, ideally including entire skeletons of several taxa that are correctly identified and labeled clearly. While the Loma Prieta assemblage does include elements of four taxa identified to species – *Bos taurus*, *Sus scrofa*, *Ovis aries*, and *Gallus gallus*, only a few elements for each species are represented. I have included suggestions for expanding the faunal comparative collection in Appendix D. Suggestions for an Historical Faunal Comparative Collection, including suggested taxa in Table D.1. Suggested Taxa for an Historical Faunal Comparative Collection.

Recommendations for Future Research

While determining the direction and applications of my research for this project, I considered several avenues that could be further explored by future researchers. One prospect for future research that I find especially compelling is the investigation of similarities between modern incarnations of the company towns as imagined by Silicon Valley giants, such as Google and Tesla, and those of the Gilded Age (English-Lueck 2000). Jan English-Lueck and Avery (2014; 2017) have published anthropological research on the nuanced relationship between food and modern corporate culture that could be further explored through an historical zooarchaeological lens. Some research questions that future scholars could apply to archaeological investigations to explore correlations between modern and Victorian period company towns are:

- How do food offerings in modern corporate settings compare to historical assemblages?
- How do workers and employers negotiate relationships through access to food?
- What role does food play in negotiations of non-monetary compensations?
- How do cultural differences and identity flux impact relationships involving food in the workplace?

If future archaeological investigations of Loma Prieta discover additional faunal deposits, a second potential avenue for research would involve application of the research perimeters I have presented in Chapter 2. Faunal deposits from systematic excavations of features associated with the workers housing, management housing, or other documented deposits could be analyzed in comparison with the cookhouse deposit. Potential research questions for additional zooarchaeological inquiry into the Loma Prieta Lumber Company include:

- Do high-and low-ranking meat cuts occur at different rates within contemporaneous deposits?
- Is there any observable change over time in relative occurrence of high- and low-ranking meat cuts?
- Is there an observable difference in taxonomic frequency between deposits?

Finally, I collected some data during the analysis phase of my project that I did not use in constructing arguments for Chapter 2. This was largely due to time restraints, but some data had limited relevance to my research questions. These data points could be applied to future archaeological studies of Loma Prieta or used in comparative studies of different sites. Future researchers interested in historical husbandry practices could access the epiphyseal fusion data I collected to estimate age at slaughter. The animal and environmental modifications data I collected comprising weathering and rodent gnawing are relevant to taphonomic research and burn stage can be used to address questions about trash disposal practices and deposition.

Closing Remarks

Historical zooarchaeology has a unique ability to connect people to the past through our relationships with animals and food. Physical connection with objects from our shared history brings the past to life in a way that text cannot. Through these connections to our past, we see reflections of our own lives and experiences, of political struggle and oppression, of solidarity and humanity. It is my hope that dissemination of my research among academic and non-academic groups will generate new knowledge about historically marginalized and traditionally overlooked groups in California history to promote dialogue concerning the intolerance and racism that are so prevalent in current political and social discourse. It is our responsibility as researchers to elevate and amplify those voices that have been silenced, and that has been my objective throughout this project.

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Appendix A. Faunal Analysis Codes for Data Entry

Code	Description	Value
SITE	Site	Temporarily assigned site designation
UNIT	Test Unit	Assigned and excavated by SJSU field school 2015-2017
LVL	Level	Measured in 10 cm increments
FEAT	Feature	Assigned by SJSU field school 2015-2017
Artifact ID	Artifact ID	Number automatically assigned number per field designation
Faunal Bone ID	Artifact ID	Number automatically assigned per faunal specimen
DSRP	Description	**B.** Bird; **F.** Fish; **M.** Mammal; **H.** Herpetofauna; **V.** Vertebrate.
CF	cf.	cf. – *confer* (unconfident in identification).
TAXA	Taxon	Named.
SIZE	Size	**V.** Very small; **S.** Small; **M.** Medium; **L.** Large; **X.** Extra-large; **0**. N/A Herpetofauna; **102.** Indeterminate.
ELMT	Element	Named; **102.** Indeterminate.
SIDE	Side	**L.** Left; **R.** Right; **X.** Axial; **102.** Indeterminate.
PORT	Portion	**CO.** Complete; **NCO**. Nearly complete; **PX**. Proximal; **PSH**. Proximal and shaft; **PXLAT**. Proximolateral; **PXMED**. Proximomedial; **PXFR**. Proximal fragment; **PXANT**. Proximal anterior; **PXPOS**. Proximal posterior; **SH**. shaft; **SHANT**. Shaft anterior; **SHPOS**. Shaft posterior; **SHMED**. Shaft medial; **SHLAT**. Shaft lateral; **SHFR**. Shaft fragment; **MID**. Middle; **CYL**. cylinder (complete); **DS**. Distal; **DSH**. Distal and shaft; **DSLAT**. Distolateral; **DSMED**. Distomedial; **DSHF**. Distal half; **DSFR**. Distal fragment; **DSANT**. Distal anterior; **DSPOS**. Distal posterior; **ANT**. Anterior; **ANTMID**. Anterior and middle; **ANTLAT**. Anterolateral; **ANTMED**. Anteromedial; **ANTFR**. Anterior fragment; **POS**. Posterior; **POSLAT**. Posterolateral; **POSMED**. Posteromedial; **POSMID**. Posterior and middle; **POSFR**. Posterior fragment; **SUP**. Superior; **INF**. Interior; **LAT**. Lateral; **LATFR**. Lateral fragment; **MED**. Medial; **MEDFR**. Medial fragment; **HFAP**. Half anteroposterior; **HFL**. Half longitudinal; **END**. Fused epiphysis undifferentiated; **FR**. Fragment; **UFPX**. Unfused proximal end; **UFDS**. Unfused distal end; **UFEP**. Unfused epiphysis undifferentiated; **102**. Indeterminate.
EPFS	Epiphyseal Fusion	**1.** Caudal fused; **2.** Cranial fused; **3.** Distal fused; **4.** Proximal fused; **5.** Caudal unfused; **6.** Cranial unfused; **7.** Distal unfused; **8.** Proximal unfused; **9.** Fused; **10.** Unfused; **101.** Other, see comments; **102.** Indeterminate; 0. N/A.

ALT	Alteration	**U.** Unburned; **B.** Burned; **C.** Calcined; **L.** Blue; **101.** Other, see comments; **0.** N/A.
FRAC	Fracture	**Y.** Fractures are present; **N.** No fractures are present; **0.** N/A.
FRTP	Fracture Type	**1.** Fresh; **2.** Green; **3.** Dry; **101.** Other, see comments; **102.** Indeterminate green or dry; **0.** N/A.
RMOD	Rodent Modification	**Y**. Rodent modification present; **N.** No rodent modification present; **0**. N/A.
CMOD	Carnivore Modification	**Y**. Carnivore modification present; **N.** No carnivore modification present; **0**. N/A.
WTHR	Weathering	**0**. Fresh bone; **1.** Cracks visible parallel to bone fibers, mosaic cracking; **2.** Light flaking; **3.** Patches of fibrous texture visible; **4.** Coarsely fibrous surface, deep cracks with round or splintered edges; **5.** Bone is falling apart; **102.** Indeterminate; **N.** N/E (not eligible for weathering stages)
BTCH	Butchery Present	**Y.** Butchery modification present; **N.** No butchery modification present; **0.** N/A; **102.** Indeterminate.
SAW	Saw	Number of saw marks visible; **0**. N/A.
CHOP	Chop	Number of chop marks visible; **0**. N/A.
CUT	Cut	Number of cut marks visible; **0**. N/A.
SCRP	Scrape	Number of scrape marks visible; **0**. N/A.
INDT	Indeterminate	Number of indeterminate marks visible; **0**. N/A.
MEAT	Meat Cut	Large mammal: (Schulz and Gust 1983); Medium mammal (Swatland 2004, 145).
SECB	Secondary butchery	Butchery mark(s) severing the bone, indicating that the specimen was likely an individual serving.
MODL	Modification Location	Named (see Portion for abbreviations).
MODO	Modification Orientation	**COR.** Coronal; **DIA**. Diagonal; **LNG.** Longitudinal **PCOR**. Paracoronal; **PSA.** Parasagital; **SAG**. Sagital; **TR**. Transverse; **102**. Indeterminate; **0.** N/A.
NISP	NISP	Number of identified specimens.
WT	Weight	Measured in grams.
LGTH	Length	Measured in mm.
COMM	Comment	Analyst comment.
POST	Post Catalog Status	**1.** Modification diagnostic; **2.** Taphonomic diagnostic; **3.** Meat cut diagnostic; **4.** Species diagnostic; **0.** N/A.

Appendix B. Loma Prieta Faunal Data

SITE	UNIT	LVL	FEAT	Artifact ID	Faunal BoneID	DSRP	CF	TAXA	Size	ELMT	Side	PORT	EPFS	Alt	Frac	FRTP
LPM-2-17	7	3		1	93	M		Ovis aries	M	scaphoid	L	CO	0	U	N	0
LPM-2-17	7	3		1	94	M	cf	Ovis aries	M	rib POS	R	head	0	U	Y	1
LPM-2-17	7	3		1	95	M	cf	Ovis aries	M	rib POS	102	head	0	U	Y	13
LPM-2-17	7	3		1	96	M	cf	Ovis aries	M	rib POS	L	PX shaft	0	U	Y	1
LPM-2-17	7	3		1	97	M	cf	Ovis aries	M	rib POS	102	PX shaft	0	U	Y	13
LPM-2-17	7	3		1	98	M		Ovis aries	M	vert T10	X	HFL left	56	U	N	0
LPM-2-17	7	3		1	99	M		Sus scrofa	M	vert lumbar	X	caudal articular surface right	0	U	Y	102
LPM-2-17	7	3		1	100	M		Mammal MED	M	vert 102	X	FR	0	U	Y	13
LPM-2-17	7	3		1	101	M		Mammal LRG	L	rib 102	102	SHFR	0	C	Y	0
LPM-2-17	7	3		1	102	M		Mammal LRG	L	rib 102	102	SHFR	0	C	Y	0
LPM-2-17	7	3		1	103	M		Mammal MED	M	rib 102	102	SHFR	0	C	Y	0
LPM-2-17	7	3		1	104	M		Mammal LRG	L	102	102	FR	0	C	Y	0
LPM-2-17	7	3		1	105	M		Bos taurus	L	rib ANT	R	PX facet	0	U	Y	3
LPM-2-17	7	3		1	106	M		Mammal MED	M	costal cartilage	102	FR	0	U	Y	13
LPM-2-17	7	3		1	107	M		Mammal MED	M	sternebra	X	FR	0	U	N	0
LPM-2-17	7	3		1	108	M		Mammal LRG	L	vert thoracic	X	ANTLAT left	6	U	N	0
LPM-2-17	7	3		1	109	M	cf	Bos taurus	L	vert thoracic ANT	X	spinous process	0	U	Y	3
LPM-2-17	7	3		1	110	M		Mammal LRG	L	innominate	102	FR	0	U	Y	3
LPM-2-17	7	3		1	111	M		Mammal LRG	L	102	102	FR	0	U	Y	13
LPM-2-17	7	3		1	112	M		Mammal LRG	L	102	102	FR	0	U	Y	13
LPM-2-17	7	3		1	113	M		Mammal MED	M	vert 102	X	epiphysis FR	10	U	Y	3
LPM-2-17	7	3		1	114	B		Gallus gallus	M	ulna	R	CO	0	U	N	0
LPM-2-17	7	3		1	115	B		Gallus gallus	M	sternum	X	ANT	0	U	Y	0
LPM-2-17	7	3		1	116	B	cf	Gallus gallus	M	tibiotarsus	L	SH	0	U	Y	0
LPM-2-17	7	3		1	134	M		Sus scrofa	M	scapula	R	body FR	0	U	Y	1
LPM-2-17	7	3		1	144	M		Mammal MED	M	scapula	L	dorsal border FR	0	U	Y	1
LPM-2-17	7	3		1	145	M		Mammal MED	M	scapula	102	caudal border FR	0	U	Y	3
LPM-2-17	7	3		1	146	M	cf	Bos taurus	L	rib ANT	102	DSFR	0	U	Y	13
LPM-2-17	7	3		1	147	M	cf	Ovis aries	M	rib POS	102	DSFR	0	U	Y	13
LPM-2-17	7	3		1	148	M		Mammal MED	M	vert 102	X	centrum	10	U	Y	3
LPM-2-17	7	3		1	149	M		Mammal MED	M	102	102	FR	0	U	Y	123
LPM-2-17	7	3		1	150	M		Mammal MED	M	102	102	FR	0	U	Y	123
LPM-2-17		Surface		2	59	M		Bos taurus	L	humerus	L	PSH	4	U	Y	2
LPM-2-17		Surface		2	60	M		Bos taurus	L	femur	L	SH	0	U	N	0
LPM-2-17		Surface		2	61	M		Bos taurus	L	femur	R	DS	3	U	Y	2
LPM-2-17		Surface		2	62	M		Bos taurus	L	femur	R	PX	4	U	N	0
LPM-2-17	6	1		3	65	M		Bos taurus	L	tibia	R	CYL	0	U	Y	3
Creek bed		Surface	Creek bed	4	81	M		Bos taurus	L	tibia	L	DSH	3	U	N	0
Creek bed		Surface	Creek bed	4	82	M		Bos taurus	L	ulna	R	olecranon process	4	U	Y	1
Creek bed		Surface	Creek bed	4	83	M		Bos taurus	L	calcaneus	L	NCO	7	U	Y	3
Creek bed		Surface	Creek bed	4	84	M		Bos taurus	L	calcaneus	L	NCO	7	U	Y	3
Creek bed		Surface	Creek bed	4	85	M		Bos taurus	L	calcaneus	L	NCO	3	U	Y	3
Creek bed		Surface	Creek bed	4	86	M		Bos taurus	L	tibia	L	UFPX	8	U	Y	3
Creek bed		Surface	Creek bed	4	87	M		Bos taurus	L	magnum	R	CO	0	U	N	0
Creek bed		Surface	Creek bed	4	88	M		Bos taurus	L	magnum	L	CO	0	U	N	0
Creek bed		Surface	Creek bed	4	89	M		Bos taurus	L	scaphoid	L	NCO	0	U	Y	3
Creek bed		Surface	Creek bed	4	90	M		Bos taurus	L	vert C2	X	MIDLAT	7	U	Y	23
Creek bed		Surface	Creek bed	4	91	M	cf	Bos taurus	L	vert thoracic ANT	X	FR	0	U	Y	3
Creek bed		Surface	Creek bed	4	92	M		Bos taurus	L	calcaneus	L	epiphysis	7	U	Y	1
Creek bed		Surface	Creek bed	4	128	M		Bos taurus	L	naviculocuboid	L	FR	0	U	Y	3
Creek bed		Surface	Creek bed	4	129	M		Bos taurus	L	vert thoracic ANT	X	spinous process	0	U	Y	3
Creek bed		Surface	Creek bed	4	130	M		Bos taurus	L	vert lumbar	X	TR process	0	U	Y	13
Creek bed		Surface	Creek bed	4	131	M	cf	Bos taurus	L	rib ANT	102	SH	0	U	N	0
Creek bed		Surface	Creek bed	4	132	M		Bos taurus	L	rib ANT	102	SH	0	U	Y	3
Creek bed		Surface	Creek bed	4	133	M	cf	Bos taurus	L	scapula	102	body FR	0	U	Y	3
LPM-2-17	7	2		5	4	M		Mammalia	102	102	102	FR	0	C	Y	0

SITE	UNIT	LVL	FEAT	Artifact ID	Faunal BoneID	DSRP	CF	TAXA	Size	ELMT	Side	PORT	EPFS	Alt	Frac	FRTP
LPM-2-17	7	2		5	1	B		Gallus gallus	M	femur	L	PSH	0	U	Y	0
LPM-2-17	7	2		5	2	M		Mammalia	102	102	102	FR	0	U	Y	123
LPM-2-17	7	2		5	3	M		Mammalia	102	102	102	FR	0	U	Y	123
LPM-2-17	7	2		5	5	M		Mammalia	102	102	102	FR	0	B	Y	0
LPM-2-17	7	2		5	6	M		Mammal LRG	L	102	102	FR	0	C	Y	0
LPM-2-17	7	2		5	7	B		Gallus gallus	M	tibiotarsus	R	DSH	0	U	Y	0
LPM-2-17	7	2		5	8	B		Gallus gallus	M	tibiotarsus	L	SH	0	U	Y	0
LPM-2-17	7	2		5	9	B		Gallus gallus	M	tarsometatarsus	L	PXMED	0	U	Y	0
LPM-2-17	7	2		5	10	B		Aves	M	vert synsacral	X	FR	0	U	Y	0
LPM-2-17	7	2		5	11	M		Sus scrofa	M	humerus	L	DSH	3	U	N	0
LPM-2-17	7	2		5	12	M		Bos taurus	L	femur	L	DSMED	3	U	N	0
LPM-2-17	7	2		5	13	M		Bos taurus	L	innominate	R	illium	0	U	N	0
LPM-2-17	7	2		5	14	M		Bos taurus	L	femur	L	SH slice	0	U	N	0
LPM-2-17	7	2		5	15	M		Bos taurus	L	femur	L	UFPX	8	U	Y	102
LPM-2-17	7	2		5	16	M		Bos taurus	L	rib POS	L	PX	8	U	Y	13
LPM-2-17	7	2		5	17	M		Bos taurus	L	vert sacral	X	L spinous processes	0	U	Y	3
LPM-2-17	7	2		5	18	M		Bos taurus	L	sternebra	X	FR	0	U	Y	13
LPM-2-17	7	2		5	19	M	cf	Bos taurus	L	sternebra	X	FR	0	U	Y	13
LPM-2-17	7	2		5	20	M		Bos taurus	L	vert thoracic POS	X	L HFL	56	U	N	0
LPM-2-17	7	2		5	21	M		Bos taurus	L	vert cervical	X	articulation	0	U	Y	3
LPM-2-17	7	2		5	22	M		Bos taurus	L	vert caudal	X	HFL	12	U	Y	102
LPM-2-17	7	2		5	23	M		Bos taurus	L	rib ANT	102	head	8	U	Y	1
LPM-2-17	7	2		5	24	F		Actinopterygii	0	vert 102	X	NCO	0	0	0	0
LPM-2-17	7	2		5	25	F		Actinopterygii	0	rib	102	NCO	0	0	0	0
LPM-2-17	7	2		5	26	M		Caprinae	M	tibia	R	PSH	8	U	Y	2
LPM-2-17	7	2		5	27	M	confirm	Caprinae	M	rib POS (10th)	L	PSH	0	U	Y	102
LPM-2-17	7	2		5	28	M		Sus scrofa	M	phalanx 2	102	NCO	4	U	Y	3
LPM-2-17	7	2		5	29	M		Sus scrofa	M	radius	L	PX	0	U	Y	2
LPM-2-17	7	2		5	30	M	confirm	Caprinae	M	magnum	L	CO	0	U	N	0
LPM-2-17	7	2		5	31	M		Mammal MED	M	long bone	102	SHFR	0	U	N	0
LPM-2-17	7	2		5	32	M		Mammal MED	M	long bone	102	SHFR	0	U	Y	123
LPM-2-17	7	2		5	33	M		Mammal MED	M	102	102	FR	0	U	Y	23
LPM-2-17	7	2		5	34	M		Bos taurus	L	astragalus	R	ANTMED trochlea	0	U	Y	102
LPM-2-17	7	2		5	35	B	cf	Gallus gallus	M	vert thoracic	X	NCO	0	U	Y	0
LPM-2-17	7	2		5	36	B	cf	Gallus gallus	M	vert synsacral	X	NCO	0	U	Y	0
LPM-2-17	7	2		5	37	B		Aves	M	innominate	R	acetabulum	0	U	Y	0
LPM-2-17	7	2		5	38	B		Aves	M	innominate	L	acetabulum	0	U	Y	0
LPM-2-17	7	2		5	39	B		Aves	M	rib	102	SHFR	0	U	Y	0
LPM-2-17	7	2		5	40	B		Aves	M	scapula	L	SHFR	0	U	Y	0
LPM-2-17	7	2		5	41	B		Aves	M	102	102	FR	0	U	Y	0
LPM-2-17	7	2		5	42	M	cf	Bos taurus	L	astragalus	L	ANTMED trochlea	0	C	Y	0
LPM-2-17	7	2		5	43	M	cf	Bos taurus	L	naviculocuboid	102	FR	0	C	Y	0
LPM-2-17	7	2		5	44	M		Mammal MED	M	vert 102	X	FR	0	C	Y	0
LPM-2-17	7	2		5	45	M		Mammal LRG	L	ulna	102	SHFR	0	C	Y	0
LPM-2-17	7	2		5	117	M	cf	Sus scrofa	M	metapodial	102	PXSH	8	U	Y	12
LPM-2-17	7	2		5	118	M		Artiodactyla	M	innominate	L	illium body FR	0	U	Y	2
LPM-2-17	7	2		5	119	M	cf	Ovis aries	M	vert S1	X	HFL right	0	U	Y	12
LPM-2-17	7	2		5	120	M		Bos taurus	L	rib	102	SHFR	0	U	Y	13
LPM-2-17	7	2		5	121	M		Bos taurus	L	rib POS	102	DS	0	U	Y	1
LPM-2-17	7	2		5	122	M	cf	Bos taurus	L	rib	102	SHFR	0	U	Y	3
LPM-2-17	7	2		5	123	M	cf	Bos taurus	L	rib	102	SHFR	0	U	Y	13
LPM-2-17	7	2		5	124	M		Bos taurus	L	vert thoracic ANT	X	spinous process	0	U	Y	2

SITE	UNIT	LVL	FEAT	Artifact ID	Faunal BoneID	DSRP	CF	TAXA	Size	ELMT	Side	PORT	EPFS	Alt	Frac	FRTP
LPM-2-17	7	2		5	125	M		Bos taurus	L	vert thoracic	X	spinous process	0	U	Y	1
LPM-2-17	7	2		5	126	M	cf	Bos taurus	L	ulna	R	SHFR	0	U	Y	13
LPM-2-17	7	2		5	127	M	cf	Sus scrofa	M	cranium	L	maxillary FR	0	U	Y	123
LPM-2-17	7	2		5	135	M		Bos taurus	L	vert sacral	X	FR	0	U	Y	2
LPM-2-17	7	2		5	136	M	cf	Bos taurus	L	rib ANT	102	head	0	U	Y	2
LPM-2-17	7	2		5	137	M	cf	Sus scrofa	M	scapula	L	body FR	0	U	Y	3
LPM-2-17	7	2		5	138	M		Sus scrofa	M	rib	L	DSFR	0	U	Y	3
LPM-2-17	7	2		5	139	M	cf	Bos taurus	L	innominate	102	FR	0	U	Y	3
LPM-2-17	7	2		5	140	M	cf	Bos taurus	L	scapula	102	caudal border FR	0	U	Y	13
LPM-2-17	7	2		5	141	M		Mammal LRG	L	vert 102	X	centrum FR	0	U	Y	102
LPM-2-17	7	2		5	142	M		Mammal LRG	L	102	102	FR	0	U	Y	123
LPM-2-17	7	2		5	143	M		Mammalia	S	innominate	L	ilium	0	U	Y	0
LPM-3-16		Surface		6	46	M		Bos taurus	L	naviculocuboid	L	CO	0	U	N	0
LPM-3-16		Surface		6	47	M		Bos taurus	L	tibia	L	DSH	7	U	N	0
LPM-3-16		Surface		6	48	M		Bos taurus	L	radius	L	DSH	7	U	Y	2
LPM-3-16		Surface		6	49	M		Bos taurus	L	radius	L	DSH	3	B	Y	0
LPM-3-16		Surface		6	50	M		Bos taurus	L	scaphoid	R	CO	0	U	N	0
LPM-3-16		Surface		6	51	M		Bos taurus	L	cuneiform	L	CO	0	U	N	0
LPM-3-16		Surface		6	52	M		Bos taurus	L	scapula	R	head	0	U	N	0
LPM-3-16		Surface		6	53	M		Bos taurus	L	rib	102	SHFR	0	U	Y	3
LPM-3-16		Surface		6	54	M		Bos taurus	L	rib ANT	R	PSH	0	U	Y	3
LPM-3-16		Surface		6	55	M		Bos taurus	L	102	102	FR	0	U	Y	3
LPM-3-16		Surface		6	56	M		Bos taurus	L	102	102	FR	0	U	Y	3
LPM-3-16		Surface		6	57	M		Bos taurus	L	scapula	L	body FR	0	U	Y	3
LPM-3-16		Surface		6	58	M		Bos taurus	L	scapula	L	caudal border	0	U	Y	13
LPM-2-17	7	1		7	66	M		Bos taurus	L	rib POS	102	DS	0	U	Y	3
LPM-2-17	7	1		7	67	B		Anatidae	M	tibiotarsus	R	DS	0	U	Y	0
LPM-2-17	6	4		8	73	M	cf	Bos taurus	L	femur	102	CYL	0	U	Y	1
LPM-2-17				9	63	M	cf	Bos taurus	L	rib ANT	R	neck	0	U	Y	3
LPM-2-17				9	64	M		Bos taurus	L	radius	L	DSH	7	U	Y	23
LPM-2-17	15	Surface		10	68	M		Bos taurus	L	radioulna	R	CYL	0	U	Y	2
LPM-2-16				11	69	M		Bos taurus	L	tibia	R	CYL	0	U	Y	23
LPM-2-16				11	70	M		Bos taurus	L	tibia	L	UFPX	8	U	Y	3
LPM-2-16				11	71	M	cf	Bos taurus	L	innominate	102	ischium	0	U	Y	3
LPM-2-17	6	3		12	72	M		Bos taurus	L	calcaneus	L	NCO	7	U	Y	13
LPM-17		Surface		13	74	M		Bos taurus	L	vert thoracic ANT	X	R HFAP	56	U	Y	3
LPM-17		Surface		13	75	M		Bos taurus	L	rib ANT	L	neck	0	U	Y	3
LPM-17		Surface		13	76	M		Bos taurus	L	vert thoracic POS	X	spinous process	0	U	Y	3
LPM-17		Surface		13	77	M		Mammal LRG	L	102	102	FR	0	U	Y	3
LPM-1-17	6	3		14	78	M		Bos taurus	L	tibia	R	ANTLAT	0	U	Y	2
LPM-2-16	B		9	15	79	M		Bos taurus	L	tibia	R	DSH	7	U	Y	12
LPM-2-16	Test		36	16	80	M	cf	Sus scrofa	M	tibia	R	shaft	0	U	Y	3

SITE	UNIT	LVL	FEAT	Artifact ID	Faunal BoneID	RMOD	CMOD	WTHR	BTCH	Saw	Chop	Cut	SCRP	INDT	MEAT	SECB
LPM-2-17	7	3		1	93	N	N	0	N	0	0	0	0	0	foreshank	0
LPM-2-17	7	3		1	94	N	N	0	N	0	0	0	0	0	rib	0
LPM-2-17	7	3		1	95	N	N	0	N	0	0	0	0	0	rib	0
LPM-2-17	7	3		1	96	N	N	1	Y	0	0	0	0	1	rib	0
LPM-2-17	7	3		1	97	N	N	0	Y	0	0	2	0	3	rib	0
LPM-2-17	7	3		1	98	N	N	0	Y	1	0	0	0	0	rib	0
LPM-2-17	7	3		1	99	N	N	1	Y	0	0	0	0	1	loin	0
LPM-2-17	7	3		1	100	N	N	1	Y	1	0	0	0	2	0	0
LPM-2-17	7	3		1	101	N	N	0	N	0	0	0	0	0	0	0
LPM-2-17	7	3		1	102	N	N	0	Y	0	0	0	0	2	0	0
LPM-2-17	7	3		1	103	N	N	0	Y	0	0	0	0	1	0	0
LPM-2-17	7	3		1	104	N	N	0	N	0	0	0	0	0	0	0
LPM-2-17	7	3		1	105	N	Y	1	Y	1	1	1	0	0	chuck	Y
LPM-2-17	7	3		1	106	N	N	0	N	0	0	0	0	0	0	N
LPM-2-17	7	3		1	107	N	N	0	Y	0	0	1	0	1	0	Y
LPM-2-17	7	3		1	108	N	N	1	Y	0	0	0	0	1	0	N
LPM-2-17	7	3		1	109	N	N	1	Y	0	0	0	0	4	chuck	Y
LPM-2-17	7	3		1	110	N	N	2	Y	0	0	0	0	1	0	N
LPM-2-17	7	3		1	111	N	N	1	Y	0	1	0	0	5	0	0
LPM-2-17	7	3		1	112	N	N	1	N	0	0	0	0	0	0	0
LPM-2-17	7	3		1	113	N	N	1	N	0	0	0	0	0	0	0
LPM-2-17	7	3		1	114	N	N	N	N	0	0	0	0	0	0	0
LPM-2-17	7	3		1	115	N	N	N	N	0	0	0	0	0	0	0
LPM-2-17	7	3		1	116	N	N	N	N	0	0	0	0	0	0	0
LPM-2-17	7	3		1	134	N	N	N	Y	2	0	0	0	0	shoulder	Y
LPM-2-17	7	3		1	144	N	N	N	Y	0	0	0	0	2	0	N
LPM-2-17	7	3		1	145	N	N	N	Y	0	0	0	0	1	0	N
LPM-2-17	7	3		1	146	N	N	N	N	0	0	0	0	0	brisket	N
LPM-2-17	7	3		1	147	N	N	N	Y	0	0	1	0	1	breast	N
LPM-2-17	7	3		1	148	N	N	N	Y	0	0	0	0	1	0	N
LPM-2-17	7	3		1	149	N	N	N	Y	5	0	0	0	10	0	0
LPM-2-17	7	3		1	150	N	N	N	N	0	0	0	0	0	0	0
LPM-2-17		Surface		2	59	Y	N	2	Y	1	0	2	0	0	arm	0
LPM-2-17		Surface		2	60	Y	N	2	Y	2	0	0	0	0	round	0
LPM-2-17		Surface		2	61	N	N	2	Y	1	0	0	0	0	round	0
LPM-2-17		Surface		2	62	Y	Y	3	Y	1	0	0	0	0	rump	0
LPM-2-17	6	1		3	65	N	N	4	Y	1	0	0	0	1	hind shank	0
Creek bed		Surface	Creek bed	4	81	N	N	1	Y	1	0	0	0	0	hind shank	0
Creek bed		Surface	Creek bed	4	82	N	N	1	Y	0	0	0	4	0	foreshank	0
Creek bed		Surface	Creek bed	4	83	N	N	3	N	0	0	0	0	0	hind shank	0
Creek bed		Surface	Creek bed	4	84	N	N	1	N	0	0	0	0	0	hind shank	0
Creek bed		Surface	Creek bed	4	85	N	N	3	Y	0	0	0	0	2	hind shank	0
Creek bed		Surface	Creek bed	4	86	N	N	1	Y	1	0	0	0	0	hind shank	0
Creek bed		Surface	Creek bed	4	87	N	N	1	N	0	0	0	0	0	0	0
Creek bed		Surface	Creek bed	4	88	N	N	1	N	0	0	0	0	0	0	0
Creek bed		Surface	Creek bed	4	89	N	N	1	N	0	0	0	0	0	0	0
Creek bed		Surface	Creek bed	4	90	N	N	1	Y	0	0	0	0	1	neck	0
Creek bed		Surface	Creek bed	4	91	N	N	1	Y	0	0	0	0	1	neck	0
Creek bed		Surface	Creek bed	4	92	N	N	3	N	0	0	0	0	0	hind shank	0
Creek bed		Surface	Creek bed	4	128	N	N	2	N	0	0	0	0	0	hind shank	0
Creek bed		Surface	Creek bed	4	129	N	N	1	Y	0	0	0	0	1	chuck	0
Creek bed		Surface	Creek bed	4	130	N	N	3	N	0	0	0	0	0	short loin	0
Creek bed		Surface	Creek bed	4	131	N	N	2	Y	1	0	1	0	1	cross rib	0
Creek bed		Surface	Creek bed	4	132	N	N	3	N	0	0	0	0	0	cross rib	0
Creek bed		Surface	Creek bed	4	133	N	N	1	N	0	0	0	0	0	chuck	0
LPM-2-17	7	2		5	4	N	N	N	N	0	0	0	0	0	0	0

SITE	UNIT	LVL	FEAT	Artifact ID	Faunal BoneID	RMOD	CMOD	WTHR	BTCH	Saw	Chop	Cut	SCRP	INDT	MEAT	SECB
LPM-2-17	7	2		5	1	N	N	N	N	0	0	0	0	0	0	0
LPM-2-17	7	2		5	2	N	N	N	N	0	0	0	0	0	0	0
LPM-2-17	7	2		5	3	N	N	N	Y	2	0	1	0	3	0	0
LPM-2-17	7	2		5	5	N	N	N	N	0	0	0	0	0	0	0
LPM-2-17	7	2		5	6	N	N	0	N	0	0	0	0	0	0	0
LPM-2-17	7	2		5	7	N	N	N	Y	0	0	0	0	1	0	0
LPM-2-17	7	2		5	8	N	N	N	Y	0	0	0	0	2	0	0
LPM-2-17	7	2		5	9	N	N	N	N	0	0	0	0	0	0	0
LPM-2-17	7	2		5	10	N	N	N	N	0	0	0	0	0	0	0
LPM-2-17	7	2		5	11	N	N	1	Y	1	0	52	0	0	picnic shoulder	0
LPM-2-17	7	2		5	12	N	N	0	Y	2	0	0	0	1	round	0
LPM-2-17	7	2		5	13	N	N	1	Y	2	0	6	0	0	sirloin	Y
LPM-2-17	7	2		5	14	N	N	1	Y	2	0	0	0	0	round	Y
LPM-2-17	7	2		5	15	N	N	2	N	0	0	0	0	0	0	N
LPM-2-17	7	2		5	16	N	N	1	Y	2	0	0	0	0	rib	Y
LPM-2-17	7	2		5	17	N	N	1	Y	0	0	0	0	2	sirloin	N
LPM-2-17	7	2		5	18	N	N	1	Y	0	0	0	0	1	brisket	N
LPM-2-17	7	2		5	19	N	N	1	N	0	0	0	0	0	0	N
LPM-2-17	7	2		5	20	N	N	1	Y	4	0	0	0	0	rib	Y
LPM-2-17	7	2		5	21	N	N	1	Y	1	3	0	0	0	neck	Y
LPM-2-17	7	2		5	22	N	N	1	Y	1	0	0	0	0	rump	N
LPM-2-17	7	2		5	23	N	N	1	Y	2	0	0	0	1	chuck	Y
LPM-2-17	7	2		5	24	0	0	N	0	0	0	0	0	0	0	0
LPM-2-17	7	2		5	25	0	0	N	0	0	0	0	0	0	0	0
LPM-2-17	7	2		5	26	N	N	1	Y	1	0	2	7	0	hind shank	N
LPM-2-17	7	2		5	27	N	Y	1	Y	0	0	0	0	2	rib	N
LPM-2-17	7	2		5	28	N	N	1	N	0	0	0	0	0	0	N
LPM-2-17	7	2		5	29	N	N	1	Y	2	0	0	0	1	shoulder	Y
LPM-2-17	7	2		5	30	N	N	1	N	0	0	0	0	0	hind shank	N
LPM-2-17	7	2		5	31	N	N	1	Y	2	0	0	0	1	0	0
LPM-2-17	7	2		5	32	N	N	1	N	0	0	0	0	0	0	0
LPM-2-17	7	2		5	33	N	N	1	Y	0	0	1	0	4	0	0
LPM-2-17	7	2		5	34	N	N	1	Y	0	0	0	0	1	hind shank	0
LPM-2-17	7	2		5	35	N	N	N	N	0	0	0	0	0	0	0
LPM-2-17	7	2		5	36	N	N	N	Y	0	0	0	0	1	0	0
LPM-2-17	7	2		5	37	N	N	N	N	0	0	0	0	0	0	0
LPM-2-17	7	2		5	38	N	N	N	N	0	0	0	0	0	0	0
LPM-2-17	7	2		5	39	N	N	N	N	0	0	0	0	0	0	0
LPM-2-17	7	2		5	40	N	N	N	N	0	0	0	0	0	0	0
LPM-2-17	7	2		5	41	N	N	N	N	0	0	0	0	0	0	0
LPM-2-17	7	2		5	42	N	N	0	N	0	0	0	0	0	hind shank	0
LPM-2-17	7	2		5	43	N	N	0	N	0	0	0	0	0	hind shank	0
LPM-2-17	7	2		5	44	N	N	0	N	0	0	0	0	0	0	0
LPM-2-17	7	2		5	45	N	N	0	Y	0	0	0	0	1	0	0
LPM-2-17	7	2		5	117	N	N	1	N	0	0	0	0	0	foot	0
LPM-2-17	7	2		5	118	N	N	1	Y	2	2	0	0	0	loin/sirloin	Y
LPM-2-17	7	2		5	119	N	N	1	Y	1	0	2	0	0	sirloin	N
LPM-2-17	7	2		5	120	N	N	1	Y	5	2	2	0	1	cross rib/short rib	0
LPM-2-17	7	2		5	121	N	N	1	N	0	0	0	0	0	short plate	0
LPM-2-17	7	2		5	122	N	N	2	Y	0	0	0	0	2	0	0
LPM-2-17	7	2		5	123	N	N	2	N	0	0	0	0	0	0	0
LPM-2-17	7	2		5	124	N	N	1	Y	0	0	0	0	3	chuck	Y

SITE	UNIT	LVL	FEAT	Artifact ID	Faunal BoneID	RMOD	CMOD	WTHR	BTCH	Saw	Chop	Cut	SCRP	INDT	MEAT	SECB
LPM-2-17	7	2		5	125	N	N	1	N	0	0	0	0	0	0	N
LPM-2-17	7	2		5	126	N	N	2	N	0	0	0	0	0	foreshank	N
LPM-2-17	7	2		5	127	N	N	1	N	0	0	0	0	0	0	0
LPM-2-17	7	2		5	135	N	N	0	Y	2	0	0	0	0	sirloin	Y
LPM-2-17	7	2		5	136	N	N	0	N	0	0	0	0	0	chuck	N
LPM-2-17	7	2		5	137	N	N	0	Y	2	0	0	0	0	shoulder	Y
LPM-2-17	7	2		5	138	N	N	1	N	0	0	0	0	0	belly	N
LPM-2-17	7	2		5	139	N	N	1	Y	2	0	2	0	0	0	Y
LPM-2-17	7	2		5	140	N	N	1	N	0	0	0	0	0	rib	N
LPM-2-17	7	2		5	141	N	N	0	Y	0	0	0	0	1	0	N
LPM-2-17	7	2		5	142	N	N	N	Y	1	0	0	0	1	0	N
LPM-2-17	7	2		5	143	N	N	N	N	0	0	0	0	0	0	0
LPM-3-16		Surface		6	46	N	N	1	N	0	0	0	0	0	0	0
LPM-3-16		Surface		6	47	N	N	2	Y	1	0	2	0	0	hind shank	0
LPM-3-16		Surface		6	48	Y	N	2	Y	0	0	1	0	0	foreshank	0
LPM-3-16		Surface		6	49	N	Y	0	Y	1	0	0	0	0	foreshank	0
LPM-3-16		Surface		6	50	N	N	2	N	0	0	0	0	0	foreshank	0
LPM-3-16		Surface		6	51	N	N	1	N	0	0	0	0	0	foreshank	0
LPM-3-16		Surface		6	52	N	N	2	Y	1	0	0	0	0	arm	0
LPM-3-16		Surface		6	53	N	N	1	Y	1	1	0	0	0	cross rib/short rib	0
LPM-3-16		Surface		6	54	Y	N	1	Y	1	0	2	0	0	chuck	0
LPM-3-16		Surface		6	55	N	N	2	Y	0	0	0	0	2	0	0
LPM-3-16		Surface		6	56	N	N	2	N	0	0	0	0	0	0	0
LPM-3-16		Surface		6	57	N	N	2	Y	1	0	0	0	0	chuck	0
LPM-3-16		Surface		6	58	N	N	2	N	0	0	0	0	0	chuck	0
LPM-2-17	7	1		7	66	N	N	2	Y	1	0	1	0	0	short plate	0
LPM-2-17	7	1		7	67	N	N	N	Y	0	0	0	0	1	0	0
LPM-2-17	6	4		8	73	N	N	2	Y	2	0	4	0	0	round	Y
LPM-2-17				9	63	N	N	4	Y	0	1	0	0	2	chuck	0
LPM-2-17				9	64	N	Y	4	Y	0	0	0	0	3	foreshank	0
LPM-2-17	15	Surface		10	68	N	N	3	Y	1	1	0	0	0	foreshank	0
LPM-2-16				11	69	N	N	3	Y	2	0	0	0	0	hind shank	0
LPM-2-16				11	70	N	N	3	N	0	0	0	0	0	hind shank	0
LPM-2-16				11	71	N	Y	2	N	0	0	0	0	0	0	0
LPM-2-17	6	3		12	72	N	N	3	N	0	0	0	0	0	hind shank	0
LPM-17		Surface		13	74	N	N	2	Y	0	0	0	0	1	chuck	N
LPM-17		Surface		13	75	N	N	2	Y	0	0	0	0	2	chuck	N
LPM-17		Surface		13	76	N	N	3	Y	1	0	3	0	0	rib	N
LPM-17		Surface		13	77	N	N	3	N	0	0	0	0	0	0	0
LPM-1-17	6	3		14	78	Y	N	2	Y	2	0	0	0	0	hind shank	0
LPM-2-16	B		9	15	79	N	N	2	Y	1	0	0	0	0	hind shank	0
LPM-2-16	Test		36	16	80	N	Y	2	N	0	0	0	0	0	ham	0

SITE	UNIT	LVL	FEAT	Artifact ID	Faunal BoneID	MODL	MODO	NISP	WT	LGTH	COMM	Post
LPM-2-17	7	3		1	93	0	0	1	1.60	0	0	4
LPM-2-17	7	3		1	94	0	0	1	0.40	25.7	0	0
LPM-2-17	7	3		1	95	0	0	2	0.40	16.8	0	0
LPM-2-17	7	3		1	96	neck	TR	1	3.60	80.1	0	0
LPM-2-17	7	3		1	97	neck	TR	3	2.90	59	0	0
LPM-2-17	7	3		1	98	centrum	SAG	1	1.60	30.4	0	3
LPM-2-17	7	3		1	99	spinous process	DIA	1	1.20	33.8	0	4
LPM-2-17	7	3		1	100	0	0	3	2.10	0	0	0
LPM-2-17	7	3		1	101	0	0	1	2.20	0	0	1
LPM-2-17	7	3		1	102	0	0	2	4.40	0	0	0
LPM-2-17	7	3		1	103	0	0	1	0.50	0	0	0
LPM-2-17	7	3		1	104	0	0	3	10.60	0	0	0
LPM-2-17	7	3		1	105	neck, PX shaft	PSAG, TR	1	14.70	70.1	0	13
LPM-2-17	7	3		1	106	0	0	1	0.30	0	0	0
LPM-2-17	7	3		1	107	sternebra	DIA	1	1.10	0	0	0
LPM-2-17	7	3		1	108	centrum	PSAG	1	2.60	0	0	0
LPM-2-17	7	3		1	109	multiple locals	multiple angles	1	3.10	57.8	0	0
LPM-2-17	7	3		1	110	0	0	1	16.00	0	0	0
LPM-2-17	7	3		1	111	0	0	4	12.80	0	0	0
LPM-2-17	7	3		1	112	0	0	3	9.20	0	0	0
LPM-2-17	7	3		1	113	0	0	1	0.20	0	0	0
LPM-2-17	7	3		1	114	0	0	1	1.20	76.2	0	4
LPM-2-17	7	3		1	115	0	0	1	1.60	0	0	0
LPM-2-17	7	3		1	116	0	0	1	1.10	52.4	0	0
LPM-2-17	7	3		1	134	body	COR	1	1.30	12.9	0	0
LPM-2-17	7	3		1	144	body	COR, COR	1	0.70	23.7	0	0
LPM-2-17	7	3		1	145	body	COR	1	0.70	32	0	0
LPM-2-17	7	3		1	146	0	0	1	1.30	24.7	0	0
LPM-2-17	7	3		1	147	DS shaft	DIA	1	0.40	25.9	0	0
LPM-2-17	7	3		1	148	centrum	SAG	1	1.30	27.7	0	0
LPM-2-17	7	3		1	149	0	0	9	5.00	0	0	0
LPM-2-17	7	3		1	150	0	0	4	2.40	0	0	0
LPM-2-17		Surface		2	59	MID shaft	TR	1	366.40	186	moss	1234
LPM-2-17		Surface		2	60	PSH; DSH	TR; TR	1	176.80	137	0	13
LPM-2-17		Surface		2	61	DSH	TR	1	287.80	153	moss	124
LPM-2-17		Surface		2	62	neck	TR	1	274.90	152	moss	124
LPM-2-17	6	1		3	65	MID shaft	TR	1	142.30	125	0	12
Creek bed		Surface	Creek bed	4	81	MID shaft	TR	1	235.00	172	0	134
Creek bed		Surface	Creek bed	4	82	0	0	1	92.90	171	refit, 2 NISP	4
Creek bed		Surface	Creek bed	4	83	0	0	1	101.90	150	0	24
Creek bed		Surface	Creek bed	4	84	0	0	1	85.60	122	0	4
Creek bed		Surface	Creek bed	4	85	PX	DIA; DIA	1	77.60	123	0	24
Creek bed		Surface	Creek bed	4	86	intercondyloid notch	TR	1	43.40	0	refit, 2 NISP	1
Creek bed		Surface	Creek bed	4	87	0	0	1	21.20	0	0	4
Creek bed		Surface	Creek bed	4	88	0	0	1	13.30	0	0	4
Creek bed		Surface	Creek bed	4	89	0	0	1	11.10	0	0	4
Creek bed		Surface	Creek bed	4	90	L LAT	PSAG	1	96.00	90.2	0	3
Creek bed		Surface	Creek bed	4	91	0	0	2	45.10	0	0	0
Creek bed		Surface	Creek bed	4	92	0	0	1	10.50	0	0	0
Creek bed		Surface	Creek bed	4	128	0	0	1	3.50	0	0	0
Creek bed		Surface	Creek bed	4	129	spinous process	TR	1	7.60	42.1	0	0
Creek bed		Surface	Creek bed	4	130	0	0	1	8.20	74.4	0	0
Creek bed		Surface	Creek bed	4	131	SH, SH	TR, DIA	1	12.70	81.6	0	0
Creek bed		Surface	Creek bed	4	132	0	0	1	5.80	53.9	0	2
Creek bed		Surface	Creek bed	4	133	0	0	1	1.90	33.4	0	0
LPM-2-17	7	2		5	4	0	0	11	14.60	0	0	0

SITE	UNIT	LVL	FEAT	Artifact ID	Faunal BoneID	MODL	MODO	NISP	WT	LGTH	COMM	Post
LPM-2-17	7	2		5	1	0	0	2	6.10	0	0	4
LPM-2-17	7	2		5	2	0	0	16	10.50	0	0	0
LPM-2-17	7	2		5	3	0	0	5	2.80	0	0	0
LPM-2-17	7	2		5	5	0	0	3	3.50	0	0	0
LPM-2-17	7	2		5	6	0	0	3	14.00	0	0	0
LPM-2-17	7	2		5	7	0	0	1	1.10	0	0	4
LPM-2-17	7	2		5	8	0	0	1	2.20	0	0	4
LPM-2-17	7	2		5	9	0	0	1	0.30	0	0	4
LPM-2-17	7	2		5	10	0	0	1	0.80	0	0	0
LPM-2-17	7	2		5	11	teres tuberosity	DIA	1	86.40	148	possibly spiral cut	123
LPM-2-17	7	2		5	12	DSH; patellar groove; MED condyle	TR; PSA, TR	1	174.10	130	0	134
LPM-2-17	7	2		5	13	body; wing	LNG; LNG	1	27.50	20.1	sirloin steak	134
LPM-2-17	7	2		5	14	SH, SH	TR, TR	1	19.50	12.6	steak	13
LPM-2-17	7	2		5	15	0	0	1	38.30	0	0	2
LPM-2-17	7	2		5	16	neck	TR	1	4.00	45.5	0	3
LPM-2-17	7	2		5	17	spinous processes	SAG; COR	1	32.30	113	0	3
LPM-2-17	7	2		5	18	center	SAG	1	11.90	32.8	0	3
LPM-2-17	7	2		5	19	0	0	1	2.50	0	0	0
LPM-2-17	7	2		5	20	centrum; spinous process	SAG; COR; TR; DIA	1	30.00	72.8	0	13
LPM-2-17	7	2		5	21	articulation	TR; PSAG	2	18.30	0	likely cut up for stew	13
LPM-2-17	7	2		5	22	centrum	SAG	1	13.50	52.4	0	3
LPM-2-17	7	2		5	23	head; neck	multiple angles	1	4.80	36.1	likely cut up for stew	13
LPM-2-17	7	2		5	24	0	0	1	0.40	0	0	0
LPM-2-17	7	2		5	25	0	0	1	0.70	0	0	0
LPM-2-17	7	2		5	26	MID shaft	TR	1	37.80	96.4	0	13
LPM-2-17	7	2		5	27	head; DS shaft	PSAG; DIA	1	4.20	110	0	3
LPM-2-17	7	2		5	28	0	0	1	1.00	0	0	4
LPM-2-17	7	2		5	29	head; neck	LONG; DIA	1	5.20	32.4	0	134
LPM-2-17	7	2		5	30	0	0	1	1.40	0	confirm species	4
LPM-2-17	7	2		5	31	0	0	1	1.70	0	0	0
LPM-2-17	7	2		5	32	0	0	3	2.70	0	0	1
LPM-2-17	7	2		5	33	0	0	4	4.20	0	0	0
LPM-2-17	7	2		5	34	trochlea	COR	1	2.00	35.4	0	0
LPM-2-17	7	2		5	35	0	0	3	0.80	0	0	0
LPM-2-17	7	2		5	36	0	0	1	1.50	0	0	0
LPM-2-17	7	2		5	37	0	0	1	0.50	0	0	0
LPM-2-17	7	2		5	38	0	0	1	0.20	0	0	0
LPM-2-17	7	2		5	39	0	0	1	0.10	0	0	0
LPM-2-17	7	2		5	40	0	0	1	0.10	0	0	0
LPM-2-17	7	2		5	41	0	0	4	0.70	0	0	0
LPM-2-17	7	2		5	42	0	0	1	2.60	28.9	0	1
LPM-2-17	7	2		5	43	0	0	1	4.20	14.3	0	1
LPM-2-17	7	2		5	44	0	0	3	3.10	0	0	1
LPM-2-17	7	2		5	45	0	0	1	1.60	0	0	1
LPM-2-17	7	2		5	117	0	0	1	2.70	34.9	0	0
LPM-2-17	7	2		5	118	illium body (x2)	TR (x2)	1	4.50	22.3	UCSC if time	13
LPM-2-17	7	2		5	119	centrum	SAG	1	8.00	31.9	0	3
LPM-2-17	7	2		5	120	SH	TR	5	47.60	107	0	1
LPM-2-17	7	2		5	121	0	0	1	3.10	33.5	0	0
LPM-2-17	7	2		5	122	SH	TR	2	3.70	36.4	0	0
LPM-2-17	7	2		5	123	0	0	3	10.40	72.1	0	0
LPM-2-17	7	2		5	124	arch (x2), spinous process	DIA (x2), TR	1	14.90	69.3	0	0

SITE	UNIT	LVL	FEAT	Artifact ID	Faunal BoneID	MODL	MODO	NISP	WT	LGTH	COMM	Post
LPM-2-17	7	2		5	125	0	0	1	4.10	59.7	0	0
LPM-2-17	7	2		5	126	0	0	1	7.80	49.5	0	0
LPM-2-17	7	2		5	127	0	0	1	2.30	0	0	0
LPM-2-17	7	2		5	135	body	COR, COR	1	4.10	14.7	0	0
LPM-2-17	7	2		5	136	0	0	1	2.70	35.9	0	0
LPM-2-17	7	2		5	137	body	COR, COR	1	3.00	8.8	0	0
LPM-2-17	7	2		5	138	0	0	1	1.00	24.2	0	0
LPM-2-17	7	2		5	139	INT	INT	1	8.80	27.5	0	0
LPM-2-17	7	2		5	140	0	0	1	2.20	40.4	0	0
LPM-2-17	7	2		5	141	0	0	1	4.30	30.2	0	0
LPM-2-17	7	2		5	142	0	0	1	3.10	62.4	0	0
LPM-2-17	7	2		5	143	0	0	1	0.30	0	0	0
LPM-3-16		Surface		6	46	0	0	1	45.10	0	0	4
LPM-3-16		Surface		6	47	MID shaft	TR	1	147.80	147	0	12
LPM-3-16		Surface		6	48	MID shaft	TR	1	136.10	152	0	12
LPM-3-16		Surface		6	49	MID shaft	TR	1	201.80	192	0	1234
LPM-3-16		Surface		6	50	0	0	1	17.00	0	0	1234
LPM-3-16		Surface		6	51	0	0	1	11.50	0	0	1234
LPM-3-16		Surface		6	52	neck	DIA	1	56.70	90.6	0	123
LPM-3-16		Surface		6	53	SH	TR	6	11.30	68.4	0	1
LPM-3-16		Surface		6	54	head; MID shaft	PSAG; TR	1	17.90	95.8	0	13
LPM-3-16		Surface		6	55	0	0	2	4.50	0	0	0
LPM-3-16		Surface		6	56	0	0	4	5.10	0	0	0
LPM-3-16		Surface		6	57	body	COR	1	45.00	128	0	0
LPM-3-16		Surface		6	58	body	COR	1	18.90	98.4	0	0
LPM-2-17	7	1		7	66	shaft	TR	1	12.80	77.5	0	13
LPM-2-17	7	1		7	67	0	0	1	0.70	0	0	0
LPM-2-17	6	4		8	73	MID shaft	TR; TR	1	30.80	28.9	0	13
LPM-2-17				9	63	neck	DIA	2	10.60	77	0	23
LPM-2-17				9	64	0	0	1	94.70	148	0	2
LPM-2-17	15	Surface		10	68	PX shaft; MID shaft	DIA; DIA	1	267.70	170	0	3
LPM-2-16				11	69	PX shaft; MID shaft	TR; TR	1	100.40	113	refit, 3 NISP	123
LPM-2-16				11	70	0	0	1	52.40	0	0	4
LPM-2-16				11	71	0	0	1	48.70	0	refit, 2 NISP	0
LPM-2-17	6	3		12	72	0	0	1	46.60	12.4	0	4
LPM-17		Surface		13	74	centrum	SAG	1	36.20	102	0	0
LPM-17		Surface		13	75	neck	TR	1	10.30	70.9	0	3
LPM-17		Surface		13	76	spinous process	TR	1	11.30	83.1	0	1
LPM-17		Surface		13	77	0	0	1	1.70	0	0	0
LPM-1-17	6	3		14	78	PX shaft; DS shaft	TR; TR	1	129.00	178	0	1
LPM-2-16	B		9	15	79	DS shaft	TR	1	73.70	83.7	0	1
LPM-2-16	Test		36	16	80	0	0	1	21.40	108	confirm species	0

Appendix C. Loma Prieta Specimens Selected for SJSU Faunal Comparative Collection

Table C.1. Loma Prieta Comparative Collection. Butchery Mark Diagnostic Specimens

Artifact ID	Faunal Bone ID	Taxa	Common Name	Element	Side	Portion	Saw	Chop	Cut	Scrape	Intet	Modification Location	Comment	NISP	Weight (g)	Length (mm)
5	11	*Sus scrofa*	pig	humerus	L	distal shaft	1	0	52	0	0	teres tuberosity	possibly spiral cut	1	86.40	148.2
5	12	*Bos taurus*	cow	femur	L	distal medial	2	0	0	0	1	distal shaft; patellar groove; medial condyle		1	174.10	130.3
5	13	*Bos taurus*	cow	innominate	R	illium	2	0	6	0	0	body; wing	sirloin steak	1	27.50	20.1
5	14	*Bos taurus*	cow	femur	L	shaft slice	2	0	0	0	0	shaft, shaft	steak	1	19.50	12.6
5	20	*Bos taurus*	cow	posterior thoracic vertebra	X	half	4	0	0	0	0	centrum; spinous process		1	30.00	72.8
5	21	*Bos taurus*	cow	cervical vertebra	X	articulation	1	3	0	0	0	articulation		2	18.30	0
5	23	*Bos taurus*	cow	anterior rib	indet	head	2	0	0	0	1	head; neck		1	4.80	36.1
5	26	Caprinae	sheep/goat	tibia	R	proximal and shaft	1	0	2	7	0	middle shaft		1	37.80	96.4
5	29	*Sus scrofa*	pig	radius	L	proximal	2	0	0	0	1	head; neck		1	5.20	32.4
6	47	*Bos taurus*	cow	tibia	L	distal shaft	1	0	2	0	0	middle shaft		1	147.80	146.5
6	48	*Bos taurus*	cow	radius	L	distal shaft	0	0	1	0	0	middle shaft		1	136.10	151.7
6	49	*Bos taurus*	cow	radius	L	distal shaft	1	0	0	0	0	middle shaft		1	201.80	191.8
6	52	*Bos taurus*	cow	scapula	R	head	1	0	0	0	0	neck		1	56.70	90.6
6	53	*Bos taurus*	cow	caudal vertebra (2nd)	indet	shaft fragment	1	1	0	0	0	shaft		6	11.30	68.4
6	54	*Bos taurus*	cow	anterior rib	R	proximal and shaft	1	0	2	0	0	head; middle shaft		1	17.90	95.8
2	59	*Bos taurus*	cow	humerus	L	proximal and shaft	1	0	2	0	0	middle shaft		1	366.40	186
2	60	*Bos taurus*	cow	femur	L	shaft	2	0	0	0	0	proximal shaft; distal shaft		1	176.80	136.5
2	61	*Bos taurus*	cow	femur	R	distal	1	0	0	0	0	distal shaft		1	287.80	153.4
2	62	*Bos taurus*	cow	femur	R	proximal	1	0	0	0	0	neck		1	274.90	152.4
3	65	*Bos taurus*	cow	tibia	R	shaft cylinder	1	0	0	0	1	middle shaft		1	142.30	125.1
7	66	*Bos taurus*	cow	posterior rib	indet	distal	1	0	1	0	0	shaft		1	12.80	77.5
11	69	*Bos taurus*	cow	tibia	R	shaft cylinder	2	0	0	0	0	proximal shaft; middle shaft	refit, 3 NISP	1	100.40	113
8	73	*Bos taurus*	cow	femur	indet	shaft cylinder	2	0	4	0	0	middle shaft		1	30.80	28.9
13	76	*Bos taurus*	cow	posterior thoracic vertebra	X	spinous process	1	0	3	0	0	spinous process		1	11.30	83.1
14	78	*Bos taurus*	cow	tibia	R	anterior lateral	2	0	0	0	0	proximal shaft; distal shaft		1	129.00	178.3
15	79	*Bos taurus*	cow	tibia	R	distal shaft	1	0	0	0	0	distal shaft		1	73.70	83.7
4	81	*Bos taurus*	cow	tibia	L	distal shaft	1	0	0	0	0	middle shaft		1	235.00	172.3
4	86	*Bos taurus*	cow	tibia	L	unfused proximal end	1	0	0	0	0	intercondyloid notch	refit, 2 NISP	1	43.40	0
1	105	*Bos taurus*	cow	anterior rib	R	proximal facet	1	1	1	0	0	neck; proximal shaft		1	14.70	70.1
5	118	Artiodactyla	artiodactyl	innominate	L	illium body fragment	2	2	0	0	0	illium body (x2)		1	4.50	22.3
5	120	*Bos taurus*	cow	unidentified rib	unknow	shaft fragment	5	2	2	0	1	shaft		5	47.60	107

Table C.2. Loma Prieta Comparative Collection. Fracture Type Diagnostic Specimens

Artifact ID	Faunal Bone ID	Taxa	Common Name	Element	Side	Portion	Fracture Type	NISP	Weight (g)	Length (mm)
5	21	*Bos taurus*	cow	cervical vertebra	X	articulation	dry	2	18.30	0
5	23	*Bos taurus*	cow	anterior rib	indet	head	fresh	1	4.80	36.1
5	26	Caprinae	sheep/goat	tibia	R	proximal and shaft	green	1	37.80	96.4
5	29	*Sus scrofa*	pig	radius	L	proximal	green	1	5.20	32.4
5	32	*Mammalia*	medium sized mammal	long bone	indet	shaft fragment	fresh, green, dry	3	2.70	0
6	48	*Bos taurus*	cow	radius	L	distal shaft	green	1	136.10	151.7
6	53	*Bos taurus*	cow	caudal vertebra (2nd)	indet	shaft fragment	dry	6	11.30	68.4
6	54	*Bos taurus*	cow	anterior rib	R	proximal and shaft	dry	1	17.90	95.8
2	59	*Bos taurus*	cow	humerus	L	proximal and shaft	green	1	366.40	186
2	61	*Bos taurus*	cow	femur	R	distal	green	1	287.80	153.4
3	65	*Bos taurus*	cow	tibia	R	shaft cylinder	dry	1	142.30	125.1
7	66	*Bos taurus*	cow	posterior rib	indet	distal	dry	1	12.80	77.5
11	69	*Bos taurus*	cow	tibia	R	shaft cylinder	green, dry	1	100.40	113
8	73	*Bos taurus*	cow	femur	indet	shaft cylinder	fresh	1	30.80	28.9
13	76	*Bos taurus*	cow	posterior thoracic vertebra	X	spinous process	dry	1	11.30	83.1
14	78	*Bos taurus*	cow	tibia	R	anterior lateral	green	1	129.00	178.3
15	79	*Bos taurus*	cow	tibia	R	distal shaft	fresh, green	1	73.70	83.7
4	86	*Bos taurus*	cow	tibia	L	unfused proximal end	dry	1	43.40	0
1	105	*Bos taurus*	cow	anterior rib	R	proximal facet	dry	1	14.70	70.1
5	118	Artiodactyla	artiodactyl	innominate	L	illium body fragment	green	1	4.50	22.3
5	120	*Bos taurus*	cow	unidentified rib	indet	shaft fragment	fresh, dry	5	47.60	107

Table C.3. Loma Prieta Comparative Collection. Animal Modification Diagnostic Specimens											
Artifact ID	Faunal Bone ID	Taxa	Common Name	Element	Side	Portion	Rodent Mod	Carnivore Mod	NISP	Weight (g)	Length (mm)
6	48	*Bos taurus*	cow	radius	L	distal shaft	Y	N	1	136.10	151.7
6	54	*Bos taurus*	cow	anterior rib	R	proximal and shaft	Y	N	1	17.90	95.8
2	59	*Bos taurus*	cow	humerus	L	proximal and shaft	Y	N	1	366.40	186
2	60	*Bos taurus*	cow	femur	L	shaft	Y	N	1	176.80	136.5
2	62	*Bos taurus*	cow	femur	R	proximal	Y	Y	1	274.90	152.4
14	78	*Bos taurus*	cow	tibia	R	anterior lateral	Y	N	1	129.00	178.3

Table C.4. Loma Prieta Comparative Collection. Weathering Stage Diagnostic Specimens

Artifact ID	Faunal Bone ID	Taxa	Common Name	Element	Side	Portion	Weathering Stage	NISP	Weight (g)	Length (mm)	Comment
6	49	*Bos taurus*	cow	radius	L	distal shaft	0	1	201.80	191.8	
5	11	*Sus scrofa*	pig	humerus	L	distal shaft	1	1	86.40	148.2	
6	51	*Bos taurus*	cow	cuneiform	L	complete	1	1	11.50	0	
5	15	*Bos taurus*	cow	femur	L	unfused proximal end	2	1	38.30	0	
6	47	*Bos taurus*	cow	tibia	L	distal shaft	2	1	147.80	146.5	
6	48	*Bos taurus*	cow	radius	L	distal shaft	2	1	136.10	151.7	
6	50	*Bos taurus*	cow	scaphoid	R	complete	2	1	17.00	0	
6	52	*Bos taurus*	cow	scapula	R	head	2	1	56.70	90.6	
2	59	*Bos taurus*	cow	humerus	L	proximal and shaft	2	1	366.40	186	moss attached to surface
2	61	*Bos taurus*	cow	femur	R	distal	2	1	287.80	153.4	moss attached to surface
2	62	*Bos taurus*	cow	femur	R	proximal	3	1	274.90	152.4	moss attached to surface
11	69	*Bos taurus*	cow	tibia	R	shaft cylinder	3	1	100.40	113	refit, 3 NISP
4	83	*Bos taurus*	cow	calcaneus	L	nearly complete	3	1	101.90	149.8	
4	85	*Bos taurus*	cow	calcaneus	L	nearly complete	3	1	77.60	122.6	
4	132	*Bos taurus*	cow	anterior rib	indet	shaft	3	1	5.80	53.9	
9	63	*Bos taurus*	cow	anterior rib	R	neck	4	2	10.60	77	
9	64	*Bos taurus*	cow	radius	L	distal shaft	4	1	94.70	148.2	
3	65	*Bos taurus*	cow	tibia	R	shaft cylinder	4	1	142.30	125.1	

Table C.5. Loma Prieta Comparative Collection. Butchery Unit Diagnostic Specimens

Artifact ID	Faunal Bone ID	Taxa	Common Name	Element	Side	Portion	Butchery Unit	NISP	Length (mm)	Weight (g)	Comment
5	11	*Sus scrofa*	pig	humerus	L	distal shaft	picnic shoulder	1	148.2	86.40	possibly spiral cut
5	12	*Bos taurus*	cow	femur	L	distal medial	round	1	130.3	174.10	
5	13	*Bos taurus*	cow	innominate	R	illium	sirloin	1	20.1	27.50	sirloin steak
5	14	*Bos taurus*	cow	femur	L	shaft slice	round	1	12.6	19.50	steak
5	16	*Bos taurus*	cow	posterior rib	L	proximal	rib	1	45.5	4.00	
5	17	*Bos taurus*	cow	sacral vertebra	X	left spinous processes	sirloin	1	113.2	32.30	
5	18	*Bos taurus*	cow	sternebra	X	fragment	brisket	1	32.8	11.90	
5	20	*Bos taurus*	cow	posterior thoracic vertebra	X	half	rib	1	72.8	30.00	
5	21	*Bos taurus*	cow	cervical vertebra	X	articulation	neck	2	0	18.30	likely cut up for stew
5	22	*Bos taurus*	cow	caudal vertebra	X	half	rump	1	52.4	13.50	
5	23	*Bos taurus*	cow	anterior rib	indet	head	chuck	1	36.1	4.80	likely cut up for stew
5	26	Caprinae	sheep/goat	tibia	R	proximal and shaft	hind shank	1	96.4	37.80	
5	27	Caprinae	sheep/goat	posterior rib (10th)	L	proximal and shaft	rib	1	109.7	4.20	
5	29	*Sus scrofa*	pig	radius	L	proximal	shoulder	1	32.4	5.20	
6	49	*Bos taurus*	cow	radius	L	distal shaft	foreshank	1	191.8	201.80	
6	50	*Bos taurus*	cow	scaphoid	R	complete	foreshank	1	0	17.00	
6	51	*Bos taurus*	cow	cuneiform	L	complete	foreshank	1	0	11.50	
6	52	*Bos taurus*	cow	scapula	R	head	arm	1	90.6	56.70	
6	54	*Bos taurus*	cow	anterior rib	R	proximal and shaft	chuck	1	95.8	17.90	
2	59	*Bos taurus*	cow	humerus	L	proximal and shaft	arm	1	186	366.40	
2	60	*Bos taurus*	cow	femur	L	shaft	round	1	136.5	176.80	
9	63	*Bos taurus*	cow	anterior rib	R	neck	chuck	2	77	10.60	
7	66	*Bos taurus*	cow	posterior rib	indet	distal	short plate	1	77.5	12.80	
10	68	*Bos taurus*	cow	radioulna	R	shaft cylinder	foreshank	1	170.4	267.70	
11	69	*Bos taurus*	cow	tibia	R	shaft cylinder	hind shank	1	113	100.40	refit, 3 NISP
8	73	*Bos taurus*	cow	femur	indet	shaft cylinder	round	1	28.9	30.80	
13	75	*Bos taurus*	cow	anterior rib	L	neck	chuck	1	70.9	10.30	
4	81	*Bos taurus*	cow	tibia	L	distal shaft	hind shank	1	172.3	235.00	
4	90	*Bos taurus*	cow	caudal vertebra (2nd)	X	middle lateral	neck	1	90.2	96.00	
1	98	*Ovis aries*	sheep	thoracic vertebra (10th)	X	half	rib	1	30.4	1.60	
1	105	*Bos taurus*	cow	anterior rib	R	proximal facet	chuck	1	70.1	14.70	
5	118	Artiodactyla	artiodactyl	innominate	L	illium body fragment	loin/sirloin	1	22.3	4.50	
5	119	*Ovis aries*	sheep	sacral vertebra (1st)	X	half	sirloin	1	31.9	8.00	

Table C.6. Loma Prieta Comparative Collection. Taxon Diagnostic Specimens									
Artifact ID	Faunal Bone ID	Taxa	Common Name	Element	Side	Portion	NISP	Weight (g)	Length (mm)
5	1	*Gallus gallus*	chicken	femur	L	proximal and shaft	2	6.10	0
5	7	*Gallus gallus*	chicken	tibiotarsus	R	distal medial	1	1.10	0
5	8	*Gallus gallus*	chicken	tibiotarsus	L	shaft slice	1	2.20	0
5	9	*Gallus gallus*	chicken	tarsometatarsus	L	proximal medial	1	0.30	0
5	12	*Bos taurus*	cow	femur	L	distal medial	1	174.10	130.3
5	13	*Bos taurus*	cow	innominate	R	illium	1	27.50	20.1
5	28	*Sus scrofa*	pig	phalanx (2nd)	indet	nearly complete	1	1.00	0
5	29	*Sus scrofa*	pig	radius	L	proximal	1	5.20	32.4
5	30	Caprinae	sheep/goat	magnum	L	complete	1	1.40	0
6	46	*Bos taurus*	cow	naviculocuboid	L	complete	1	45.10	0
6	49	*Bos taurus*	cow	radius	L	distal shaft	1	201.80	191.8
6	50	*Bos taurus*	cow	scaphoid	R	complete	1	17.00	0
6	51	*Bos taurus*	cow	cuneiform	L	complete	1	11.50	0
2	59	*Bos taurus*	cow	humerus	L	proximal and shaft	1	366.40	186
2	61	*Bos taurus*	cow	femur	R	distal	1	287.80	153.4
2	62	*Bos taurus*	cow	femur	R	proximal	1	274.90	152.4
11	70	*Bos taurus*	cow	tibia	L	unfused proximal end	1	52.40	0
12	72	*Bos taurus*	cow	calcaneus	L	nearly complete	1	46.60	12.4
4	81	*Bos taurus*	cow	tibia	L	distal shaft	1	235.00	172.3
4	82	*Bos taurus*	cow	ulna	R	olecranon process	1	92.90	171.1
4	83	*Bos taurus*	cow	calcaneus	L	nearly complete	1	101.90	149.8
4	84	*Bos taurus*	cow	calcaneus	L	nearly complete	1	85.60	121.7
4	85	*Bos taurus*	cow	calcaneus	L	nearly complete	1	77.60	122.6
4	87	*Bos taurus*	cow	magnum	R	complete	1	21.20	0
4	88	*Bos taurus*	cow	magnum	L	complete	1	13.30	0
4	89	*Bos taurus*	cow	scaphoid	L	nearly complete	1	11.10	0
1	93	*Ovis aries*	sheep	scaphoid	L	complete	1	1.60	0
1	99	*Sus scrofa*	pig	lumbar vertebra	X	caudal articular surface right	1	1.20	33.8
1	114	*Gallus gallus*	chicken	ulna	R	complete	1	1.20	76.2

Appendix. D. Suggestions for an Historical Faunal Comparative Collection

Creating a robust vertebrate faunal comparative collection is a significant undertaking involving several factors. First, the collection will require proper storage facilities to keep specimens dry and safe from insects and rodents that gnaw on bone or make bone cavities their home. Second, it is necessary that a qualified individual individually label the specimens with taxonomic and element data. Third, the collection should include reference texts to supplement taxonomic identification. And finally, a good comparative collection should reflect the species diversity of the archaeological assemblages that the institution commonly encounters. This can be difficult to achieve, especially if assemblages are frequently taxonomically rich.

In the table below, I have listed 24 species listed in alphabetical order whose skeletons would be good taxonomic references for historical faunal assemblage analyses in the Bay Area (Table E.1. Suggested Taxa for an Historical Faunal Comparative Collection). These are bird and mammal species that I have commonly encountered in analyses of historical faunal assemblages within the Bay Area. This is by no means an exhaustive list of the species that one could potentially encounter during analyses. Creating a comparative collection to house all the possible species one might encounter during archeological analyses in the Bay Area would require substantial storage space and a dedicated staff member to care for the collection. This list is more of a lineup of the usual suspects for convenient identification and teaching purposes. Some taxa are more common than others, and reference texts can be used to supplement missing taxa. If an analyst requires a more robust collection, perhaps one that includes sea mammals, birds, fish, reptiles, or other specimens, the University of California, Berkely and the University of California, Santa Cruz both have substantial faunal bone collections that are available to visiting researchers for use.

Table D.1. Suggested Taxa for an Historical Faunal Comparative Collection

Taxa	Common name	Notes
Anas platyrhynchos	Mallard	Found in the Bay Area year-round. Many other duck species were also commonly hunted.
Bos taurus	Cow	First introduced by the Spanish, Andulian stock. Other breeds introduced later.
Branta canadensis	Canada goose	Found in the Bay Area year-round. Many other duck species were also commonly hunted
Canis domesticus	Domestic dog	
Canis latrans	Coyote	Scavenger species.
Capra hircus	Domestic goat	
Cervus canadensis nannodes	Tule elk	Historical range reduced post 1850.
Columba livia	Rock dove	
Corvus brachyrhynchos	American crow	Scavenger species.
Equus ferus caballuss	Domestic horse	
Felis catus	Domestic cat	
Gallus gallus	Domestic chicken	Modern poultry production methods were established by 1880. Before that chicken was twice the price of game bird.
Meleagris gallopavo	Turkey	Introduced to California as a game bird in the 1980s. Modern poultry production methods were established by 1880. Before that turkey was twice the price of game bird.
Mephitis mephitis	Striped skunk	
Odocoileus hemionus	Mule deer	
Otospermophilus beecheyi	Beechey ground squirrel	Likely evidence of disturbance.
Ovis aries	Domestic sheep	
Procyon lotor	Raccoon	Scavenger species.
Rattus norvegicus	Brown rat	Invasive throughout the United States, introduced during the 18th century.
Sciurus griseus	Western gray squirrel	
Sus scrofa	Pig	Wild boar, feral, and domestic pigs are all the same species. Feral pigs were introduced by the Spanish during the 1700s. European wild boar were introduced during the 1920s by a Monterey County land owner.
Sylvilagus bachmani	Brush rabbit	
Thomomys bottae	Pocket gopher	Likely evidence of disturbance.
Urocyon cinereoargenteus	Gray fox	

Assembling the collection can be approached from various angles. Institutions such as museums or universities with faunal collections may be willing to donate or lend specimens. Skeletal specimens are available for purchase from a wide range of purveyors with an equally wide range of credibility. The taxon of any skeletal specimen purchased online must be confirmed by a qualified person prior to accession into the comparative collection. The best and most difficult way to create a comparative collection is by collecting and processing specimens by hand. Skeletonizing carcasses is not for the weak of heart and requires a substantial amount of dedicated workspace. There are good reference guides available to guide an individual brave enough to do the work of defleshing, macerating, and cleaning a carcass. I recommend establishing a colony of dermestid beetles to help with the task.

Farmers, hunters, fishers, exterminators, and butchers are good contacts to help locate complete carcasses. Outdoor enthusiast can start collections by finding specimens in the woods or on beaches. Collecting roadkill may seem like a good option, but besides usually being in an advanced state of decay, the skeletons are often shattered and difficult to salvage. Saving the bones from dinner can help add to a collection, especially in identification of specific cuts of meat. However, modern animals are slaughtered at a very young age before their bones have fully fused. This is especially true for chickens, turkeys, and pigs. The skeleton of a roasted chicken from Costco is largely cartilage and does not resemble historical poultry. Aged meat animals with fused bones should be preferred if available.

Appendix E. Loma Prieta Site 5 Survey

Table E.1. Loma Prieta Site 5 Survey. Artifacts

Artifact	Description	Maker's Mark or Text
Bottle glass	body fragment, amber, mold blown	
Bottle glass	body fragment, brown	
Bottle glass	body fragment, cobalt blue	
Bottle glass	body fragment, colorless	
Bottle glass	body fragment, colorless	"P"
Bottle glass	body fragment, colorless	
Bottle glass	body fragment, green	
Bottle glass	body fragment, olive	
Bottle glass	bottom base, colorless	
Bottle glass	bottom base, colorless, rectangular, mold-blown	
Bottle glass	complete, aqua, crown lip	"A B Co A1"
Bottle glass	complete, colorless, rectangular	"THE JONES-PADDOCK C SAN FRANCISCO"
Bottle glass	complete, colorless, threaded lip	
Bottle glass	complete, olive, applied blob lip	
Bottle glass	lip and shoulder, aqua, packer lip, mold blown	
Ceramic bottle	complete, unrefined stoneware ink bottle	J. BOURNE & SONS
Ceramic domestic	base and lip, whiteware teacup	
Ceramic domestic	fragment, unrefined, salt glazed fermentation crock	
Ceramic domestic	fragment, whiteware plate	MADDOCK, BURSLEM
Ceramic domestic	fragment, whiteware plate	
Domestic ceramic	base, lip, and handle, type two stoneware teacup	
Domestic ceramic	body fragment, porcelain pitcher, embossed leaf pattern	
Domestic ceramic	fragment, whiteware plate/soup bowl	
Domestic glass	fragment, colorless decorative bowl, embossed pattern	
Domestic glass	lip fragment, colorless drinking glass	
Domestic metal	enamelware pot with handle	
Faunal shell	clamshell	
Metal hardware	copper barrel lid	
Metal hardware	corroded pipes	
Metal hardware	industrial hardware, wheel	
Metal hardware	sheet metal	
Milled wood	milled redwood	