

**THE SHELL BEAD ASSEMBLAGE AT CA-SDI-39:  
EVIDENCE FOR INTERREGIONAL EXCHANGE AT A MAJOR COASTAL SITE  
IN LA JOLLA, CALIFORNIA**

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*In southern California, shell beads can be used to assess the political-economic positions of archaeological sites within the prehistoric regional exchange system. An examination of shell beads recovered from CA-SDI-39 in La Jolla, California demonstrates that the site was a major coastal center that produced spire-removed beads and clam disc beads, and imported non-whole *Olivella biplicata* shell beads from the central coast. Using previous research on the prehistoric regional exchange system of southern California, shell beads can be used to demonstrate social, political, and economic relationships among various sites.*

Shell beads were powerful mediums of socio-economic material culture used in the maintenance of prehistoric and historic southern California societies. Though the majority of shell beads produced in southern California were manufactured by the Chumash on the central coast, some of them were also produced in other locations, including San Diego County. In this paper, we discuss a collection of shell beads excavated at CA-SDI-39, a coastal site located in La Jolla, California. The beads were recovered from materials excavated from 25 utility trenches during an underground utility project. Based on previous research, discussed below, we assume that the spire-removed *Olivella biplicata* beads were locally produced and that the non-whole-shell beads and stone beads were imported from the Central Coast. For the purposes of this paper, we will specifically focus on whole and non-whole-shell beads as indicators of local production and regional exchange. Though the focus of the paper is on shell beads, we will also present our findings on the other types of beads recovered from SDI-39. Based on our data as well as previous research on shell bead manufacturing in various parts of southern California, we will argue that SDI-39 was a major coastal site that was firmly embedded within the regional exchange system of southern California.

The first section of this paper also aims to synthesize previous interpretations and chronological implications of shell bead assemblages in southern California and provide a political-economic analysis of shell beads in their local and regional economic contexts. We begin by discussing the shifting roles of shell beads in San Diego County from the Paleoindian/Early Archaic through the Protohistoric and Historic periods. We then discuss the manufacturing of shell beads over space and time, using previous archaeological data and interpretation from San Diego County as well as ethnographic accounts of shell bead use and manufacture. We examine a synthesis of information on spire-removed and whole-shell beads beginning in the Paleoindian/Early Archaic period in San Diego County, followed by a discussion of imported beads from the central coast in the Middle and Late periods. This background research will provide a textured backdrop against which our data will be given accentuated context and meaning.

**SHELL BEADS, REGIONAL EXCHANGE NETWORKS, AND POLITICAL ECONOMY:  
THE PRESENCE AND POWER OF SHELL BEADS IN SAN DIEGO COUNTY  
FROM THE ARCHAIC PERIOD TO THE LATE PERIOD**

In San Diego County, the forms, origins, meanings, and functions of beads shifted over time. Archaeologically, bead assemblages function like a barometer, as their forms change over time in response to changes in the social, political, and economic systems in which they were utilized (Gibson

1992:37). SDI-39 contains a remarkable catalogue of shell beads. The bead assemblage highlights the economic situation at SDI-39 as horizons of trade expanded and environments became increasingly articulated over time. SDI-39 contains a high amount of small, medium, and large spire-removed beads. These beads are believed to have been manufactured locally for many thousands of years and to have been a *sui generis* component of Kumeyaay culture and society. For example, archaeological recovery at Remington Hills (SDI-11079) produced a 9000+ B.P. assemblage of spire-removed shell beads that appear to have been manufactured at the site.

The manufacture and use of spire-removed -- more specifically, spire-ground or spire-chipped -- *Olivella biplicata* beads in the Paleoindian/Early Archaic period is a topic that has received minimal attention in the archaeology of San Diego County. The category "Spire-removed beads" represents all of the excavated *Olivella biplicata* specimens that were missing any part of the spire. Unfortunately, few studies contain meaningful interpretations of this industry. It is assumed that spire-removed beads were made locally, as their manufacture is a fairly simple process, involving grinding the apex of the shell against a hard surface in order to perforate the spire (Francis 1982) to create a spire-removed bead or using a tool to chip the spire off the shell, creating a spire-chipped bead. The creation of spire-ground and spire-chipped beads is a fairly simple process, which does not require a lot of tools or materials and is not particularly labor-intensive. It would not make economic sense to manufacture and export large quantities of spire-removed *Olivella biplicata* beads from one coastal site to another. However, it would make economic sense to trade these beads into interior California, where these resources were not naturally present. Ethnographically, the trade of spire-removed beads between coastal and interior Native Californians was documented among the Cahuilla of Palm Springs (Strong 1929).

Spire-removed beads represent the largest component of the bead assemblage of SDI-39, representing 68 percent of the beads. Spire-removed beads can be further subdivided into small, medium, large, and oblique-ground (the apex is ground at an angle rather than perpendicular to the body of the shell) spire-removed beads. Bennyhoff and Hughes (1987) have tried to link certain time periods to these variations. Gibson (1992) has also tried to assign temporal significance to the different sizes, stating that small spire-removed beads were "most popular" during the late part of the Early period, the early phases of the Middle period, and Phase 1 of the Late period (Gibson 1992:25). However, a consistent enough framework has not been established for assigning spire-removed beads to certain time periods to be of any use in our analysis. Instead, we assume the manufacture and socio-cultural functionality of spire-removed beads to be active going back at least 9,000 years.

Shell beads played an important role in the prehistoric and early historic exchange systems of the Kumeyaay Indians of San Diego County (McDonald 1992; Zepeda 2000). They served as a mainstay in their widespread trade and barter system (Carrico and Day 1981) and incorporated the Kumeyaay into an interregional political economy that articulated different environmental contexts, craft specializations, and lithic resources into a complex and refined web of resource flows. Such economic adaptations served to subdue environmental uncertainties by absorbing distant sources of food, crafts, and tools into the local assemblage of economic goods. These exchanges have been understood in both political-economic (Arnold 1991) and ritual (King 1990:102-129) terms. In both cases, such exchanges would have been instrumental in the maintenance of Kumeyaay society. They would have sought to both maintain social and ecological stability while simultaneously seeking to increase local influence and quality of life. The possession and use of shell beads would have thus increased both the influence and affluence of a particular site locally and regionally. In this fashion, the relative prehistoric economic position of a specific archaeological site can be evaluated by looking at shell-bead and ornament assemblages. Such analyses, however, call for the Kumeyaay to be examined within a broader exchange network.

The Kumeyaay exchange network in particular included the Mohave, Yuma, Cocopa, Cahuilla, and Luiseño (Zepeda 2000). According to Zepeda (2000), the Kumeyaay exchanged eagle feathers to the Cocopa for salt. They also secured sources of vegetal foods and salts by trading tobacco, acorns, baked mescal roots, yucca fibers, sandals, baskets, carrying nets, and eagle feathers with the Kamia (eastern Kumeyaay), and maintained a steady source of gourd seeds by trading acorns with the Mohave and Yuma

(Zepeda 2000:125). The village of Ystagua contains evidence of trade between the Kumeyaay and the Cahuilla (for Obsidian Butte obsidian) and Luiseno (for chert and ceramics) (Carrico and Taylor 1983).

Marked social stratification existed among the pre-contact Kumeyaay (Shipek 1982). According to Shipek, land tenures and land inheritance rights were understood in detail. The Kwaaypaay (*el capitán*), religious officials, and shamans had more power than other members, and “such officials had more land resources and personal valuables, such as shell money, shell beads, feather-decorated basket hats, and other items of wealth at their disposal than did the rest of the band members” (Shipek 1982:299-300; emphasis added). Such materialized forms of wealth would have served to increase interregional economic interactions among Kumeyaay elites. If, according to Shipek, shell beads and shell “money” were manifestations of “personal valuables” then it is likely that such associations would have increased the status of shell beads in Kumeyaay socio-economic relations and fueled interregional exchanges of local appurtenances for foreign beads.

In this broad system of exchange, including local demand for “personal valuables,” shell beads from central California muscled their way into economic interactions between all of these groups, working their way into the material culture of the Kumeyaay and marking their presence in the archaeological record. According to Carmen Zepeda, “the archaeological record demonstrates that Chumash shell beads were traded throughout southern California and some surrounding areas” (Zepeda 2000:126). In many ways, shell beads can be viewed as an interregional currency, or a standardized manifestation of wealth. They are diagnostic of a broad economic system that found its core in central California.

#### **SHELL BEAD MANUFACTURING IN SOUTHERN CALIFORNIA: FROM LOCAL TO NON-LOCAL**

A majority of non-whole-shell beads are typically made from *Olivella biplicata*; however, they may also be produced from *Haliotis* sp. (abalone), *Mytilus* sp. (mussel), and clam shells. *Olivella biplicata* non-whole-shell beads are manufactured in five main stages, and the processes of manufacture produce very distinctive debris in the archaeological record. These five stages were recorded ethnographically by John P. Harrington, and consist of “1) breaking the shell with bipolar percussion, 2) chipping the resulting fragments of shell into the desired bead forms, 3) (optional) bleaching the chipped bead-blanks using a heat source, such as hot coals, which whiten blanks and soften the bead blank, 4) drilling the chipped blanks, and 5) stringing the drilled beads together and grinding them on an abrasive surface” (Harrington, quoted in Macko 1984:5-6).

The bead blank was drilled by placing the blank in the hole of an anvil board or stone, and a drill was twirled between the palms to bore a hole (Gibson 1976:83-84). Stone drills were used to drill the perforations until iron needles were introduced by the Spanish in 1782 (Gibson 1995:4). The archaeological remnants of non-whole-shell bead manufacturing include high amounts of shell detritus, stone drills or drill fragments, beads at various stages of manufacture, and bead blanks (Zepeda 1999:30). According to Arnold, for every finished bead there are typically seven bead blanks, nine stone drills, and 300 shell fragments (Arnold 1992:125-136). A site that was a center of shell bead manufacturing would be expected to contain high quantities of all of these artifacts.

The archaeological evidence for wall, callus, *Mytilus*, and *Haliotis* non-whole-shell bead manufacture in San Diego County is minimal (Zepeda 2000). Furthermore, no clear ethnographic evidence exists to suggest that non-whole-shell beads were manufactured in San Diego County. In fact, more ethnographic evidence exists to suggest that non-whole-shell beads weren’t manufactured in San Diego County than exists to suggest that they were. It is, however, quite clear that *Olivella biplicata* spire-removed beads were being manufactured in San Diego County alongside a small and as yet little understood clam disc industry.

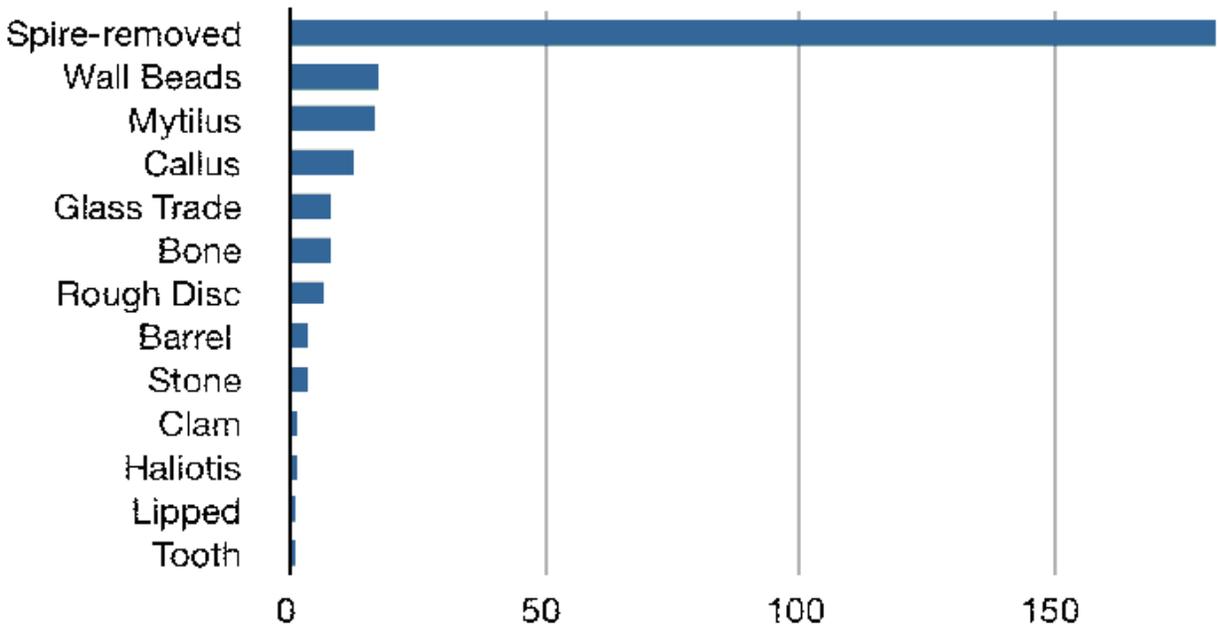


Figure 1. Bead types from SDI-39.

## METHODS

The purpose of this paper is to examine the exchange network of the prehistoric and historic Kumeyaay and its role in the interregional exchange system of southern California. This analysis will be achieved by looking at the distribution of whole and non-whole-shell beads made from the species *Olivella biplicata*. We will also use the archaeological record to establish comparative analogies and use ethnographic literature to discuss the manufacture, trade, and use of shell beads in the social maintenance of prehistoric California societies, especially the Kumeyaay.

All of the archaeological materials were excavated during underground trenching to install San Diego Gas and Electric (SDG&E) utilities. The trenches were approximately 4 to 5 ft. in depth. The trenches were not excavated with any attention paid to vertical or horizontal context. The soil was excavated using a backhoe, and then carried by a dump truck to a water-screening area. As a result of this process, the beads have very little provenience and can only be associated with the 25 trenches. After they were transported to the water screening area, they were water-screened in 1/8-in. mesh screens and transported to the Laguna Mountain laboratory facility for sorting and analysis. It is assumed that a large quantity of smaller beads would have been lost in the water-screening process, as some smaller beads can pass through 1/8-in. mesh screens. During this process the beads were separated from other archaeological materials and labeled according to their broader provenience.

## RESULTS

The total beads in the assemblage number 269 (Figure 1). The majority of the beads in the collection are spire-removed beads (n=182), with *Olivella biplicata* wall disc beads being the second most common (n=18). This was followed by *Mytilus* beads (n=17), *Olivella biplicata* callus beads (n=13), glass trade beads (n=8), bone beads (n=8), *Olivella biplicata* rough disc beads (n=7), barrel beads (n=4), stone beads (n=4), clam disc beads (n=2), *Haliotis* beads (n=2), an *Olivella biplicata* lipped bead, and a tooth bead. The relative quantity of bead types is illustrated in Table 1. Whole-shell (spire-removed) *Olivella biplicata* beads number 182, while non-whole-shell *Olivella biplicata* beads (callus, lipped, rough disc,

wall disc, and barrel) number 43. Non-*Olivella biplicata* shell beads (*Haliotis*, *Mytilus*, and clam) number 21, while non-shell beads (bone, glass, stone, and tooth) number 21. The beads were initially segregated into the categories of spire-removed and non-spire-removed. They were further segregated during later analysis into their more specific categories according to Bennyhoff and Hughes (1987). The authors met with Chester King in March of 2008 to help analyze the unidentified beads and to check their work. Chester King was also consulted to help establish the time periods and geographical origins of the different beads.

## BEAD TYPES FROM SDI-39

The bead assemblage at SDI-39 is significantly dominated by spire-removed beads. However, there are also considerable amounts of non-locally produced beads, the majority of which come from the central California region, but some which come from the Gulf of California. Below, we describe the different types and classes of beads found at SDI-39 according to Bennyhoff and Hughes (1987), King (1990), and Gibson (1992).

### Spire-removed Beads

Spire-removed beads are *Olivella biplicata*, *Olivella baetica*, or *Olivella dama* shells that are nearly complete, with only the spire removed perpendicular to the body axis. The spire may be broken off or ground down, with variable amounts of the outer lip broken away to facilitate stringing (Bennyhoff and Hughes 1987:116-117). Some spire-removed *Olivella* shells are naturally water-worn or affected by parasites, but there is considerable controversy about how these non-culturally modified shells can be separated from culturally modified beads. The majority of the spire-removed beads found at SDI-39 are of the species *Olivella biplicata*. The divisions of spire-removed beads are small spire-removed (A1a), medium spire-removed (A1b), and large spire-removed (A1c) (Bennyhoff and Hughes 1987:117-119). These categories are distinguished by the diameter of the shell at its maximum girth, a small spire-removed bead being 3.0-6.50 mm, a medium spire-removed bead being 6.51-9.50 mm, and a large spire-removed bead being 9.51-14.0 mm. Small spire-removed beads are most common during the Early period and Phase 1 of the Late period in central California, but can occur in any period (Bennyhoff and Hughes 1987:117-118). Medium spire-removed beads do not have any temporal significance, and large spire-removed beads are dominant in the Protohistoric and Middle periods (Bennyhoff and Hughes 1987:118). Drilled spire-removed beads are spire-removed beads with a perforation drilled conically into the body whorl. Oblique spire-removed beads are whole-shell beads with the spire ground off diagonally. In southern California, these beads are placed in the Early/Middle period Transition phase and early Middle period (King 1990). A few oblique spire-removed beads were found at SDI-39. Although most specimens probably represent the borings of predatory marine mollusks, the discovery of drilled shells with intact spires in graves supports the possibility that some drilled spire-removed beads were strung as pendants (Bennyhoff and Hughes 1987:119). Spire-removed beads found in southern California are often of considerable antiquity, with some dated specimens dating to 9,400 RYBP. Although the collection of spire-removed beads at this site has blurred provenience, it can be inferred by looking at their sheer variety that multiple time periods are represented.

### End-Ground Beads

End-ground beads are whole *Olivella biplicata* shells that have had both the spire and variable amounts of the aperture end ground away (Bennyhoff and Hughes 1987:121). One common type of end-ground beads is the barrel bead. These beads are extensively end-ground with the maximum diameter being located in the middle. Barrel beads can be further subdivided into small barrel beads, medium barrel beads, and large barrel beads. The barrel bead is a marker of the Early period through early Protohistoric times. Another type of end-ground bead found at SDI-39 is the spire bead. The spire bead is a cuplike bead made from the spire of the *Olivella* shell. No thickened wall can be observed when viewing the bead

from the bottom, and the spiral suture is visible when being viewed from the top (Bennyhoff and Hughes 1987:122). A few specimens of the end-ground spire beads and a substantial amount of end-ground barrel beads are present at SDI-39.

### ***Locally Produced Large Perforated, Whole-Shell Type***

A further category of beads was identified by the authors that didn't fit into any of the descriptions in Bennyhoff and Hughes (1987) or Gibson (1992). These beads are whole-shell *Olivella biplicata* beads that are spire-removed and ground down to a point where their perforation is relatively large in comparison to their girth. For example, the bead catalogued as 322 has a girth of 7.71 mm and a perforation diameter of 4.56 mm, which is relatively large compared to other general spire-removed beads. This type occurs frequently throughout the SDI-39 assemblage. The idea that this is a local type was reinforced during our meeting with Chester King, who also viewed it as a likely locally produced bead type that falls out of the schema established by Bennyhoff, Hughes, and Gibson.

### **Lipped Beads**

Lipped beads are round to oval beads made from the upper callus (inner lip) and variable amounts of the surrounding body whorl. In general, the size of lipped beads increased over time as more of the outer lip became utilized, with the callus becoming less of an integral part of the bead. This class of beads is diagnostic of the Protohistoric and Historic period, during which time it was the most common *Olivella* bead form in central California. Lipped beads are less common in southern California than in central California, but are still found among bead assemblages.

### **Saucers**

Saucers are circular beads made from the wall of the main body whorl with a central perforation typically drilled conically from the interior, with some exterior retouch (Bennyhoff and Hughes 1987:132). Saucers are distinguished from disks by having greater curvature and generally a larger perforation diameter and ground edges. Saucers are further divided into types on the basis of bead diameter and perforation size. For example, normal saucers have small perforations, while rings have larger perforations. Saucers and rings are confined to the Middle period in central California, while flat and circular tiny saucers can appear in any period. Other bead types included in this class are ground saucers, oval saucers, and irregular saucers. Tiny saucers were identified at SDI-39.

### **Wall Disc Beads**

Wall disc beads are made from the walls of *Olivella biplicata* shells and are typically circular to oval in form. The bead diameters vary from 1.8 to 10.0 mm. Perforation diameters range from 0.6 mm to 4.0 mm (Gibson 1992:30). They are circular, shallow beads with very small central perforations (Bennyhoff and Hughes 1987:135). A single tradition of the historic period has been documented where metal needles were used for drilling the very small perforation (Bennyhoff and Hughes 1987:135). Disc beads can be segregated into five main groups. Ground discs are small circular historic beads with grounded edges, dating from the Late Mission period, ca. A.D. 1770-1800. Semi-ground disc beads are small circular historic beads with partially ground edges also dating from the Late Mission period, ca. A.D. 1800-1816. Rough discs are small, irregular discs with chipped edges. They are a marker type for the terminal Mission period, ca. A.D. 1816-1834 (Bennyhoff and Hughes 1987:135). Chipped disc beads are large, irregular discs with chipped edges. They are a marker type for the post-Mission period, ca. A.D. 1834-1900. Lastly, wall discs are medium-sized discs, round to oval in outline, with ground edges. They are a marker type for the Protohistoric period in San Joaquin Valley and appear in Phase 1 of the Late period in southern California and continue until ca. A.D. 1816 (Bennyhoff and Hughes 1987:136).

## **Callus Beads**

Callus beads are small, thick, circular beads drilled conically from the interior, with exterior retouch (Bennyhoff and Hughes 1987:136). Callus beads are thicker than wall beads because they are made from the callus part of the shell, inside and above the aperture. They are typically a bright white color and have been referred to as “money beads” because of their dominant role in the prehistoric Chumash economy. Callus beads were not used as ornaments or worn as decorations (Gibson 1992:27). Callus beads are further subdivided into cupped, bushing, and cylinder beads. Cupped beads are occasionally incised with cross-hatching or simple hatching. They generally have a diameter of 3.0-7.0 mm, though southern California cupped beads often have diameters as small as 2.0 mm. They are typically 2.0-3.0 mm thick, and the perforation diameter is normally around 2.0 mm. They are crucial indicators of site occupation for the Late period, as they do not occur in California before the Late period (ca. A.D. 1150) (Gibson 1992: 27). In central California, they are diagnostic of Phases 1 and 2 of the Late period. Bushing beads are small, thin, circular beads that are often used as bushings in the conical perforations of clam and magnesite beads, but can also be strung as beads (Bennyhoff and Hughes 1987:137). They generally have a diameter of 3.0-4.0 mm and are typically 1.0-2.0 mm thick, with a typical perforation diameter of 1.4-1.8 mm. They are markers of Phase 2 of the Late period. Cylinder beads have larger perforations than cupped or bushing beads. They generally have diameters of 2.0-3.0 mm, thicknesses of 1.0-3.0 mm, and cylindrical perforation diameters ranging from 1.0 to 2.0 mm. They are diagnostic of Phase 2 of the Late period (Bennyhoff and Hughes 1987:137).

## **Clam Disc Beads**

These beads were produced at SDI-39, as evidenced by the presence of clam disc blanks (King, personal communication 2008) and completed clam disc beads. In this bead assemblage, the clam disc beads are manufactured from the species *Tivella stultorum*. Although clam discs vary greatly in size (3.0 to 35.0 mm in diameter with perforations from 1.0 to 10.0 mm) the clam disc beads at SDI-39 have an average diameter of 4.89 mm, perforation diameter of 1.52 mm, and thickness of 2.58 mm, suggesting that they were all produced according to a certain criterion that may have been particular to SDI-39. These beads extend as far back as 7000 B.P and are associated with the Early period. According to Gibson (1992), clam disc beads are very rare south of the Chumash territory, their presence at SDI-39 and evidence of manufacture being significant in terms of the archaeological record and San Diego County's role in the bead manufacturing tradition of California.

## ***Mytilus* Disc Beads**

These beads play a significant role in the bead assemblage of SDI-39. They are made from the shell *Mytilus californianus*. They have a flat cross-section and are circular in outline. Their diameters vary from 2.0 to 6.0 mm, with thicknesses of 1.0 to 3.6 mm. Their perforation diameters range from 1.0 to 2.0 mm, with biconical to conical drilling (Gibson 1992:34). These beads are diagnostic of the late Middle period and Phase 1 of the Late period (ca. A.D. 1150-1500). They are uncommon after A.D. 1400 but do continue into the Mission period (King 1990). These beads were produced in the Channel Islands and either traded “down-the-line” to the Kumeyaay or given as gifts to Kumeyaay chiefs in San Diego County (King, personal communication 2008).

## ***Haliotis rufescens* Disc Beads**

*Haliotis rufescens* disc beads are a startling pinkish color in some cases and a grayish hue with pink notes in others. They are made from the outer epidermis of the red abalone shell. Although they are normally hard to distinguish from *Mytilus* discs, the beads found at this site appear to have been relatively untouched by weathering processes. They are diagnostic of all phases of the Late period. The smaller sizes are found in Phase 2 of the Late period and are around 2.6 mm in diameter and 1.0 mm thick, with

perforation diameters of around 1.2 mm (Gibson 1992:34). Phase 3 *Haliotis* disc beads are typically larger. These beads were produced in the Chumash territory (King, personal communication 2008).

### **Stone Discs**

The stone disc beads in this collection were all made from chlorite schist. Chlorite schist is a greenish/yellowish- to brown-hued rock type. They were probably produced in the area north of Los Angeles and east of Santa Barbara (King, personal communication 2008). Stone discs are often found in ornamental association with *Olivella biplicata* wall discs, probably being strung on necklaces and used in political-economic interactions (King 1990). The diameters of these beads range from 3.2 to 4.8 mm, with thicknesses from 0.9 to 1.6 mm. They are drilled conically and biconically, with perforations ranging from 1.2 to 2.4 mm (Gibson 1992:36). These beads occur predominantly in the Middle period, with decreasing influence in the Late period (Gibson 1992:36).

### **Glass Trade Beads**

A substantial number of glass trade beads were found at SDI-39. These beads were produced in Europe or in Spanish manufacturing centers in Central and South America. These beads entered the historic California economy either through trade with the Spanish, in payment for labor services such as building missions, or in establishing alliances. The Spanish were known to trade for shell beads in some areas and then use them as payment in others (Zepeda 2000). Ethnographic sources, however, suggest that of even higher value than shell beads in exchanges between the Spanish and Native Californians were these glass beads. "They value, however, more highly the glass beads which the Spaniards gave them, offering in exchange for them all they possess, such as baskets, otter skins, bowls, and wooden dishes" (Hemert and Teggart 1910:139). The glass beads at SDI-39 are suggestive of interactions both between different regions of California and between the Kumeyaay and Spanish colonialists. The amount of variation in glass bead diameters, thicknesses, and perforations is immense, with very different types of glass beads being found at SDI-39.

## **CONCLUSION**

The bead assemblage reflects an early period dominated by local production of spire-removed *Olivella biplicata* shell beads and a late period dominated by non-locally produced shell beads and shell ornaments made from *Olivella biplicata*, *Mytilus californianus*, and *Haliotis rufescens* species of shell. Furthermore, there is emerging evidence that SDI-39 may have been a center of clam disc bead production in southern California. This data suggests that spire-removed beads may have been produced throughout the early, middle, and late periods as locally used ornaments. It also suggests that clam disc beads were manufactured at the site, yet whether they were used economically or ritually in the maintenance of Kumeyaay society is unknown. The presence of locally produced beads as well as imported beads from central California demonstrates that SDI-39 was a major coastal site that was firmly embedded within the regional exchange system of southern California.

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