

## PRE-CONTACT NATIVE AMERICAN PRESENCE AT SANTA CLARA UNIVERSITY

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*During the last 13 years, Santa Clara University has undertaken a series of capital improvement projects resulting in the completion of several new buildings and a significant amount of utility and other infrastructure alterations. During these projects, 28 prehistoric human interments have been encountered. According to osteometric and DNA analyses, all identifiable remains are females ranging in age from small children to older women with widely variable levels of grave goods. Mortuary offerings accompanied 12 burials in the form of Olivella beads, Haliotis pendants, and one bone pin. Artifact styles and <sup>14</sup>C dates (Cal) attest to an Upper Middle Period affiliation. Stable carbon and nitrogen isotope analyses indicate a reliance on terrestrial foods despite the potential availability of bay/marine resources. Lineage data, however, have not been forthcoming.*

### INTRODUCTION

Santa Clara University (SCU) is located within the city of Santa Clara, in the Santa Clara Valley. The valley itself is situated between the western foothills of the Diablo Mountain Range to the east and the Santa Cruz Mountains to the west. The topography of the campus is characterized by virtually level land which rises slightly northwest to southeast. The elevation is approximately 75 feet above mean sea level. CA-SCL-755, known as the Alameda Native Burial Site, is located roughly in the center of the SCU campus, beneath the Alameda Mall; the site's boundaries have not yet been determined.

The Santa Clara Valley is drained by two major water courses: the Guadalupe River and Coyote Creek, in addition to numerous smaller drainages. Today, the Guadalupe is the closest major waterway to the university at a distance of approximately 1.2 miles, although the area immediately within and surrounding the university is known historically for its numerous artesian wells, springs, and creeks. In fact, several of the burials discussed below were recovered from within archaic creek deposits. The San Francisco Bay sloughs and marshes were historically much more expansive than today, and easily accessible to SCL-755's inhabitants.

A wide variety of native vegetation once flourished in the valley, with oak woodland, grassland, and chaparral communities predominating. Most of the original species have been destroyed, first by missionization and agriculture, later by urbanization. Site SCL-755 is situated in what was once a very productive location, in a Valley Oak Woodland setting (Brown 2005), with access to abundant water and to terrestrial and marine (bay) resources.

This paper will provide an osteological overview, discuss the available <sup>14</sup>C, mitochondrial DNA, and stable isotope analyses, as well as describe the accompanying mortuary goods for 22 burials for which data are available.

### HISTORY OF FINDINGS

It has been known for decades that human remains are present beneath the SCU campus. The first prehistoric burials at Santa Clara were noted during the 1920s, a few more in the 1960s, and one in 1987. Few records were kept on these early discoveries; only cursory information on them is available. All of these burials, however, have been recorded, along with 22 more burials recovered in the 1990s.

Site SCL-755 appears to be a single-component site dating to the Terminal Phase of the Middle Period, as suggested by the bead assemblage and confirmed by the <sup>14</sup>C dates. It is tentatively suggested in this article that this is a formalized cemetery rather than a habitation site, judging by the virtual lack of midden and other habitation debris associated with the burials. In fact, only two isolated mortars, one pestle, and a handful of Franciscan chert flakes have been recovered within the campus. Another possible scenario is that the midden may have been stripped off SCL-755 over the years, and all that remains are the basal layers containing the burials. Due to the high degree of disturbance to the interments (as will be described below), it certainly is a feasible assumption. Development on university lands includes three locations of Mission Santa Clara, a Mexican Rancho, an American-period neighborhood, and development of the Santa Clara township, as well as the establishment of the university itself in 1851.

The interments appear to be clustered in two general areas; however, urbanization of the parcel over the last 150 years has undoubtedly erased large areas of the original site. Emphasis is also placed on the fact that the appearance of burial clusters may be artificial, because excavations are focused within specific project locations rather than as the result of explicitly targeted research.

## DESCRIPTION OF THE MORTUARY COMPLEX

As noted, one of the “features” of this site is the clustering of burials in two discrete loci. Ten were located in the northern part of the campus in 1997. The remainder, which includes three excavated in 1994, eight in 1998, and one in 2000, are located between three and seven hundred feet to the south and make up the rest of the data set. The last six are from older projects for which no analytical data are available. For the purposes of this paper, the rest of this article will discuss only the 22 burials for which information is available (Table 1).

Eight burials were semi-flexed: four on the right side, four on the left. Five were tightly flexed: two on the left side, two on the right, and one ventrally positioned. The remaining burials were too fragmentary or disturbed to ascertain their position. Four were oriented west, two were oriented south, five were oriented northwest, and two were oriented north. The remaining burials were too fragmentary to determine orientation. None was oriented to the east.

### Sex and Age Structure

Thirteen of the 22 burials could be sexed using a combination of applicable morphological standards and mitochondrial DNA extraction. All 13 sexed individuals were female: they included one infant, one child between one and two years of age, one seven to eight year old, four juveniles between the ages of 13 and 18, two adults aged approximately 31-40, two adults approximately 40-50, and two others with less definitive age ranges of 35-60. The following osteological comments are excerpted from final archaeological project reports (Pierce 2004, 2006) and field records (Hylkema 1998).

Burial 1 is a fragmentary skeleton of a small, gracile female approximately 41-50 years in age. The dentition is heavily worn and three dental abscesses are present in the maxilla. Degenerative changes in the jaw, shoulder, and spinal column are incipient (Pierce 2004:124).

Burial 2 is a fragmentary skeleton, also of a small gracile female, but younger in age, approximately 31-40. Her left third metacarpal has been fractured and exhibits a well-healed callus. Six complete Harris lines are present across the tibia (Pierce 2004:125).

Burial 3 is a teenager, 14-16 years of age. This individual is too young to sex using osteological markers, although there are more feminine characteristics than male. The DNA analysis confirms that it is female (Pierce 2004:126).

Burials 4 through 13 were recovered during the pre-construction for a new building and were found clustered

in the northern area of campus. These included four adults between the ages of 30 and 60, three teens, one 7-8 year old, and two babies.

Burial 4 is the skeleton of a small, gracile adult female with strong muscle attachments in the hands and feet. She was approximately 30-40 years of age at death. No degenerative disease was noted, except for slight indication in the ulna of changes in the elbow. She does exhibit a developmental anomaly in the form of an extra left rib (Pierce 2006:130).

Burial 5 is the fragmentary skeleton of a young child, 1.5-2.5 years of age. DNA analysis indicates that this individual was female (Pierce 2006:131).

Burials 6 and 7 consist of a double interment of two teenaged females. Burial Six is that of a woman in her late teens, in good relative health with the surprising exception of serious and severe changes on both the superior and inferior left intervertebral facets of the tenth vertebra. There were no corresponding changes on the adjacent vertebrae. This degenerative osteoporosis in the lower spine suggests a traumatic injury at one time (Pierce 2006:127). Burial Seven is another teenaged female, slightly younger, with an estimated age of 15-17. She is the only person within this grouping to exhibit Harris lines, and she also shows a developmental anomaly consisting of unilateral merging of the left first and second ribs (Pierce 2006:127).

Burial 8 is the partial remains of a young child, approximately 0.5-1.5 years in age. This burial had been previously disturbed and was almost completely destroyed (Pierce 2006:133). Molecular analysis indicates that this child was female (Wu 2006:107).

Burial 9 represents a female of middle age, approximately 35 years old. She had moderate degenerative joint and vertebral changes and suffered from severe dental wear and abscesses (Pierce 2006:134).

Burial 10 is a poorly preserved and previously disturbed skeleton of an older, female adult. This 35+ year old female exhibited degenerative changes in her left distal femur and right scapula.

Burial 11 consists of approximately 50 percent of a 7-8-year-old female child who was sexed via DNA analysis. She exhibits a dental age of 7-8 years but a skeletal age of 4-5 years, suggesting probable developmental stress (Pierce 2006:137).

Burial 12 is a young teenaged female, very fragmentary and previously disturbed. The individual was sexed via DNA analysis. Dental age is estimated at over 12 and under 18. Epiphyseal unions indicate a skeletal age of 13 to 16 (Pierce 2006: 138).

Table 1. CA-SCL-755 Burial Data Summary

No.	Age (at death)	Sex	Position/Side	Orientation	C-14 Age (corrected) YBP	Grave Associated Artifact & (Numbers of Each)
2	Adult 31-40	F	Semi-flexed, right	West	1250 +/- 51	<i>Olivella</i> A1 series (1).
5	Child 1-2	F	Semi-flexed, left	South	1270 +/- 130	None
4	Adult 30-40	F	Semi-flexed, left	West	1275 +/- 80	<i>Haliotis</i> pendant (2); <i>Olivella</i> : F2b (5), F3a (9), F3b (2)
14	Juvenile 15-18	Undet.	Semi-flexed, right	Northwest	1320 +/- 35	<i>Olivella</i> : A1 series (1)
1	Adult 41-50	F	Unknown	Unknown	1339 +/- 49	None, possibly disturbed, historic artifact found in matrix above burial.
3	Juvenile 13-16	F	Semi-flexed, left	West	1348 +/- 61	A1 series, <i>Haliotis</i> pendants, crab claw beads
16	?	Undet.	Unknown, fragmentary	Unknown	1365 +/- 45	None
15	Child 8.5-11	Undet.	Tightly-flexed, dorsal	South	1390 +/- 35	<i>Olivella</i> : A1a (1), A1b (3), A1c (7); C series: (5); F3a (20), F3b (10), crab claw (1)
8	Child .5-1	F	Unknown	Unknown	1400 +/- 105	None
18	Child 6-8	Undet.	Unknown, fragmentary	Unknown	1505 +/- 50	None
7	Juvenile 15-17	F	Semi-flexed, right	Northwest	1570 +/- 45	<i>Haliotis</i> pendants (2); <i>Olivella</i> A1a (3); crab claws
9	Adult 35-60	F	Tightly-flexed, right	Northwest	1610 +/- 130	<i>Olivella</i> F3a (3)
6	Juvenile 18	F	Semi-flexed, left	Northwest	1655 +/- 140	<i>Haliotis</i> pendants: (10); <i>Olivella</i> : A1a (10), A1b (1), A1c (1); crab Claws: numerous fragmentary
10	Adult 35-60	F	Tightly-flexed, left	Northeast	1705 +/- 40	None
13	Adult 40-50	F	Tightly-flexed, left	North	1940 +/- 40	<i>Olivella</i> : A1b (9), A1c (11); F3a (20)
11	Child 7-8	F	Tightly-flexed, right	North	1975 +/- 110	<i>Olivella</i> : A1c (35), A3c (1), A1 series unidentifiable (3), C2 (1), F2b (6), F3a (6), F3b (33)
12	Juvenile 14-16	F	Semi-flexed, right	West	2415 +/- 75	<i>Haliotis</i> pendants: (2) <i>cracherodii</i> , (1) <i>rufescens</i> ; <i>Olivella</i> : A1a (3), A1b (6), A1c (23); C2 (8), C3 (12), F3a (73), F3b (50), G1 (1), G2a (1)
17	?	Undet.	Unknown, fragmentary	Unknown	n/a	None
19	?	Undet.	Unknown	Unknown	n/a	None
20	?	Undet.	Unknown	Unknown	n/a	None
21	Adult	F	Extended, on back?	Unknown	Unknown; no testing.	Unknown, possibly "extended on back" according to meager records. Excavated in 1987; no data available.
22	Juvenile ~12	Undet.	Cranium + 2 ribs only	Unknown	Unknown; no testing.	<i>Haliotis cracherodii</i> : whole shell; <i>Olivella</i> : Ala (1), Alb (1).

Burial 13 is the very fragmentary and damaged remains of a 40-50-year-old gracile female with robust muscle attachments. This individual exhibits multiple pathologies. She had suffered from sinus infections severe enough to leave bony spicules in the sinus cavities; she also had serious degenerative changes in the right elbow and lower back (Pierce 2006:138).

Burial 14 is a teenager between the ages of 12 and 16; pathologies include shovel-shaped incisors (Hylkema 1998; Pierce 2007).

Burial 15 is a child between the ages of 8.5 and 11. This individual is very fragmentary, and previously damaged. Only 800 grams of bone material were recovered (Pierce 2007).

Burial 16 is a young teenaged juvenile between the ages of 12 and 15. This person suffered from chronic anemia (Pierce 2007).

Burial 17 consists of the remains of two individuals mixed together, some of which probably belong to Burial 16. The bone is extremely fragmentary or smashed, including the teeth. There is evidence of fire. One person is an older adult; there is also a shattered cranium of a teenaged person believed to be from Burial 16 (Pierce 2007).

Burial 18 is a small child, between the ages of 6 and 8. This very shattered skeleton, of which only 200 grams were recovered, exhibits Harris lines on one tibia (Pierce 2007).

Burials 19 and 20 were located immediately adjacent to each other, but did not appear to constitute a multiple interment. As they were located along the sidewall of the trench, they were partially exposed but left in situ, per agreement with the Most Likely Descendent (MLD). Burial 19, in particular, was extremely fragmentary. These two individuals were encountered south of the others by several meters, and were imbedded in a former creek bed. The soil surrounding these two was very loose, sandy, and full of pebbles, making excavation almost impossible. No analyses were performed on either of these two, due to the soil conditions as well as the fact that they remained interred (Hylkema 1998).

Burial 21 is a gracile, adult female with no grave goods. This flexed individual was also left in situ, and no analysis was performed, other than morphological determination of sex (Hylkema 1998).

Burial 22 consists of a cranium, mandible, and two ribs. The burial had been previously disturbed. The approximately 12-year-old child was interred with one whole *Haliotis cracherodii* shell placed over the head, as well as one H1a and one H1b bead. Due to the absence of the rest of the

skeleton, it is not known if additional grave offerings were present (Hylkema 1998).

#### DNA Analysis and Implications

Recent studies (Horai et al. 1993; Kaestle, 1996; Lorenz and Smith 1997; Shurr et al. 1997; Torroni et al. 1992; and others) have shown that certain mitochondrial DNA mutations characterize all four, and possibly five, distinct founding matrilineal (A, B, C, D and possibly X) to which almost all Native Americans belong. For a more extensive discussion of this topic and the application of the SCL-755 DNA analysis, see Kaestle (2004) and Wu (2007).

Eleven of the Santa Clara individuals were subjected to molecular analysis from mitochondrial DNA in an attempt to determine lineage and sex from incomplete or juvenile individuals. Table 2 presents the potential lineage associations. Inadequate and degraded genetic material made determinations inconclusive. It was necessary to raise annealing temperatures, which resulted in a large amount of spurious amplification. Without a doubt, the lineage work for all the individuals needs to be done under different conditions, if possible (Kaestle 2004: 95-112; Wu 2007:107-108).

Table 2. Results from DNA Lineage Analysis (Wu 2006:108)

Burial Number	Lineage
Burial 1	Lineage D
Burial 2	Lineage C???
Burial 3	Lineage D
Burial 4	Lineage D?
Burial 5	Lineage D
Burial 6	Lineage A?
Burial 7	Lineage A?
Burial 9	Lineage D?
Burial 10	Lineage C
Burial 11	Lineage D?

#### Stable Isotope Dietary Analysis

Stable isotope analysis has been conducted on 13 of these individuals. The results from SCL-755 were compared to those reported by Walker and DeNiro (1986) on the ancestral Chumash. They used a combination of carbon and nitrogen isotopes from 40 individuals to determine dietary dependence on marine and terrestrial resources. Their sample was drawn from three ecological habitats: 1) the Channel Islands; 2) coastal mainland on the Santa Barbara Channel; and 3) the interior mainland located 20 to 40 km away from the coast (Graham 2006:111).

Figure 1 is based on Walker and DeNiro's scatter plot of nitrogen and carbon values from the different Chumash sites. The Santa Clara data were plotted on this graph; the mean values fall near two of the interior mainland sites and in the range of terrestrial plant eaters (Graham 2006:111). Of course, the sample size is small and there are no associated faunal or floral data to compare with the results. This does, however, appear to be consistent with the faunal assemblage represented at SCL-690 just across the Guadalupe River, wherein "fish and birds appear to have been of secondary interest... overall, terrestrial mammals inhabiting the catchment immediately surrounding the site comprise virtually all of the vertebrate resource base exploited by its prehistoric human inhabitants" (Hylkema 2004:397). Similarly, no marine fauna were present at the Holiday Inn site (SCL-128) located in what was once a similar ecological niche in present-day downtown San Jose (White 1978).

## CHRONOLOGY

### Radiocarbon

In 1996, samples of bone from Burials 1-3 were sent to the Water Resources Center Radiocarbon Laboratory at the Desert Research Institute in Las Vegas, Nevada, and subsequently, samples from 16 individuals were sent (1997, 1998) to the Laboratory of Isotope Geochemistry-Environmental Isotope Research, Department of Geosciences at the University of Arizona. The results are included on Table 1. Dates (corrected) range from 1251 +/- 51 B.P. to 2415 +/- 75 B.P.

### Temporally Diagnostic Artifacts

The sample consists of 519 olive snail beads (*Olivella biplicata*) associated with 12 individual burial lots, as well as 39 abalone pendants (*Haliotis rufescens* and *H. cracherodii*) associated with five individual burial lots. Mark Hylkema, California Department of Parks and Recreation, analyzed grave lots from burials 4 through 13; Linda Hylkema, Santa Clara University, analyzed the remaining lots.

*Olivella* bead types and their chronological seriation follow the nomenclature developed by Bennyhoff and Hughes (1987), with additional refinements proposed by Milliken and Bennyhoff (1993), Milliken (2004:269-312), and Groza (2002). Although the *Haliotis* pendants proved to be of lesser temporal and stylistic value, they have been described in accordance with the taxonomies developed by Gifford (1947), and later modified by Bennyhoff and Hughes (1987).

Types F3a, Alc, and F3b are the most common *Olivella* bead types, with total counts of 131, 105, and 89 beads, respectively, although 12 types of *Olivella* beads

were recovered (Table 1). All of the bead types with these individuals are consistent with those identified with the Upper or later part of the Middle Period.

Three burials in particular contained most of the *Olivella* beads: 3, 11, and 13, which had 114, 105, and 172, beads, respectively. Burial 3 is a teenager; Burial 11 is the 7-year-old suffering poor health; and Burial 13 is the 40-50 year old female that had suffered severe sinus infections and degenerative changes.

### *Olivella* Bead Types A1a, A1b, A1c & A3c

One of the simplest forms of *Olivella* beads includes specimens defined as "spire-lopped" or "spire-ground." These are whole shells with the spires removed and fall within the A1 series (the A3 type is a variant of these). Three sub-types have been proposed to distinguish differences in size preferences. Tiny A1a beads have a diameter less than 6.6 mm. The medium-sized beads (A1b) have diameters between 6.6 and 9.5 mm, while large ones (A1c) are 9.6 mm or wider in diameter (Hylkema 2006:75). A total of 254 "A"-series beads was reviewed, and these compose 49 percent of the total sample. Of these, the majority (80 percent) are of the larger sub-type.

The single A3c specimen from SCL-755 was found with Burial 11. This individual, along with Burial 12, had the greatest diversity of bead types and the largest total numbers. The A3c type is particularly interesting in light of observations made by James Bennyhoff (Bennyhoff and Hughes 1987:119) that they were "most common in southern California, very rare in central California." In the latter region, he noted that two specimen from East Bay site CA-ALA-309, the Emeryville Shell mound, represented the early and late phases of the Middle Period (discussed below). Of particular significance, this temporal association is consistent with the age of SCL-755 (Hylkema 2006).

### *Olivella* Bead Types C2 and C3

A total of 27 "C"-series shelf beads (5 percent of the total bead sample) was recovered, but only from three burials (numbers 11, 12 and 15). At SCL-755, this category included Split Drilled (C2) and Split Oval (C3) beads. Both of these types were produced by longitudinally splitting the shell in half or quarter, with (in the case of the C2 type) variable retention of shelving (remnant interior whorl juncture). These beads are very curved in cross-section, and one of the defining attributes of the C2 type is the highly angled conic aperture perforations, usually between 1.5 and 2.2 mm wide (Milliken 2004:275). Split Oval beads (C3) are typically quarter shells, centrally perforated, and only occasionally do they retain portions of the interior shelf edge. Although the C3 type is generally smaller than the C2, it is often difficult to distinguish them by length alone. The C2 vary from 9.0

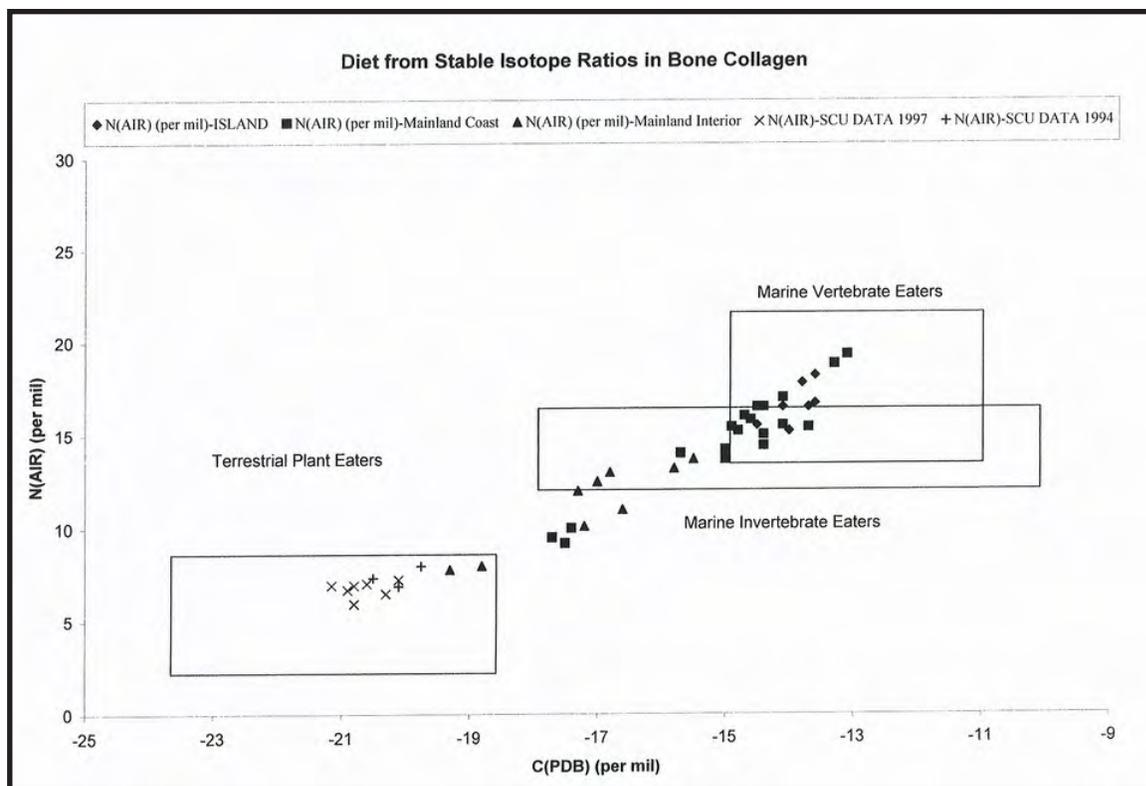


Figure 1. Diet from stable isotope ratios in bone collagen (Graham 2006:117).

to 20.0 mm in length, while the generally smaller C3 beads average 8.5 to 12.0 mm, and thus there is overlap in their respective ranges (Hylkema 2006:76).

The temporal range for C2 and C3 beads was proposed by Bennyhoff to be from the upper Middle Period to the Middle Late Transition Period; however, he felt that the C2 type appeared earlier in the Delta than in the San Francisco Bay area (Bennyhoff and Hughes 1987:123). This temporal range is in accordance with dates from SCL-755.

#### Olivella Bead Types F2b, F3a, F3b & F/M

This series of beads is oval to rectangular and derive from the *Olivella* shell wall. A total of 233 specimens (45 percent of the total sample) was recovered from six (numbers 4, 9 to 13, and 15) of the burial lots. The majority were of the Square Saddle (F3a) and Small Saddle (F3b) types.

The F2b Round Saddle is an oval bead with a small, centrally located perforation aperture that was drilled conically from the ventral surface. Typically these beads were cut diagonally from the shell wall, resulting in a trapezoidal, rounded oval with deep curvature. Bennyhoff noted that they had apertures ranging between 1.1 and 2.1 mm, while the larger ones had apertures ranging from 1.8

to 2.1 mm. Evidently the 12 specimens from this sample fall within the larger range. Bennyhoff also noted that they are common in the Alameda District (which incorporates the region of SCL-755), and that they are considered Middle Period markers but continued up to the Middle/Late Transition phase when accompanied with the F3 type (Bennyhoff and Hughes 1987:131). This agrees well with the assemblage from SCL-755.

Square Saddle F3a beads are nearly rectangular with very curved cross sections, and their perforations are almost always central, with apertures measuring less than 1.5 mm. The F3b Small Saddles are smaller than the F3a, averaging less than 6.5 mm in length. These comprise a significant portion of the bead assemblage, consisting of 131 specimens (25 percent of the total assemblage and 56 percent of the entire F-series group).

Sub-rectangular F3 beads gradually grade into the very distinctive sharp-cornered rectangular M1a Sequin beads. These are very important Late Phase markers, and it is significant that this type is not present at SCL-755. Milliken (2004:280-283 in Hylkema 2006) found it difficult to use traditional methods to identify these beads after examining several thousand specimens from the Tamien Station site (CA-SCL-690) in San Jose. Consequently, he developed a

method of distinguishing these important types and came up with an intermediate form typed the F/M Incipient Sequin. Mark Hylkema (2006:7) experienced similar difficulty while analyzing the SCL-755 assemblage and noted:

Many of the F3 beads from the SCL-755 sample ranged very closely into the F/M category, and it is with some trepidation that more were not included. However, only two could be attributed to this class with confidence. Both of these are rectangular but have slightly bulging sidewalls and slightly rounded corners; however, the ventral surfaces around the edges of these beads are seldom flat, in contrast with the M1a Sequins.

#### Olivella Bead Types G1 and G2a

These circular wall beads with conical or bi-conical central perforations are defined as Saucers, and the SCL-755 collection includes two sub types: Tiny Saucer (G1) and Small Normal Saucer (G2a). Only five specimens (slightly less than 1 percent of the entire sample) were recovered, both from Burials 11 and 12. Of these, only one was of the G2a type.

Tiny Saucers are quite homogenous, averaging only 2.5 mm in diameter, with a range of between 2.0 and 5.0 mm. Perforation apertures range between 0.8 and 2.0 mm. All five of the SCL-755 specimens fall within these parameters. G1 saucers are nearly flat, with carefully ground edges, and can be recovered from archaeological excavations only by using sifting screens with 1/8" mesh or finer. The G2a Small Normal Saucer diameter typically ranges between 5.0 and 7.0 mm, and also exhibits a flat cross section from ventral surface grinding. Perforation diameters range from 1.4 to 2.7 mm (Hylkema 2006).

#### Haliotis Ornament Assemblage

Nine types of *Haliotis* pendants were found on five of the burials (Numbers 3, 4, 6, 7, and 12); these include all three of the teenagers and two of the older women (Figure 2). Frequently the epidermis of the shell was heavily abraded and completely removed, making species identification difficult. Of the 18 specimens, only four could be identified to species: three were from green abalone (*H. fulgens*) and one was red abalone (*H. rufescens*).

The pendants from SCL-755 were classified according to the Bennyhoff and Hughes (1987:145-146) typology (Table 3). According to this scheme, the first lower case letter denotes species (r = *Haliotis rufescens*; f = *Haliotis fulgens*; u = unidentified species, epidermis ground away). The first capital letter indicates a form. The following forms have been defined for the SCL-755 collection:

- BA = Short, Oblong < 55 mm length; width > one-half length.
- BB = Narrow Oblong < 65 mm length; width < one-half the length.
- C = Circular.
- E = Triangular
- EA = Short Triangular < 35 mm length; width > one-half the length.
- EB = Long Triangular > 35 mm length; width < on-half the length.
- PA = Short Trapezoid < 60mm length; width > one-half the length.
- SA = Short Oval < 55 mm length; width > one-half the length.
- TA = Long Half-ovate with perforation.

The third identifying element is a number that describes the placement and number of perforations. The SCL-755 collection had only two perforation variants: 2 = single central perforation and 3 = single edge perforation.

Finally, the last identifying element, represented by a lower-case letter, is incised edge decoration. The SCL-755 specimens are denoted by an "P" to identify their notched edges, or a "j" that identifies them as plain/undecorated.

#### Summary of Chronology

To summarize, the shell bead and ornament assemblage from SCL-755 is consistent with accepted date ranges for the Middle and Middle/Late Transition periods. This site has produced radiocarbon dates that ascribe the assemblage to the archaeologically defined upper Middle Period cultural phase of the Berkeley Pattern (Skowronek 1998). This site contrasts sharply with neighboring site SCL-690, a slightly later site across the Guadalupe River, wherein increasing wealth and status differentiation is evident. At SCL-755, bead wealth is not as clearly defined, and bead counts per burial remain fairly low, averaging 18.5 for the entire population (Hylkema 2006:86). Pendant counts are also low; only 39 pendants were recovered, averaging slightly more than one per burial. However, the entire pendant assemblage was distributed between five individuals.

Mark Hylkema (2006) analyzed the *Haliotis* pendants and *Olivella* beads for burials 4 through 13 in the early 1990s. Unfortunately, at that time he was not given data for burials 1 through 3. Burial 3 not only contained the largest number

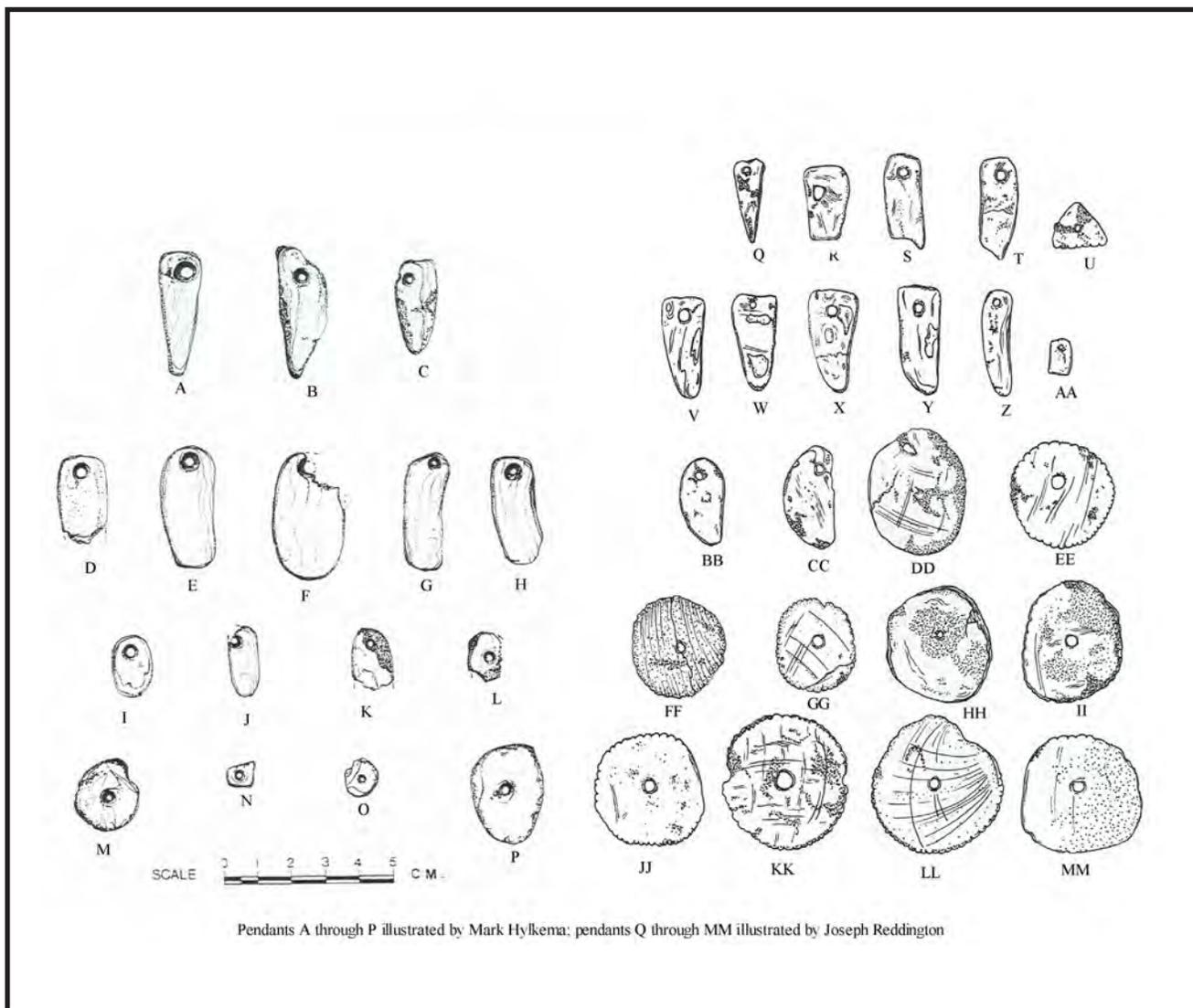


Figure 2. Selected *H. rufescens* and *H. fulgens* shell pendant illustrations from CA-SCL-755.

Table 3. *Haliotis* Pendant Inventory (adapted from Hylkema 2006:80 and Milliken 2004: 87-88)

Burial	Type	Length (mm)	Width (mm)	Thickness (mm)	Aperture (mm)	Weight (g)
3	uEA3j	20.0	9.0	--	2.2	--
3	uBA3j	22.0	14.0	--	4.6	--
3	uBA3j	28.0	12.0	--	3.6	--
3	uBB3j	30.0	12.0	--	4.2	--
3	uOA2f	15.0	43.0	--	2.0	--
3	uE3j	27.0	10.0	--	4.1	--
3	uE3j	28.0	13.0	--	2.5	--
3	uE3j	28.0	13.0	--	2.5	--
3	uBB3j	33.0	12.0	--	3.4	--
3	BB3j	30.0	8.0	--	2.1	--
3	uB3j	10.0	7.0	--	1.9	--
3	uEA3j	26.0	14.0	--	3.0	--
3	uEA3j	28.0	16.0	--	3.7	--
3	uTA2j	39.0	28.0	--	4.3	--
3	uC2f	32.0	30.0	--	5.0	--
3	uC2j	39.0	39.0	--	7.0	--
3	uC2f	28.0	25.0	--	3.2	--
3	uC2j	30.0	30.0	--	2.5	--
3	uTA2f	38.0	28.0	--	4.0	--
3	uC2f	29.0	29.0	--	3.7	--
3	uC2f	27.0	27.0	--	3.3	--
3	uC2f	39.0	39.0	--	3.2	--
3	uC2f	32.0	31.0	--	4.0	--
4	uBB3j	20.0	9.0	2.2	2.2	.7
4	uC2j	10.9	9.2	1.9	1.6	.3
6	uEB3j	36.1	13.0	3.1	4.1	2.1
6	uTA3j	38.2	13.7	7.0	3.7	3.9
6	uBA3j	26.0+	14.0	1.7	3.4	1.1
6	uBA3j	31.7	14.5	2.8	4.3	2.9
6	uSA3j	17.4	12.2	1.3	3.3	.5
6	uBB3j	18.0+	12.0	1.4	1.8	.6
6	uSA3j	14.1+	9.4+	1.4	2.9	.3
6	uPA2j	8.0	8.1	1.6	1.9	.3
6	uTA2j	28.5	21.2	1.3	3.3	1.3
7	cEA3j	28.0	11.9	1.7	2.3	.6
7	uC2j	20.4	19.3	2.2	1.9	1.0
12	cBB3j	35.8	16.5	3.4	2.6	3.4
12	rSA3j	36.8	20.5	2.3	2.8+	2.6
12	cBB3j	33.7	12.6	3.1	1.7	2.1

and variety of pendants, but also a number of pendants exhibiting incised edges, similar to those found at the Tamien Site, SCL-690. In his analysis, Hylkema (2006:78) noted the marked differences between the assemblages from SCL-690 and SCL-755, in particularly noting that “while none of the specimens from this collection displayed decorative incised edges, the SCL-690 site that just post-dated SCL-755 contained a large number of them. Once again the contrast between these successive temporal periods is most striking...” Hylkema had no way of knowing that at least seven of the pendants from Burial 3 had incised edges, and it is unfortunate that these data did not get included in his report. Burial 3 is one of the more recent burials at SCL-755, dating to 1348 +/- 61 B.P. (corrected), thus the occurrence of incised edge pendants is not out of character with the rest of the assemblage and attests to the emerging cultural complexity exhibited by neighboring site SCL-690.

#### SUMMARY AND CONCLUSION

Fourteen sets of remains from SCL-755 are female, based upon osteological determination or DNA analysis. With the exception of a few individuals, all are generally healthy. The ages of nine of the 21 individuals could not be determined. Seven were adults, three were children under the age of 12, and two were juveniles between the ages of 12 and 18.

Nine of the 21 burials had no associated grave goods. Of the burials that did, the most frequent artifact type was *Olivella* A1 series beads (a/b/c), with a total of 245. *Olivella* F3a/b types were the second most common, with a total of 251 beads dispersed between the interments. *Haliotis* pendants were the third most common grave offering, with 39 specimens recovered between all the burials. Other types were minimally represented.

Although the sample is small and the <sup>14</sup>C dates span nearly 1,000 years, the similarity of artifacts found with some of the burials suggests a single component, and the scarcity of midden constituents possibly means that SCL-755 was a formalized cemetery rather than a village area. Radiocarbon dates suggest the remains span the Middle and Middle/Late Transition Periods (Hylkema 2002), and the *Olivella* bead and *Haliotis* pendant types appear to confirm this. We do know that the bead wealth (or lack thereof) interred with some of these individuals is consistent with the increasing differentiation in status that appears to have flowered in the later archaeological record just subsequent to the occupation of SCL-755.

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