

Body Arrangement in a Native Californian Population

M.A. Thesis Proposal

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April 1, 2019

I. Abstract

This study will ascertain the cultural implications carried by body arrangement at the prehistoric Californian site CA-ALA-329. Previous research on body arrangement has found correlations with social status, social identity, and time-period. Native Californian's culture began to be stratified over 2,000 years ago; Native Californians were complex hunter-gatherers ALA-329 was occupied from 200 BC through around the time of Spanish contact in 1769 AD. Central Californian sites often contain variable body arrangements, but Central Californian studies view body arrangement as a temporal component, as certain body arrangements are more prevalent in certain time-periods. Middle Period and Late Period burials are associated with flexed burials in the San Francisco Bay Area. However, in the Middle Period, the Meganos people intruded upon the area; The Meganos are associated with ventrally and dorsally extended burials; ALA-329 may be associated with the Meganos aspect. This should be displayed in my research with Middle Period burials encompassing the extended burials and some flexed burials from the population, and Late Period burials primarily flexed burials. It has been suggested that ALA-329 is a cemetery site for the elite, and I expect my results to support this claim. A variation of a flexed arrangement, a seated arrangement is prevalent at the Ryan Mound; I expect that the seated burials are culturally significant. This will be assessed through its statistically significant correlations with the categories of age, sex, grave goods, and time-period. The results of this study will broaden the knowledge available concerning the Ohlone's culture through the analysis of body arrangement.

II. Introduction

This thesis will focus on the body arrangement present at the Native Californian site, CA-ALA-329, or the Ryan Mound. ALA-329 is an example of a prehistoric shellmound from the San Francisco Bay Area (Bickel 1976; Coberly 1973; Davis and Treganza 1959; Leventhal 1993; Leventhal and DiGiuseppe 2009; Weiss 2018). ALA-329 was occupied from 200 BC to around the time of Spanish contact in 1769 AD (Jurmain *et al* 2009; Leventhal 1993; Groza 2002; Weiss 2018; Wiberg 2010). This corresponds to the Middle Period and the Late Period of Central California (Leventhal 1993; Milliken *et al* 2007), which is generally associated with flexed burials, some cremations, and no preferred orientation or disposition (Leventhal 1993; Hylkema 2002; Wallace and Lathrop 1975:46). The Ryan Mound has been included in more than 200

studies from archaeology reports (Coberly 1973) to shellmound interpretations (Leventhal 1993) to interpersonal aggression (Jurmain *et al* 2009) and many topics in-between (Weiss 2018). However, the body arrangement at ALA-329 has only been generally discussed. For body arrangement, it has been noted that the Ryan Mound contained primarily loosely flexed and tightly flexed burials, with a high incidence of seated individuals. Additionally, ALA-329 burials are variable when it comes to orientation and disposition (Coberly 1973; Davis and Treganza 1959; Leventhal 1993). This is a gap that would lend to the understanding of Central Californian mortuary practices if filled in.

Generally, body arrangement has been associated with time-period in Central California (Bennyhoff and Fredrickson 1994; Eerkens *et al* 2013; Fredrickson 1973; Heizer 1949; Heizer and Fenenga 1939:385; Hylkema 2002; Wallace and Lathrop 1975:46), but a variety of body arrangements are found in Central Californian cemeteries for each time-period (Davis and Treganza; Eerkens *et al* 2013; Heizer 1949; Ragir 1972). The cultural meaning behind the variability found within the cultural typologies in Central Californian, particularly San Francisco Bay Area sites, was discussed by Eerkens and coworkers (2013). While Eerkens and coworkers conducted their study on an Early Period site located in a cultural area adjacent to ALA-329, I will use their methodology to assess body arrangement at ALA-329. If body arrangement is characteristic of the Middle and Late Periods in the San Francisco Bay Area, being predominantly flexed with no preferred orientation of disposition, then how does this relate to social status differentiation in the population? Are the 'typical' burials also the wealthiest? This study will incorporate that the theory mortuary practices contain cultural meaning. Specifically, Social status can be interpreted from burials based on the mortuary variables (grave goods, the orientation of the remains, the location of the burial, and position of the remains) included with

the burial. Higher status individuals should be interred with both a greater amount of mortuary items and more culturally significant mortuary items than individuals of lower status (Bellifemine 1997). Factors that are thought to influence individual mortuary practices within a culture include: sex, age, social status, social organization, the location of death, the cause of death, and the circumstance of death (Bellifemine 1997; Binford 1971; Pearson 1999). By incorporating ethnographic and ethnohistoric data into the traditional archaeological and bioarchaeological data of artifact analysis with age and sex estimation the interpretations will be more reliable (Gamble *et al* 2001).

Another issue typically associated with body arrangement in Central California is the Meganos aspect. The Meganos are thought to be an intrusive group that reached the Alameda district in the Upper Middle Period, 430 AD to 1050 AD (Milliken *et al* 2007; Bennyhoff 1987). The Meganos aspect is generally associated with primarily ventrally and dorsally extended burials with some flexed burials (Bennyhoff 1987; Milliken *et al* 2007; Wiberg 1984:59). The Meganos aspect has been associated with the CA-ALA-328 or the Patterson Mound, which is in the same area as ALA-329 (Hylkema 2002). Thus far, Weiss (2018) has been the primary study that suggests that the Meganos were present at ALA-329 as well. However, Weiss (2018) used nonmetric data, not body arrangement to address this issue. I will assess whether the burials from the Middle Period suggest the Meganos aspect based on body arrangement.

Body arrangement is how the portions of the body are associated with one another, and is specific to the details concerning the body as if it were separated from the rest of the grave (Potter and Perry 2011). Body arrangement is a piece of the study of mortuary practices, which can be described as the ways in which the dead are symbolically and physically detached from the realm of the living. There is much still to be learned from mortuary practices, and there are

gaps in knowledge that are waiting to be filled in. The analysis of the body arrangement from site ALA-329 will provide a wider understanding of mortuary practices from the San Francisco Bay area. The analysis will incorporate the information from the realms of mortuary practices and ethnographic information regarding the Ohlone. Mortuary practices are studied by anthropologists due to the cultural meaning behind the practices (Bellifemine 1997; Carr 1995). The cultural meaning behind body arrangement at this site will be evaluated by the prevalence of differing body arrangements compared to age, sex, orientation, disposition, number and type of grave goods, and time-period. This study will provide a greater understanding of mortuary practices for ALA-329, as well as an example of how body arrangement can be utilized in order to gain cultural insights. However, it must be explained that this study will only cover a portion of the burials from ALA-329. Therefore, this study may not represent the entire mound, and future research may change the conclusions of this study (Davis and Treganza 1959).

III. Background

Mortuary practices are represented by the grave goods, skeletons, and burial structures that are left behind at a site (O'Shea 1996). The meanings that mortuary practices convey are culturally dependent and are interpreted based upon the dominant research paradigm of the time period. The early processual archaeology, or New Archaeology, of the 1960s and 1970s, was prominent in the United States (Pearson 1999:28). It was often positivist, site or culture focused and included revisions of earlier ideas of unilinear cultural evolution (Hegmon 2003). In multiple prominent studies of mortuary practices from the late 1900s, the primary focus was on whether the culture being studied was egalitarian or stratified. Additionally, processual archaeology offered a methodology for cemetery analysis, which involved cross-cultural analysis where similarities suggested social importance (Binford 1971; Gamble *et al* 2001). Some established

theories included that a burial's composition of grave goods, body arrangement, and orientation were correlated to the individual's social status, as well as sex and age-specific burial patterns.

While processualism is still employed in the study of mortuary practices, the theories have been challenged and adapted throughout the course of time. Beginning in the 1970s, post-processual archaeology arose out of discontent with some of the principles of processual archaeology. Post-processual archaeologists called for a focus on individuals, recused on symbols and that meanings that they can convey, rejected ideas of cultural evolution (Hegmon 2003), and used ethnography paired with archaeology to interpret a single culture (Hodder 1982; O'Shea 1984).

Most American Archaeologists today adhere to either a primarily processual or a mixed processual and post-processual outlook (Hegmon 2003). That being said, cross-cultural comparisons to form general laws is no longer attempted (Hegmon 2003), and the use of ethnography is often utilized in studies concerning mortuary practices (Chesson 2001b). Mortuary practices can be viewed as a representative of a societies social memories of the deceased and those who mourn them (Chesson 2001a; Chesson 2001b; Joyce 2001), the creation of identities (Chesson 2001b; Joyce 2001; Kuijt 2001), and a cumulation of events and beliefs that occurred throughout the deceased individual's life. Death may be viewed as a social regulator as death solidifies elements of power within a group (Kuijt 2001). For this reason, burials are not a representation of how an individual lived in a society, but rather how an individual was perceived by their group members. This sentiment is an important realization for the study of mortuary practices. For the information that can be extrapolated from mortuary practices is not straightforward, as the social identities that are represented in an individual's mortuary treatment were constructed by the individual's group members.

Examination of Body Arrangement in Bioarchaeology Body arrangements can generally be described as either flexed or extended. Flexed pertains to the degree of flexure, which includes the position of the trunk and legs of the body and excludes the arms. An extended burial is one with no flexure, meaning that that knees and waist are straight. Flexed burials can be split into flexed, tightly flexed, semi-flexed, and loosely flexed. Flexed burials are those in which the legs are placed at a 45-degree angle from the vertebral column. Tightly flexed burials are those which the legs are placed at the ventral side of the body, in the fetal position. Semi-flexed burials are those which the legs are placed at a more relaxed bent position at about 20 degrees from being parallel to the vertebral column. Loosely flexed burials are those in which the legs are placed at a 70 to 90-degree angle from the vertebral column (Jones 2015; Schrader 2013). Body arrangement can also be fragmented, which is an unstructured or urn burial, or contorted in which the skeleton is in an atypical position (Brothwell 1981).

Disposition and orientation are discussed in conjunction with body arrangement in Californian studies. Disposition includes the side that a body is interred on including, ventral or prone, dorsal or on the back, left side, right side (Jones 2015; Pearson 1999:6, 54; Ward 1978), seated, and standing (Pearson 1999:6). Orientation refers to the direction the trunk of the body is pointing towards *in situ* and includes cardinal directions. Body arrangement, disposition, and orientation may relate to the beliefs of the group or the social role of the individual (Jones 2015; Pearson 1999).

Examination of Body Arrangement in California Bioarchaeology Mortuary customs can be associated with social status, and be either based on age or sex or kinship or another group (Hall, Jurmain, and Nelson 1988). Specifically, burial data can shed light on an individual's social status (King 1990). It should be noted that studies on social status based on burial data typically

have not possessed strict chronologies for burials, which is an issue with these studies (Rick et al 2005). Additionally, mortuary interpretations are complex and variable, as such interpretations should not be asserted singularly or lightly (Arnold et al 2004). Just because individuals are not interred with goods does not establish that they were poor (Arnold and Green 2002).

Prehistoric Californian cemeteries were located various distances from the village sites and were dotted with poles that had ritual regalia and food items attached to identity burials (Cambra et al 2009). Mortuary sites in this area were thought to typically fall into one of four cemetery or dispersed grave and non-cemetery categories: cemetery mounds with possible evidence of feasting, cemeteries located away from villages, cemeteries in shell midden areas near villages, or non-cemetery burials located under the floors of houses and in other localities near the village (Milliken et al 2007:110; Leventhal et al 2017). However, it has been argued that cemeteries are separate from village habitation sites in the San Francisco Bay area (Leventhal and DiGiuseppe 2010; Leventhal 1993; Leventhal and DiGiuseppe 2009).

Site CCO-548 is an Early Period Central Californian site (Eerkens et al 2013). CCO-548 is located in the Contra Costa County, which is just North of Alameda County. The tribe associated with this site are the Bay Miwok (Milliken et al 2007). Generally, the Early Period is associated with ventrally extended burials that are oriented towards the West (Bennyhoff and Fredrickson 1994; Heizer 1949; Hylkema 2002). Eerkens and coworkers (2013) found that the body arrangements and orientations at CCO-548 were highly variable. In detail, they found that 37% were extended, 37% of burials were flexed, 10% were semi-extended, and 16% were semi-flexed. Then, 17% were ventrally extended, 54% supine, and 15% were on a side. Lastly, orientation was variable, but 80% were towards a cardinal direction (Eerkens et al 2013; Wiberg 2010: 439-440). Eerkens and coworkers (2013) assumed that body arrangement, disposition, and

orientation held cultural significance, so they explained a theory to interpret the mortuary customs from the site. Generally, when the prominent social identity is fluid and based on fluctuating attributes like religion, clan, or lineage, the burial attributes (such as body arrangement or orientation) will be more variable. When the prominent social identity is fixed, and based on static attributes like sex and age, the burial attributes will remain constant for a longer period of time. In Eerkens and coworkers (2013) study, it was found that body orientation fluctuated throughout time, but body orientation was always in a cardinal direction. This suggests that body orientation may be related to the individual's clan or religion in this population. On the other hand, body arrangement was fixed between flexed and extended burials; throughout the time the percentage of flexed versus extended burials did not significantly change. This suggests that body arrangement is related to something static, like sex, age, birth order, generation, or in-group/out-group for this population.

ALA-329 is one of four prehistoric burial mound sites located in the Eastern San Francisco Bay shore in the Coyote Hills, which is in the Alameda County and near present-day Fremont and Newark (Leventhal 1993). The other three mounds are designated ALA-328, or the Patterson mound, ALA-12, and ALA-13 (Bickel 1976; Coberly 1973; Leventhal 1993; Leventhal and DiGiuseppe 2009), with ALA-328 and ALA-329 being the largest of the four (Davis and Treganza 1959). ALA-12 may have been occupied around the same time as ALA-328, with ALA-13 being occupied later (Bickel 1976). When the Ryan mound is compared to the Patterson mound, there are some notable differences. The Ryan mound use utilized from the Middle period through the Late period, and the Patterson Mound was occupied from the late Early period through the Middle period. It has been speculated that those utilizing the Patterson mound moved to the Ryan mound at the end of the Middle period, or that when the Patterson mound was longer

in use, another group moved into the area and began to utilize the Ryan mound (Coberly 1973). It has also been noted that in the Middle period contained competition between the group from ALA-328 and the Meganos (Hylkema 2002), while the Late period was a time of peace (Milliken *et al* 2007). For body arrangement, the Ryan mound contained primarily loosely flexed and tightly flexed positions, with a high incidence of seated individuals. While the Patterson mound contained primarily flexed individuals, 71%, with only 2 seated individuals in the skeletal population of 169 individuals. The seated arrangement is uncommon in Central Californian burials (from some sites, should list them). Furthermore, the Ryan mound contained more grave associations in burial contexts, more cremations, and more variable skeletal orientation and disposition (Coberly 1973; Davis and Treganza 1959; Leventhal 1993).

The Patterson mound is the largest mound from the Coyote Hills. The mound was in use from 400 BC until around the time of historic contact, but primarily the Patterson Mound was in use in the Middle Period (Luby 2004). For body arrangement, flexed burials on either side were the most common, and burials were oriented west more often. Davis and Treganza (1959) divided the site into three temporal components, based on depth and present artifacts and burial type. The first component is 0 to 30 inches, the second 31 to 79 inches, and the third 80 inches or more. Only the third component relates to a burial type, cremations that nearly complete. Around 571 burials were excavated from ALA-328, which only constituted about a third of the site (Davis and Treganza 1959). These burials were divided into two groups, a cemetery group, and a mound matrix group. The burials in the cemetery group were deeper and were associated with more artifacts. The mound matrix group was above the cemetery and had viewer grave associations that were less variable and more local. This has been described as a decrease in social inequality (Luby and Gruber 1999).

ALA-329 was in continuous use from about 500 AD to about 1700 AD (Jurmain *et al* 2009; Milliken *et al* 2007). However, there are some components dated as early as 200 BC at ALA-329 (Jurmain *et al* 2009; Leventhal 1993; Groza 2002; Weiss 2018; Wiberg 2010). This corresponds to the Middle Period (500 BC – 700 AD) through the Late Period (700 AD - 1769) in the San Francisco Bay (Hylkema 2002). Originally, ALA-329 was thought to be a Late Period site, specifically Phase 1 Late Period, as Coberly (1973) only used artifact typologies and body arrangement to interpret the time-period of the site. The details of the Middle period are discussed later in this review, but flexed internments (Leventhal and Cambra 2017), often tightly flexed, are typical of this time-period (Wallace and Lathrop 1975:46). For the Late Period, flexed burials are also typically found (Heizer and Fenenga 1939:385; Wallace and Lathrop 1975:46). There are 283 individuals with grave lots from San Jose State University excavations, and 138 individuals from the Stanford University excavations that still have data from the excavations available (Leventhal 1993). For the San Jose State University excavations, 213 of 284 burials had associated grave goods. For ALA-329, 212 burials from the San Jose State University excavations were attributed to a temporal period. The data is split into sub-adults (0-10) and adults (over 11). The ages were estimated by Jurmain and his students. For the Middle Period, there are 15 sub-adults and 38 adults, for the Phase 1 Late Period there are 39 sub-adults and 102 adults, for the Phase 2 Late Period there are 17 sub-adults and 72 adults (Leventhal 1993).

Evolution of “Hunting and Gathering” in Anthropology Simply put, hunter-gatherer refers to a mode of subsistence where the group depends predominantly on wild and collected foods, including fishing and other marine resources (Arnold 1996; Testart 1988; Sassman 2004). Clarification of the denotation of hunter-gatherers is necessary since there have been paradigm shifts surrounding the subsistence mode. Previously, evolutionary cultural trajectories dominated

the field. In this trajectory, hunter-gatherers were at the bottom, most primitive stage of society (Lightfoot, Luby, and Pesnichak 2011). It was in the 1970s that the old myths concerning hunter-gatherers were discredited in archaeology (Arnold 1996). Hunter-gatherers were viewed as a collective, all being viewed as nomadic and simple or primitive societies that were less evolutionary advanced than agricultural or farming societies; now it is established that hunter-gatherers cannot be categorized into a single sect (Arnold 1996; Bean 1975; Shnirelman 1992). Currently, it is typically for hunter-gatherers to be divided into either traditional/nomadic or complex; this division is meant to highlight the differences between hunter-gatherer groups (Shnirelman 1992). In the 1970s that the study of complex hunter-gatherers became a prominent topic in archaeological studies (Arnold 1996; Jones 2002; Lightfoot, Luby, and Pesnichak 2011). Additionally, the more antiquated view of cultural evolution still remains and has since influenced anthropological interpretations of complex hunter-gatherers (Lightfoot, Luby, and Pesnichak 2011). Complexity refers to the organization present in a group, including, a division of labor where some members work for other members, and where there is a hierarchical ascribed social system in place (Arnold 1996). This influence is seen in the primary question that is asked concerning complex-hunter gatherer research: what caused complexity (Lightfoot, Luby, and Pesnichak 2011).

In egalitarian societies, individuals may obtain achieved status, which means that a person could earn their status in the community, but there are not individuals that are born as high status. Also, males and females may hold a different status in the group. However, if a culture's social structure is hierarchical, then certain factors may be discernable in the mortuary analysis, such as: age and sex should not have strong correlations, some children should be associated with high-status symbols, there should be identifiable clusters of mortuary associations, grave

goods should not be randomly distributed, and high-status burials should be grouped together (Bellifemine 1997: 37). Particularly, a child's burial with many grave goods is proof that society is non-egalitarian, as a child would not have had the opportunity to gain wealth on his or her own. Therefore, the child would likely have been born as a high-status individual (Byrd and Rosenthal 2016; Shennan 1975). Overall, egalitarian societies may display mortuary differences based on age and sex, while stratified cultures should display mortuary differences based on hereditary status. Complexity in Native Californian groups is shown in that they were proto-agriculturalists and displayed evidence of sociopolitical and economic complexity, as seen with the group's permanent leadership roles, control of labor, stored goods, and manipulation of the land through burning (Arnold 1996; Bean and Lawton 1976; Lightfoot, Luby, and Pesnichak 2011; Mailer and Hale 2018).

Social Organization and Cultural Evolution in Californian Archaeology The world's most prolific archaeological research on a single locations hunter-gatherer lays within California (Arnold *et al* 2004). In prehistoric California, individuals with ascribed status and hereditary elites emerged around 2,000 years ago. Evidence of this can be studied through mortuary practices (Bellifemine 1997; Byrd and Rosenthal 2016; Ragir 1972). It has been established that Native Californian groups thrived as complex hunter-gatherers (Arnold 1996; Bean and Lawton 1976; Jones 2002; Sassman 2004) when the Spanish arrived in what is now California in 1769 A.D (Milliken *et al* 2007; Leventhal 1993). Due to the widespread missionization by the Spanish, little ethnographic information is available for pre-contact Native Californians (Whitaker, Byrd, and Darcangelo 2013; Jones 2002).

Cultural typologies were originally formed based on careful excavation using stratigraphy and serration. Data from individual burials and cemeteries have also been used to examine

changes in sociopolitical complexity in the region, particularly evidence for hereditary (ascribed) leadership (Gamble, *et al* 2001; King 1990). Without exact specific chronologies or control of stratigraphy, they could not interpret changes based on time which hindered the interpretation of burial data (King 1990). Radiocarbon dates began to be incorporated in the 1960s (Jones 2002). However, radiocarbon dates must be calibrated and corrected in order to reflect modern dates (Groza 2002; Jones 2002), and this was not done with the initial chronologies. The calibration and correction of radiocarbon dates in California began in the 1990s, the radiocarbon time scale, referred to as Radiocarbon Years Before Present or RYBP (Jones 2002).

Olivella shells were collected from the Pacific coast of California and traded into the interior since the early Holocene. *Olivella* shells were crafted into beads, and throughout time different styles were prominent, which allows for temporal chronologies to be developed from the analysis of shell beads (Bennyhoff and Hughes 1987:87). Lillard, Heizer, and Fenenga developed the first typology, known as Scheme A, and it in use until Bennyhoff and Hughes (1987) developed Scheme B1 for Central California (Bennyhoff and Hughes 1987:86; Groza 2002). The issue with the typology from Lillard, Heizer, and Fenenga was that it lacked temporal significance. They assigned bead typologies to specific time periods, without the time periods being temporally significant (Groza 2002). Groza (2002) developed the first shell bead chronology that utilized calibrated and corrected radiocarbon dates, and it is known as Scheme D. Scheme D was formed from Bennyhoff and Hughes (1987). Essentially, Scheme D is an update from Bennyhoff and Hughes (1987) in that she utilized AMS dating, which allowed for dating directly from a singular bead, rather than about 40 beads or from associated charcoal or bone for radiocarbon dating. She found some changes based on Scheme B1. Groza's (2002) offers the most up to date chronology and did shift many of the previous bead chronologies forward in time by up to 200 years (Groza

2002; Milliken *et al* 2007). Notably, Leventhal (1993) used Scheme B1 by Bennyhoff and Hughes' (1987) in his study concerning ALA-329, as it was the prominent chronology available at the time.

The Early Period occurred from either 3000 BC or 1500 BC to 500 BC (Hylkema 2002; Jones 2002). In central California, the Windmill tradition was present in this period. The Windmill tradition is noted by ventrally extended burials (Bennyhoff and Fredrickson 1994; Heizer 1949; Hylkema 2002), a western orientation of graves, perforated and phallic charmstones as grave goods, large obsidian concave base with a stem projectile point, and rectangular *Olivella* beads (Hylkema 2002). Originally, this period was designated to all of central California (Heizer 1949), but currently more narrowly to the San Joaquin Delta region of the southern California coastal region (Ragir 1972). A fairly egalitarian social structure is suggested by the mortuary evidence from the early period through the lower middle period as grave goods were not common or present in unequal amounts in association with burials (Hylkema 2002).

The Middle Period occurred from 500 BC-700 AD (Hylkema 2002), or from 500 BC or 600 AD to 1300 AD (Milliken *et al* 2007). The Middle Period is noted by population expansion and a transmission to a semi-sedentary subsistence pattern. This period consists of the Berkeley Pattern and was described by Fredrickson (1994). This pattern is located within the north San Francisco Bay area, and is noted by the emergence of shellmounds, flexed burials (Hylkema 2002) often tightly flexed, some cremations (Wallace and Lathrop 1975:46), no preferred burial orientation (Hylkema 2002), less grave goods overall, but an increase of charmstones, faunal remains, quartz crystals, and bone whistles in burials (Hylkema 2002). Also, a decrease in projectile points, an increase in bone implements (double pronged fish spears), serrated bone scapulae and

innominate bones, and elk antler wedges (Bennyhoff 1950), the appearance of *Olivella* saucer beads (Jones 2002), and an increased reliance on acorns (Bennyhoff 1950). The Middle Period is often divided into the Lower Middle Period (500 BC-430 AD) and Upper middle Period (430 AD- 1050 AD) (Milliken *et al* 2007). In the Lower Middle Period (also referred to as Initial Upper Archaic) is marked by the appearance of *Olivella* saucer beads and *Haliotis* pendants (Milliken *et al* 2007). The Upper Middle Period also includes an increase in grave goods per burial as well as an increase of individuals interred with grave goods (Hylkema 2002). Additionally, square saddle *Olivella* beads became more common than saucer beads (Milliken *et al* 2007).

The Meganos were a group that arrived in the southeast San Francisco Bay area in the late Middle Period (Hall, Jurmain, and Nelson 1988). The mixing of culture traits that occur when the Meganos were present at a site is called the Meganos Aspect. The Meganos are recognized by ventrally and dorsally extended burials with some flexed burials (Bennyhoff 1987; Milliken *et al* 2007; Wiberg 1984:59), few grave goods, and no burial orientation preference. Notably, the body arrangement is an important indicator of the presence of the Meganos culture as burial from the contemporaneous Berkley pattern were 90% flexed (Bennyhoff 1987; Wiberg 1984:59). The Meganos aspect can be described as a hybrid of the Windmiller and Berkley patterns (Bennyhoff 1987; Hall, Jurmain, and Nelson 1988; Hylkema 2002; Wiberg 1984:61-64; Wiberg 2010). It has been theorized that the Meganos aspect is due to a migration of a group from the Windmiller Pattern of the lower Sacramento Valley possibly due to the spread of Berkeley Pattern begging around 500 BC (Wiberg 1984:63). The Meganos aspect was present across the Diablo and Alameda regions or California (Bennyhoff 1987). It has been theorized that the Meganos people attempted to migrate to the Alameda and Contra County regions and were pushed out a couple of

times before actually settling in these areas (Bennyhoff 1987; Wiberg 2010). The Meganos aspect may have reached sites in the Alameda district in the terminal phase of the Middle Period (Bennyhoff 1987), and were likely present at the Patterson Mound (Hylkema 2002; Weiss 2018), and possibly the Ryan Mound (Weiss 2018). The Meganos may have interacted with and contributed to the Ohlone, Planes Miwok, and Valley Yokuts (Wiberg 2010).

The Late Period temporal dates are somewhat complex, as the late Period contains multiple chronologies. The complete Late Period occurred from 700 AD- 1769 AD (Hylkema 2002). The Middle to Late Transition occurred from 700 AD to 900 AD for the San Francisco Bay Area (Hylkema 2002), or until 1050 AD for Central California (Milliken *et al* 2007). The Middle/Late transition is noted by social changes based on body arrangement and artifact assemblages. In detail, there are few grave associations (similar to the Berkeley pattern) but more Olivella beads, and the presence of stone tobacco pipes (long and tubular), double-pronged fishbone spears, and Haliotis pendants (incised edges and banjo) (Hylkema 2002). The Initial Late Period or the Lower Emergent occurred from 1050 AD to 1550 AD. The Late period phase one and two are noted by an increase in ceremonial regalia in graves (Hylkema 2002), large mortars and pestles (ALA-329 had "flower pot" shaped mortars) (Bennyhoff and Fredrickson 1994), stone pipes (flanged), charmstones, and an increase of obsidian stock horn serrated points for bows and arrows (Bennyhoff and Fredrickson 1994), bone and antler harpoons , an increase of banjo Haliotis pendants (Hylkema 2002). The Terminal Late Period is from 1550 AD to 1769 AD. The terminal Late period is associated with the initial arrival of the Spanish and ends at the time of historic contact (Milliken *et al* 2007). Overall, the Late Period is noted by a change in social patterns that are consistent with the ethnographic record. This period contains signs of increased social complexity as more wealth items are recovered from burials in the period (Milliken *et al*

2007). This period is represented by the Augustine pattern in Central California. Specifically, body arrangement was often flexed, cremations occurred more often as through time (Heizer and Fenenga 1939:385; Wallace and Lathrop 1975:46) especially for wealthy burials (Milliken *et al* 2007). The appearance of the bow and arrow occurred (Milliken *et al* 2007), and shell beads increased in prevalence in the late Period (Jones *et al* 1999). This period is noted by the continuous growth of economic systems and an increase in social ranking (Hylkema 2002), and a continued reliance on acorns as a staple (Bennyhoff and Fredrickson 1994).

California has been described as a land of abundance, but there are some exceptions to this overall bountiful environment trend (Jones *et al* 1999). Medieval Climatic Anomaly was from 800 AD to 1350 AD (Jones 2002; Jones and Ferneau 2002; Stine 1994) and was marked by severe droughts and increased temperatures globally (Jones *et al* 1999; Stine 1994). These environmental conditions may have resulted in a change in dietary practice and demographic issues, such as a decrease in productivity. A lack of precipitation would have caused a decrease in available food and water resources (Jones *et al* 1999). There was a decrease in intensification during the MCA as the local economies would have reached their productivity limits (Jones and Ferneau 2002). This decrease in resources likely would have caused an increase in competition between groups (Jones *et al* 1999). The development of the bow and arrow during this time period, the Middle/Late Transition, (Jones *et al* 1999; Milliken *et al* 2007) could be seen as evidence of increased interpersonal conflict (Jones *et al* 1999). Additionally, Arnold (1992) notes that during the Middle/Late Transition, the Chumash of the Sant Barbara Channel underwent a shift in social status as Chiefs gained control of the shell bead trade, and the trading of shell beads greatly increased inland, but the Central California coast shows a decrease in trade during

this time (Jones *et al* 1999). Generally, the MCA did affect the Native Californians groups, as changes in the environment sparked cultural change.

While agriculture and writing never emerged in prehistoric California, Native Californians can be referred to as proto-agriculturalists because sowing, planting, harvesting, and processing of different flora did occur. Native Californians also burned vegetation in order to control plant growth, which can be considered quasi-agricultural but is still considered sedentary to semi-sedentary hunter-gatherers as they depended on their natural environment (Arellano *et al* 2017; Cambra *et al* 2009; Lewis 1973; Mailer and Hale 2018). Native Californian subsistence consisted of gathering (acorns, seeds, bulbs, and nuts), hunting (deer, elk, pronghorn, and other smaller animals), and collecting (shellfish) (Levy 1978; Whitaker, Byrd, and Darcangelo 2013). A staple food for Native Californians was acorns (Levy 1978; Meighan 1959), yet they required major processing to be safe to consume. The acorns had to go through a leaching process, which included: harvesting, drying, storing, grinding, and then leeching to remove the tannic acid from the acorns (Palmer 1929). In addition to acorns, seed, greens, and grasshoppers were also stored by central Californians (Levy 1978). Acorn storage required a complex social system, as discussed previously.

The social organization of Native Californians' are referred to as tribelets, which were village communities that had a Chief, a council of Elders, and shared a language (Kroeber 1925). The tribelet is a term coined by Kroeber (1927) and consists of multiple villages with one chief that formed a politically autonomous region. Multiple tribelets in an area would share a language, but only a single tribelet, from one settlement or group of settlements, would be autonomous (Barth 1990). Ethnohistoric reports suggest that tribelets were from 20 to several hundreds of people

(Bartelink 2006). There were also larger groups that would form outside of tribelets, such as trade alliances, ritual gatherings, and military actions (Barth 1990; Moratto 1984). Kroeber interpreted village membership as the defining attribute of Native Californian society. However, it has been found that rituals and ceremonies contributed more to identity and structure (Bean 1976; Leventhal *et al* 1994). Furthermore, the term “tribelet” suggests cultural simplicity, which negates the social complexity and diversity present in Native Californian culture, and the term “tribe” has become preferential (Leventhal, Field, Alvarez, and Cambra 1994).

The San Francisco Bay Area is a diverse area of central California that was populated about 4000 years ago (Milliken *et al* 2007). The west coast was separated from the rest of California by mountains and deserts; these physical barriers kept the San Francisco Bay Area tribes apart from the indigenous groups to the east and allowed the area to establish a unique culture (Palmer 1929). While the ethnographic data for the South San Francisco Bay Area is incomplete, there is evidence for lineages and moieties, warfare, low mobility, high population densities in the area among the Ohlone (Harrington 1942; Levy 1978). The Spanish named the Native people who occupied the area the Costanoan's, or “coast people” (Kroeber 1925; Bickel 1976). It was R.G Latham who created the term in 1856 to describe the language of the Native people in the area (Milliken 1991). Costanoan refers to multiple Native American tribal groups, the group specific to the San Francisco Bay area the Ohlone (Arellano *et al* 2017; Cambra *et al* 2009; Leventhal 1993; Milliken *et al* 2007). Though the term Costanoan has been widely used by anthropologists, it falsely groups the San Francisco Bay area tribes together, and invokes the rationale that the native groups from this area are indistinguishable (Leventhal *et al* 1994). However, little of the Ohlone culture survives as the area was occupied by Spanish missionaries that strove to convert the Native peoples, not to remember their history (Kroeber 1925). When

the Spanish explorers arrived in central California in 1769, about 300,000 Native Californians were in California at that time (Mailer and Hale 2018). New diseases were brought to California by European settlers, fur traders, and gold miners, beginning around 1840 for Central California (Levy 1978). The only ethnographic information available from this time is from Spanish explorers and missionaries, so is biased (Jones and Ferneau 2002). Ethnographic research was not gathered until the 1900s (Jones and Ferneau 2002). That being said, the Ohlone did not go extinct in the early 1900s, as Alfred Kroeber suggested (Leventhal *et al* 1994).

The Californian shellmounds are numerous and composed of shell, faunal remains, and burials (Leventhal 1993; Uhle 1907). Beginning in the 1900s the shellmounds of the San Francisco Bay Area have fascinated archaeologists (Lightfoot 1997). The apex of Central Californian shellmound societies was in the Middle period, but by the end of the Middle Period, many of the Shellmounds were abandoned (Luby and Gruber 1999). The shellmounds from the San Francisco Bay area have been interpreted to have different uses by different researchers throughout time. In the early 1900's it was common for researchers to view the large mounds as shellmidden or refuse sites (Coberly 1973; Nelson 1909; Uhle 1907). The burials at these shellmounds were explained to be due to the mortuary custom of burying the dead in village sites (Uhle 1907). This view has since been challenged. In Leventhal (1993) argued that the bay area shellmounds, particularly ALA-329, as a cemetery site where feasting occurred to the practice of annual mourning ceremonies; Lightfoot (1997) argued that the sites were multipurpose sites, that were used for habitation, burials, and ceremonies; in Luby and Gruber (1999) argued that the sites were feasting sites. The shellmounds themselves are numerous. In the San Francisco Bay area, there are multiple large cemetery mound sites in close proximity to one another, including Emeryville (ALA-309), Ellis Landing (CCO-295), Patterson Mound (ALA-328), Ryan Mound

(ALA-329), and the Three Wolves site (SCL-732). Additionally, shellmounds have been described as places of social memory or locations of humanmade monuments or landscapes (Gamble 2017). Social memory and landscape are closely intertwined as the familiarity with a place brings memories to the surface (Basso 1996), and are formed through the social, economic, political aspects of a culture as well as the ideals of the culture (Climo and Cattell 2002:4). Social memory relates to mortuary practices in that it can serve as a means for remembrance and forge bonds with ancestors (Basso 1996). Shellmounds likely were sociopolitical landmarks (Arnold, Walsh and Holliman 2004), SCL-38, SCL-690 Tamien Station, SCL-674 Rubino site (Cambra *et al* 2009; Cambra *et al* 2014; Leventhal and Cambra 2017), and Patterson (ALA-328) (Leventhal 1993). The most famous San Francisco Bay Area shellmounds is the Emeryville mound (Wallace and Lathrop 1975:3).

Mortuary patterns included funerals and death anniversary mournings. Funerals were the ceremonial disposal of the dead where cremations occurred in some locations and time periods rather than inhumations (Beardsley 1954; Kroeber 1925). In central California three types of cremations have been described: burning of the body in situ; pre-interment burning; and cremations where the remains were burned elsewhere then buried within a Shellmound (Beardsley 1954). Inhumations were common for the poor members of the society who did not have many family members, and cremations were common for high-status individuals and individuals with many relatives and friends (Kroeber 1925). Anniversary mourning ceremonies that occurred about a year after a prominent individual's death. Specifically, it was a ritual that included the involvement of up to 300 to 400 of individuals from differing tribes for as many as six days would gather at or around cemeteries for rituals and social activities. The annual mourning ceremonies called for the ritual obligations of opposite moiety member to wash each

other as a symbol of purification from the dead (Leventhal and DiGiuseppe 2009). Elite group members used Annual mourning ceremonies and other large ceremonial, funerary, and trade events to set up a future marriage that would promote alliances relations between groups (Cambra *et al* 2014). In a study of communal mourning ceremonies on the southern California Coast, it was found that communal mourning ceremonies were a tool for identity, group cohesion, affirmation, and value reinforcement (Hull, Douglass, and York 2013). Part of the anniversary mourning's included feasting and ground burning (Kroeber 1927; Leventhal 1993), Annual Mourning ceremonies would have required the preparation of a large amount of food for several days, so archaeologists should expect to recover evidence of faunal remains and cooking/hunting tools at mortuary sites which would leave physical traces at cemetery sites (Leventhal and DiGiuseppe 2010).

The Ohlone's sociopolitical system is not completely understood, as no records on the decent systems of the Ohlone from the time of Spanish contact are available. Post-contact ethnographic data does suggest that the Ohlone's decent system were primarily patrilineal, exogamous, and that polygyny was common only amongst chiefs (Barth 1990; Bickel 1976; Monroe 2014). Post-ethnographic information has also provided information concerning Ohlone styles of dress. The Ohlone dress consisted of feathers, necklaces, headdresses, nose, ear and hair ornaments, and shell beads in jewelry on skirts worn by both sexes. Ritual regalia consisted of pelts from many faunae (bear, cat, sea otter, sea lion, deer, elk, rabbit, and antelope) was worn by the elite. In the warmer months, women wore skirts while men and children did not wear much clothing (Arellano *et al* 2017; Cambra *et al* 2009).

It is known that the Ohlone were organized into clans and moieties (Monroe 2014; Leventhal and DiGiuseppe 2010). Clans are people who claim to have a distant lineal common

ancestor (Barth 1990; Monroe 2014), and moieties consist of lineages that inter-marry (Milliken 1991) and have with animal totems (Field and Leventhal 2003; Jones 2010). The totem animals would have had varying amounts of cultural significance and were often interred with the deceased. Totem animals of varying importance were present in each moiety, and an individual's totem animal was reliant on his/her social status (Field *et al* 2010). Coyote was the chief of animals, and therefore was an important animal totem (Wiberg 2010: 262). Animals were also present as spirit allies or dream helpers. The dream helper's animal identity was only known by the individual. Animals may have also represented deities to the Ohlone. Little is known regarding the Ohlone's beliefs concerning the afterlife, and how those beliefs related to the group's mortuary practices. However, it has been suggested that the faunal, or animal, remains that were included in Ohlone burials were meant to keep the deceased individuals' ghost soul from returning the land of the living (Jones 2010). The importance of animals to the Ohlone can be seen in the group's mortuary practices, as faunal remains are often recovered from mortuary contexts (Field and Leventhal 2003; Field *et al* 2010; Hammett *et al* 2015). Next, the Ohlone were composed of a bear and deer moiety (Field and Leventhal 2003; Hammett *et al* 2015; Jones 2010; Leventhal and DiGiuseppe 2010; Leventhal and DiGiuseppe 2009). Members of opposite moieties tended to have ritual obligations to one another, including that deceased individuals, were buried by members of the opposite moiety (Jones 2010; Kroeber 1925; Monroe 2014).

The Ohlone had males and some female shamans. The shamans were believed to be able to turn into a bear, call for or stop rain, could cure others, and were clairvoyant (Harrington 1942). Possibly belonged to Bear-Deer moieties, male and female chiefs. Mortuary customs: buried same day as death, cemeteries outside of the community, name taboo of the dead until the name was given to a family member, annual mourning ceremonies (Harrington 1942). The prominent

religion of North Central California was the Kuksu cult (Leventhal 1993; Cambra *et al* 2009; Cambra *et al* 2016). The Kuksu religion allowed for religious ceremonies that would bring large groups of Native Californians together. These ceremonies are noted to involve dancing, in which the costumes included ritual regalia such as abalone effigy pendants. In fact, the Kuksu religion may be associated with Haliotis banjo pendants (Hylkema 2002).

IV. Methods

Body arrangement at site ALA-329 is the focus of this study. As an aside, ALA-329 is associated with the Muwekma Ohlone, who are not a federally recognized tribe. In other research, body arrangement has been found to hold culturally specific meaning (Grottanelli 1947; Potter and Perry 2011; Wilder and Whipple 1917). It has been suggested that Native Californian mortuary practices, including body arrangement, is correlated with the time period of the burial (Bartelink 2006; Bennyhoff and Fredrickson 1994; Eerkens *et al* 2013; Heizer 1949; Hylkema 2002; Leventhal and Cambra 2017; Luby *et al* 2006; Milliken *et al* 2007; Wallace and Lathrop 1975:46), social status (Binford 1971; Bellifemine 1997; Leventhal 1993; Jones 2010; Schrader 2013), and social identity (Eerkens *et al* 2013; Saxe 1970). Through the analysis of the body arrangement in burials for ALA-329, a greater understanding of pre-contact Ohlone culture will be available.

Context, MNI, and Time-Period The preservation of the skeletal remains was excellent. Based on the field notes, there were few pre-contact disturbances to the burials, even though the cemetery was in use nearly 2,000 years (200 BC – 1769 AD). This suggests careful grave digging by the Ohlone. However, there was evidence found that pot hunters robbed the burials of skulls, other bones, beads, and ornaments, thus the site was disturbed. Data was collected from

San Jose State University, and included field notes, inventories, and sex and age assessments that were copied for both the San Jose State University and Stanford University excavations of ALA-329.

The records at San Jose State University include 283 individuals with grave lots. Interestingly, 284 grave lots were initially determined in the field, but when later reviewed by Robert Jurmain, it was found that Burial 155 was not associated with an *in situ* burial. Additionally, Robert Jurmain found that there was a minimum of 37 additional individuals contained within 284 field grave lots. The MNI for the San Jose State University population is 298 individuals, with a maximum of 320 possible individuals due to the commingling of individuals in grave lots (Leventhal 1993). The presence of single or grouped burials was also apparent in some cases. Burials that overlap or are in proximity to each other may be viewed as group burials. With two individuals buried together labeled as a double burial, and three or more individuals together labeled as a multiple burials (Clayton 2009).

For the exhumed individuals from both universities excavations, there are photographs and drawings of the burial *in situ*, a field report that includes field assessments of age, sex, body arrangement, burial location, and associated artifacts. The materials from site ALA-329 will be accessed and photocopied for research purposes. The materials required include: the original documents and photographs (such as the field reports, burial photographs, and field notes), inventories, and site maps from the San Jose State University. For this study, body arrangement will be determined based on burial photographs and/or drawings. Some reliance will come from the listed body arrangement on the individual burial reports, but the overall conclusion will be made based on the author's observations. Burial inventories of the excavated burials are present and can be viewed in conjunction with data included in Alan Leventhal's (1993) thesis and

Coberly's (1973) report concerning the burial inventories from the site. The data gathered from the various avenues above will be combined into an Excel spreadsheet that will discuss the available information per burial. The San Jose State University burials will be labeled SJ1-SJ284.

The data will be coded and put into Microsoft Excel and SPSS. Statistical analyses will be completed on the data in accordance with the hypotheses regarding body arrangement from the population. SPSS will be used to run frequency analyses on the following categories: body arrangement, disposition, sex, age, time-period, orientation, deposition, artifact association, total tools, tool diversity index, total wealth, wealth diversity index, Class 1 and 2, and Class 3. The two indexes along with Galloway's social classes will be employed to address the issue of social status at ALA-329. Both the indexes and Galloway's social classes will be used, so that the results from each method may be compared.

Age and Sex Age and sex assessments have been completed by Robert Jurmain and his students for the skeletal remains recovered from the San Jose State University excavations of ALA-329. Robert Jurmain along with some of his students, assessed sex and age for the skeletal population primarily in the 1980s. The sex and age estimations were completed using the standard methodology set forth by Todd (1920), Ubelaker (1978), Lovejoy and coworkers (1985), Katz and Suchey (1986), and Bass (1986) (Leventhal 1993). Age was estimated in five-year increments, following Wiberg (1984). Individuals from 0 to 10 were considered to be subadults, and individuals 11 and over were considered to be adults. Generally, Jurmain determined that there were 59 subadults and 107 adult males and 94 adult females in the skeletal population from the San Jose excavations of ALA-329. For this thesis, ages will be grouped as infant (not born- 3

years), child (4-9 years), adolescent (10-16 years), young adult (17-28), adult (29-44), and old adult (45+) (Wiberg 2010). Sex will be listed as female, male, indeterminate, and unknown.

Body Arrangement Body arrangement will be categorized as extended, flexed, loosely flexed, tightly flexed, semi-flexed, and indeterminate. The determination of body arrangement for individual burials will be made based on the field reports, field notes, and authors determination.

Disposition will include: dorsal, dorsal left, dorsal right, ventral, ventral right, ventral left, left, right, and sitting (Schrader 2013). Clustering will occur with ages in order to use large groups for analysis. The determination of disposition for individual burials will be made based on the field reports, field notes, and authors determination.

The deposition will include primary, secondary, cremation in place, redeposited cremation, and unknown. The determination of deposition for individual burials will be made based on the field reports, field notes, and the author's determination.

Time-period will include Middle Period and Phase 1 Late Period and Phase 2 Late Period. Generally, 15 sub-adults and 38 adults are attributed to the Middle Period, 39 sub-adults and 102 adults are attributed to the Phase 1 Late Period, and 17 sub-adults and 72 adults are attributed to the Phase 2 Late Period. Individual time-period assessments will be based on the available literature for the site (Leventhal 1993).

Orientation will be based on cardinal directions, and will be determined by the author from the field reports and field notes associated with ALA-329.

Tools and Tool Diversity The tool diversity index represents a means to view the diversity of tools present in the burial from ALA-329. The tool diversity index may suggest how many tools were available at the site. The tool classes are: bifaces, bone pins, bone awls, unpainted mortars,

pestles, core tools, cores, flakes, drills, manos, metates, projectile points, and unifaces. The total number of tool classes is 13. To calculate the tool diversity index, you divide the number of tool classes present in association with a burial by the total number of tool classes possible. The highest possible tool diversity index will be one, which would equate to a burial with all the possible tool classes.

Wealth and Wealth Diversity The wealth diversity index represents a means to interpret the social hierarchy present at ALA-329. Wealth items will be the same items listed previously as high-status and mid-status objects. The classes are: shell beads, abalone ornaments/pendants, bird bone whistles, painted mortars, obsidian needles, quartz crystals, stone beads, faunal remains, and charmstones. The total number of wealth classes is nine. To calculate the wealth diversity index, you divide the number of wealth classes present in association with a burial by the total number of wealth classes possible. The highest possible wealth diversity index will be one, which would equate to a burial with all the possible wealth items (Schrader 2013). Being that ALA-329 is hypothesized to be a cemetery for the elite and, a higher frequency of individuals with a wealth diversity index above zero should be present compared to the tool diversity index. The results of the tools diversity index and wealth diversity index will be grouped into three categories (group 1, 2, and 3 with 1 being the highest index numbers, and 3 being the lowest index numbers) so that they may be compared with Galloway's social classes. Furthermore, since the Meganos Aspect may be present at ALA-329 (Weiss 2018), the results of the wealth diversity index should either support or refute that hypothesis. I will then use the Fisher's Exact test to ascertain whether there is statistical significance between the burials from group 1 of the wealth diversity index and body arrangement and seated burials. The null

hypothesis is that there are no associations between individuals of high social status individuals with a certain body arrangement or burials placed in a seated position. Seated burials will be included in this assessment as seated burials are not common in Central California, so seated burials relationship to social status is an interesting question.

Galloway's Social Classes The results from the above can be compared to Galloway's three social classes, which include the higher social class, Class 1 with 10 or more different artifact assemblages and types, Class 2 burials with 5 or more different artifact assemblage types, and the lower social class, class 3, with less than five artifact assemblage types (Jones 2010). Additionally, utilizing this method will address the issue of some tools possibly being a high-status object (Schrader 2013). I will then use the Fisher's Exact test to ascertain whether there is statistical significance between social status (Class 1 and Class 2) and body arrangement and seated burials. Again, there should be a higher number of individuals in Class 1 and Class 2 than in Class 3 if ALA-329 is a cemetery site for the elite. If extended burials with few grave associations are correlated with the Meganos aspect, then there should be more Class 3 extended burials than Class 3 flexed or seated burials.

Descriptive statistics will also be employed as vehicles to view frequency, which will show how often each variable occurred within the sample (Bellifemine 1997; Coones 2007). Cross-tabulations will be used to identify patterns between two variables, specifically body arrangement in relation to the other categories. Body arrangement and time-period will be viewed to see if body arrangement is linked with time-periods at this site (Corbett 2007). As previously mentioned, middle period burials are often ventrally extended, and late period burials

are often flexed. However, patterns viewed within the data may also be considered, as interpretations are being made based on ritual behavior related to mortuary practices (Cornelison 2013).

V. Expected Findings

It is expected that body arrangement has cultural implications. This will be analyzed in multiple ways. I expect a strong correlation between time-period and body arrangement at ALA-329. Specifically, I hypothesize that the ventrally extended burials will be from the Middle period, and that the flexed burials will be from the Late period. I expect that the mortuary evidence present at the site will support the assertion of the Meganos Aspect at site ALA-329. I expect that the wealthiest burials from the site will be flexed burials. I expect burial orientations will not have a clear pattern. I also expect that my results will support Leventhal's (1993) assertion that the Ryan Mound is a cemetery for high-status individuals. I expect that the body arrangements from ALA-329 will be consistent with being related to a fluid part of society (Eerkens et al 2013), as the body arrangements do not appear to have a steadfast pattern at the Ryan mound. If body arrangement does contain a high degree of fluctuations then the practice is related to religion, clan/moiety, or lineage rather than something static like age or sex. An interesting variation of the flexed arrangement, seated, is prevalent at this site, but not many other Central Californian sites. I expect that the seated variant has cultural implications that may be ascertained through cross-tabulations with my other categories.

However, it is possible that there is not a strong correlation between categories. ALA-329 was utilized as a cemetery for nearly one thousand years with little overlap between burials, so it is possible that burial body arrangement was decided based on available space. It is also possible

that body arrangement is related to another cultural factor that is not being accessed in the thesis, or that body arrangement is random for this culture. Tainter (1978) points out that the analysis of mortuary practices is not always straightforward, as mortuary practices are complex cultural rituals. For this reason, it is important to gather as much ethnographic and scientific information as possible, and to clearly state what is being assessed in research. After all, mortuary practices hold cultural meaning, but it is imperative to recognize that mortuary practices are stylized representations of the dead by the living (Pearson 1999).

VI. Schedule

In the Spring of 2019, I will complete the Literature Review and Methods chapters of my Master's Thesis, as well as complete the statistical analysis for my research. I have already completed the initial research for the Literature Review and Methods chapters, and data collection from San Jose State University. The data collection included photocopying all documents related to the burials from site ALA-329. Thesis writing will take place in the Fall of 2019. I will complete thesis edits and corrections in the Fall 2019 semester and turn in the final submittal of my thesis in December 2019.

VII. Committee

Dr. Mark Griffin - Major Advisor

Dr. Cynthia Wilczak – Second Reader

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