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Social Differentiation and Exchange among the Kumeyaay Indians during the Historic Period in California

ABSTRACT

Long distance exchange between the Kumeyaay Indians and other southern California Indian groups after Spanish colonization is poorly documented and understood. The intensive study of thousands of shell beads from an historic cemetery in the San Diego region indicates that traditional socioeconomic interactions persevered among some California Indians despite missionization, epidemic diseases, and the seizure of California Indian lands. A mortuary analysis of the distribution of beads and other grave associations in the same cemetery further suggests that Kumeyaay sociopolitical organization was more complex than previously noted. It does not appear that this complexity developed as a result of Spanish colonization, but instead continued after at least 80 years of intensive contact. The Kumeyaay example illustrates that often important economic and sociopolitical traditions are maintained despite clear attempts to acculturate colonized societies.

Introduction

After the arrival of the Spanish in 1769, life for the Kumeyaay Indians of the San Diego area changed. Franciscan priests and soldiers were sent to secure the Spanish northwest frontier against the Russians and British by setting up missions and presidios throughout Alta California (Shipek 1987:19). Mission San Diego de Alcalá was the first to be established in 1769. Along with these orders, the Spanish arrived with the idea of civilizing the California Indians, thereby infringing on their hunting and gathering activities, exchange networks, and many other aspects of their daily life. The goals of this work are to examine two poorly documented aspects of Kumeyaay society, long distance exchange and sociopolitical organization during an 81-year period (A.D. 1769–1850) after Spanish colonization.

Prehistoric long distance exchange among southern California Indians has been well-documented since the early period, especially obsidian exchange (Ericson 1977, 1981; Hughes 1994; Jackson and Ericson 1994). In contrast, little is known about long distance exchange in the region after historic contact. Most ethnographic and historic accounts assume that long distance trade among California Indian groups broke down due to the Spanish invasion (Earle and Ericson 1977:9; Bamforth 1993:68). Chartkoff and Chartkoff (1984:264) state that vital trade connections between the California coast and interior were severed after Spanish colonization. This study is focused on exchange between the Chumash Indians who lived along the Santa Barbara Channel Coast and the Kumeyaay Indians who lived to the south in San Diego County. The maintenance of long distance exchange between different California Indian groups is addressed in the context of the manufacture of shell bead money used in traditional economic transactions during a period of time when Indian social systems in southern California were severely impacted by the Spanish.

Very little has been documented indicating that goods were exchanged between the Kumeyaay and Chumash during any time periods. The data presented here suggest that because there is a relative lack of shell bead manufacturing evidence in San Diego County, the presence of *Olivella biplicata* rough disk beads at *Amat Inuk* (C-144) indicates that the beads must have been brought to the site through an historic exchange system. It is well documented that the Chumash manufactured large quantities of shell beads and traded them long distances within and outside of California (Bennyhoff and Hughes 1987; King 1990a). Given this situation and the similarity in the diameters, perforation sizes, and thicknesses of the rough disk beads recovered from *Amat Inuk* with those manufactured by the Chumash, it is hypothesized that the shell beads from *Amat Inuk* were manufactured by the Chumash and traded to the Kumeyaay. In addition, the beads were unevenly distributed in the cemetery where they were recovered, possibly indicating an unequal distribution of wealth or status among the Kumeyaay during the historic period.

Given that the collection of shell beads was found in a mortuary context, it is also possible

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to address sociopolitical organization during the historic period. No systematic analyses have been completed and published on archaeological examples of Kumeyaay mortuary practices during any time period. Therefore, this aspect of the research is considered an important contribution in understanding Kumeyaay social organization.

Kumeyaay Culture

Kumeyaay is the contemporary term for the Diegueño (both Northern/Western and Southern/Eastern), Kamia (Eastern Kumeyaay), Tipai, and Ipai (Hedges 1975:75; Luomala 1978:592; Shipek 1987:5). The Kumeyaay are Yuman-speakers who occupy southern San Diego County (Figure 1). The variable terrain includes mountain and upland, coastal, and desert climates. Exchange was an important means for acquiring essentials for survival, a variety of food, and valuable items, because of the different resources offered by each environment.

The Kumeyaay were organized into territorial bands, each of which had a central primary village with numerous outlier homesteads (Shipek 1982:297). Bands moved seasonally according to available food resources (Shipek 1982:297, 1987:7). Each band had a captain, who was called *Kwaapaay* and was usually an adult male who inherited his position, but was sometimes appointed by all the *Kwaapaay* from throughout the Kumeyaay area (Shipek 1982:297–298). The *Kwaapaay* instructed the band on economic matters regarding resources, oversaw ceremonies, and resolved disputes. The *Kwaapaay* was paid in food and valuables for these services (Shipek 1987:7–8). Kumeyaay officials, including the *Kwaapaay*, religious specialists, and shamans, had more decision-making powers, more land resources, and more personal valuables, such as shell beads, than other band members (Shipek 1982:299–300).

The Kumeyaay lived in two different villages that were situated near water sources, one for winter and one for summer and fall (Spier 1923:307; Luomala 1978:597). There also may have been subsidiary camps for both winter and summer sites (True 1970:55). Historically, the Imperial Valley Kumeyaay planted maize, beans, teparies, gourds, pumpkins, and melons in the floodplains of the Colorado River. Apparently agriculture was not an essential subsistence

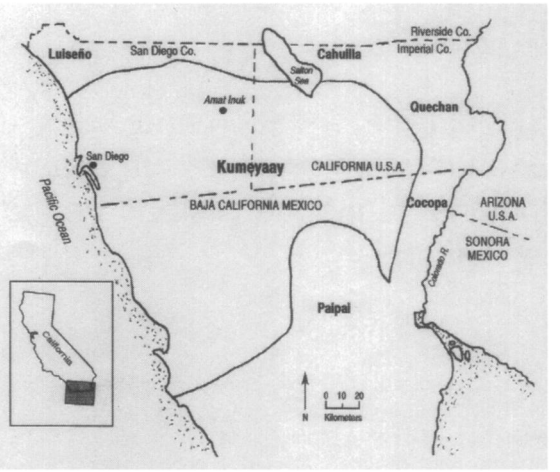

FIGURE 1. Map of Kumeyaay territory.

strategy among the Kumeyaay. If they heard of rich gathering spots elsewhere, they abandoned their crops (Gifford 1931:11; Luomala 1978:600; Shipek 1993:381). Fish and shellfish were important subsistence resources for coastal Kumeyaay (Luomala 1978:601; Gallegos 1992:213; Hildebrand and Hagstrum 1995:90).

The Kumeyaay usually did not bury their dead but cremated them. The body was placed in a pyre over a pit with the head positioned to the south or east towards the afterworld. All of the belongings of the dead were burned to insure the spirit did not return for them (Heye 1919:14–16; Davis 1921:95–97; Luomala 1978:603). Waterman (1910:306) reported that the belongings of the dead were not burned until the mourning ceremony, which occurred about one year after the death of an individual. After cremation, the ashes of the bones and belongings were usually gathered and placed in a pottery jar or mortuary olla and then buried or sometimes hidden in rocks or crevices (Waterman 1910:306; Kroeber 1925:716; Luomala 1978:603). Often specific cremation areas, or defined cemeteries, were designated where cremation ollas or urns were buried (Heye 1919; Davis 1921; True 1970:59). If death occurred in a house, it was burned down (Moriarty 1969:183; Luomala 1978:597). At cremations there was "wailing, speech making, all-night singing of song cycles, and gift exchange with non-relatives from friendly clans. . . . Mourners cut their hair, blackened their faces, and never mentioned the person's name again" (Luomala 1978:603). Kumeyaay

cremation burials have been described as being shallower in depth than Cahuilla cremations (Bell 1975:19).

After the founding of the Mission San Diego de Alcalá in 1769, the Kumeyaay's traditional way of life changed dramatically. The Spanish missionaries came in with the idea that "they alone had all the knowledge, civilization, and the only real religion and that they had been designated to control and Christianize the area" (Shipek 1986:15). This was accomplished in part through the Spanish colonial policy of *reducción* in which California Indians were taken into the missions in order to teach them Catholicism, European-style agriculture, leatherwork, and textile production (Jackson and Castillo 1995:3). Mission San Diego de Alcalá, however, did not follow the system of *reducción* because there was a lack of arable land and no easy irrigation system near the mission. Mission San Diego de Alcalá opted for a rotating system in which groups of Kumeyaay were brought into the mission, taught the basics of Christianity, shown European-style agriculture, and then released back to their villages when a new group was brought into the mission. The Kumeyaay were also used as the Spanish labor force in rotating shifts (Shipek 1987:20). Many attempted to resist Spanish control, while some fled east to the mountains where the Kumeyaay were left relatively untouched (Shipek 1986:15).

Mission San Diego de Alcalá was less effective in its goals than other missions throughout California. The Spanish invasion disrupted the Kumeyaay settlement and subsistence patterns, forcing the Kumeyaay to look for new places to gather foods (Shipek 1991:27). The Spanish also introduced epidemic diseases that severely impacted some of the Kumeyaay population (Jackson and Castillo 1995:41). During the Mexican period (1822–1848), Mission San Diego de Alcalá was secularized and the lands were distributed into ranchos among the Mexican *mayordomo*. Many Kumeyaay migrated from the mission to the ranchos, looking for food and employment. Often the Kumeyaay were treated as feudal slaves and dehumanized by this system. Under the United States rule, California Indians were denied land rights, and most of their historic villages were destroyed between 1860 and 1880 by Anglo entrepreneurs and ranchers (Carrico 1987:14–16). The violence against the California Indians continued. Despite these obstacles, the Kumeyaay succeeded in keeping many of their traditions alive.

Exchange in Southern California

Exchange transactions involve complex relationships with social, economic, political, and religious components (Baugh and Ericson 1993:4; Plog 1993:287). Spanish explorers recorded that California Indians often traded many of their possessions, such as baskets and otter skins, for glass beads during the early historic period (A.D. 1542–1769) (Costanso 1910:49). These necessities or desirable items were acquired through organized exchange networks. It has been documented that the Eastern Kumeyaay served as traders between the Yuman and Western Kumeyaay groups (Mohave Tribe of Indians 1958:18). Given the distance between the Chumash and the Kumeyaay, intermediaries or down-the-line trade may have been an important distribution mode between the groups.

California is ideal for the development of exchange networks because of its variable environment that resulted in localized resources and biological communities (Ericson 1977:111). Exchange networks that develop in this type of setting provide assurance of food in times of stress (Brumfiel and Earle 1987:2). Exchange networks in precolonial stateless societies, such as hunting-gathering groups, were vital for individual and group survival because they served as a form of security in times of natural disaster, environmental stress, and warfare (Dalton 1971:90–91).

The Spanish were quick to take advantage of the California Indians' interest in exotic goods once contact was initiated. California Indians exchanged shellfish, fish, acorns, and water with men aboard expedition ships such as Cabrillo's, de Unamuno's, Cermeño's, and Vizcaino's ships. In exchange, the Spanish provided glass beads, silk, and cotton cloth for food and water (Erlandson and Bartoy 1995).

Ethnographic information indicates that the Kumeyaay traded with the Mohave, Yuman, Cocopa, Cahuilla, and Luiseño (Davis 1961; Eidsness et al. 1979; Carrico and Day 1981; Shackley 1981). Exchange items included eagle feathers and salt, for tobacco, acorns, baked mescal roots, yucca fibers, sandals, baskets,

carrying nets, gourd seeds, dried greens, tule roots, bulbs, cattail sprouts, yucca leaves, mescal, pine nuts, manzanita fruit, berries, chokecherries, dried sea food, and mesquite beans (Davis 1961; Shipek 1991:33).

Exotic materials in the archaeological record are another indication of trade or movements of people in the region. Obsidian from Obsidian Butte and Coso in southern California and Baja is well documented at many sites in southern California (Ericson 1977, 1981; Eidsness et al. 1979:96; Carrico and Day 1981:90; Hughes 1994; Jackson and Ericson 1994; Shackley 1995). Chert and Palomar Brown ceramic sherds from the Luiseño territory are documented at the village of *Ystagua* in the Sorrento Valley (Eidsness et al. 1979:96). Ceramics from the Lower Colorado River and the Salton Sea area also have been found in numerous mountain and coastal sites (Hildebrand and Hagstrum 1995).

Little is known about the frequency of exchange or the quantity of goods that were exchanged. Most trading among the Kumeyaay probably occurred through a barter system, although Shipek (1987:6) describes food being traded for shell beads. Another report mentions that the Kumeyaay used *Olivella* shell beads as a mainstay in their widespread trade and barter system (Carrico and Day 1981:75). The Kumeyaay may have used shell beads as a form of money, but this is not clear.

In contrast, it is well documented that the Chumash used *Olivella* shell beads as a form of money (Arnold 1987, 1991, 1992; Arnold and Munns 1994; King 1976, 1978, 1990a). Probably the best known historic account of Chumash use of shell beads as money was made by Longinos Martinez in 1792. "When they trade for profit, beads circulated among them as if they were money, being strung on long threads, according to the greater or smaller wealth of each one" (Simpson 1939:45–46). The Chumash had an intricate trade network that involved three different environmental regions: island, coastal mainland, and inland (King 1976). The Island Chumash manufactured shell beads to trade for food and other resources from the coastal mainland because they had less than half as many plant species as the coastal mainland and only small mammals as food resources (King 1976). Chumash exchange with groups outside their area is well documented in the ethnographic and ethnohistoric record. King (1976:304–307) provides several historic accounts of exchange between the Chumash and the Mojave, Yokuts, and other California Indian tribes. The archaeological record demonstrates that Chumash shell beads were traded throughout southern California and some surrounding areas, such as the Great Basin and the Southwest (Bennyhoff and Hughes 1987:156–160; King 1990a:107). Los Angeles, Orange, San Bernardino, and Riverside counties have Early, Middle, and Late period shell beads similar to those from the Chumash area (King 1990a:111, 122, 129). One ethnographic account states that shell beads were taken from the Chumash on the Santa Barbara Channel Islands to the Gabrieleño, and then to the Cahuilla in the Palm Springs area (Strong 1929:95–96). In central California, *Olivella biplicata* beads with their spires removed have been found that are possibly contemporary with Middle period Phase 1 (1400–800 B.C.) (King 1990a:119). Clearly, Chumash goods, including shell beads, had a wide distribution among numerous Indian tribes.

In contrast, exchange to the Kumeyaay has not been clearly documented. In San Diego County, at least two sites have evidence of exchange with the Chumash prior to the historic period. One site (SDI-603) contained a clam disk bead similar to those found in the Santa Barbara Channel Early period Phase Ex (6000–4500 B.C.) or Early period Phase Ey (4500–2400 B.C.) (King 1990a:108) (Figure 2). An *Olivella biplicata* rectangle bead (typical of the Early period) was recovered from Indian Hill Rockshelter, another site in the San Diego area (King 1990a:110; McDonald 1992).

The *Amat Inuk* (C-144) Site

Amat Inuk was located in Mason Valley about 4 mi. (6 km) west of Vallecitos in eastern San Diego County. The site has been identified by various historic names, including *Net Nook, Matnook, Amat Inuk, and Matrink* (True 1966:89; Moriarty 1969:87; Cupples and Ezell 1974:8; Cline 1979). In this work, it will be called by its most common name of *Amat Inuk.* The site was occupied until 1870 and then abandoned due to a smallpox epidemic (Rogers 1929:1). This date is significant because it marks the discovery of a gold mine at Rancho Cuyamaca, just to the east of Mason Valley, which brought

Date	C. King (1990a)	Bennyhoff & Hughes (1987)	Arnold (1992)	Warren (1968)	Rogers (1945)
A.D. 1800	L3a (1804)	Historic			
A.D. 1700	L2b (1782)	Late Protohistoric			
A.D. 1600		Early Protohistoric	Late Period	Undefined	Undefined
	L2a				
A.D. 1500					
A.D. 1400	L1c	Late Phase I			
A.D. 1300	L1b				
A.D. 1200		Middle Phase I	Middle to Late Transition Period	Yuman/ Shoshonean	
	L1a				
A.D. 1100					
	M5c				
A.D. 1000		Early Phase I			Yuman
	M5b				
A.D. 900	M5a				
A.D. 800	M4	Middle/Late Period Transition			
A.D. 700					
A.D. 600	M3	Late	Middle Period	Encinitas Tradition	
A.D. 500					
A.D. 400		Late			
A.D. 300					La Jollan
A.D. 200	M2b	Intermediate			
A.D. 100					
200 B.C.					
800 B.C.	M2a				
1400 B.C.	M1				
2400 B.C.	Ez		Early Period		
3500 B.C.	Eyb				
4500 B.C.	Eya				
6000 B.C	Ex				
				San Dieguito Tradition	
10,000 B.C.					San Dieguito

FIGURE 2. Chronology for Southern California.

many more people to the region. Brott (1963), who worked at the site in 1963, suggested that the site was abandoned in 1897 and considered it a Yuman III village (Brott 1963:1), as did Rogers (1929). True (1966:89, 1970:56) described the site as one of three large Kumeyaay winter villages with a cremation burial area. Rogers (1929:1) noted that in addition to Yuman III, there were traces of San Dieguito II. Non-native historic artifacts from the cemetery include glass beads, a Spanish spur, two pieces of bronze bridle trappings, metal knives, a Spanish crockery pendant, a brass U.S. Army button, a lump of melted copper, and a piece of willow ware (Rogers 1929). Apparently Pedro Fages described this settlement in his journals when he crossed from the Anza Trail to San Diego in 1782–1783 (Rogers 1929:1). In his 19 April 1782, diary entry, Fages stated that Mason Valley "extended north and south probably two and a half leagues [12 km/7.5 mi.], and east and west about one and a half leagues [7 km/4.5 mi.], on the slope of a range of moderate sized, well grassed mountains, with plenty of springs. Nearby the latter we found a very large village of Camillares Indians (Kumeyaay), who climbed up a hill as we were passing, and came down to talk to the soldiers who were coming behind with the horses" (Rensch 1955:199).

Amat Inuk was excavated by Malcolm Rogers between 1925 and 1929. Rogers (1929:1) found three cemeteries with cremations: a large one, "Cemetery A," and two smaller ones, "Cemetery B" and "Cemetery C," as well as "Isolated Cremations" (Figure 3). He estimated that a total of 100 cremations existed, but because of the repeated looting and other disturbance processes, it was not possible to reconstruct the original number. Rogers (1929:1) remarked in his notes that this was the largest cremation cemetery in the "Yuman territory." Rogers took notes on 46 cremations in Cemetery A (Rogers 1929:1–10), and 10 in Cemetery C (Rogers 1929:11–13), although some of the cremations were excavated by other individuals. The only reference to Cemetery B in Rogers' notes is on his map showing the locations of the three cemeteries (Figure 3). Five isolated cremations (Rogers 1929:14) were also found and recorded, totaling 61 cremations at the site. Data on these cremations include locational information, maps of cremations (Figures 3–7), and relatively detailed notes on grave goods. Nine cremations from Cemetery A lacked detailed notes and exact provenience, as they had previously been excavated in 1924 by John Glenn, who apparently did not take notes (Rogers 1929:1, 8). Nevertheless Rogers (1929) provided approximate information on the location of Glenn's cremations, as well as those conducted by Ben Squires. Squires' excavations included a cremation buried inside a house and a charred log

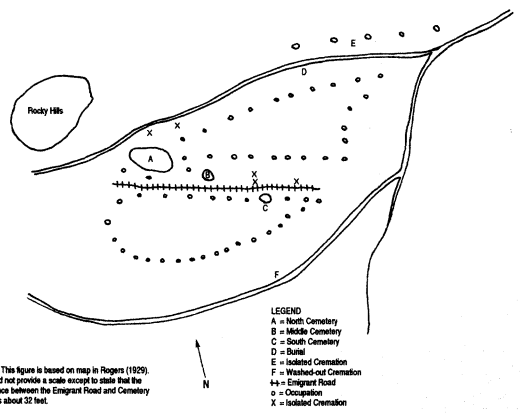

FIGURE 3. Cemeteries and isolated cremations at *Amat Inuk* (based on Rogers 1929).

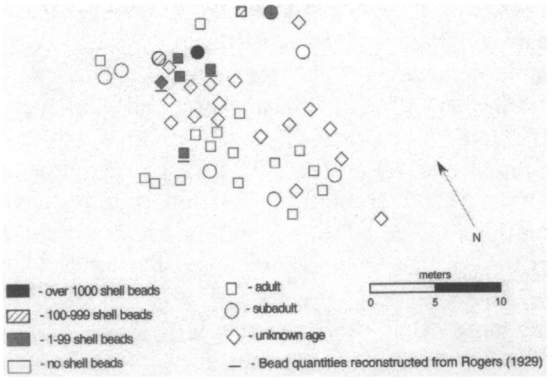

FIGURE 4. Distribution of shell beads in Cemetery A.

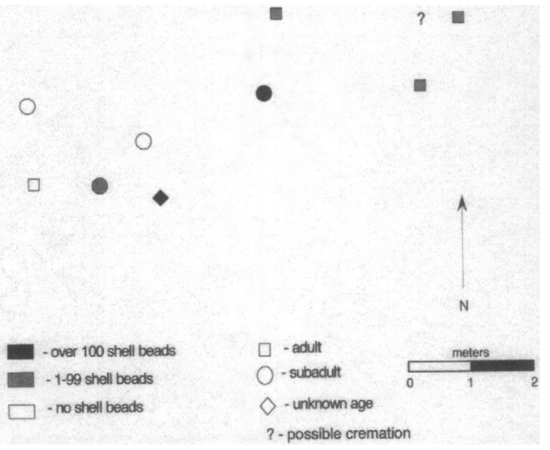

FIGURE 6. Distribution of shell beads in Cemetery C.

structure. It is not clear when his work occurred, but it was probably in the late 1920s. Rogers indicated whether the cremations that he excavated were urn-gathered, pit-gathered, or un-gathered and provided a general description of what was found associated with each burial. Urn-gathered cremations were those that contained cremation contents in an urn or olla, pit-gathered were those that contained the cremation contents in a pit that was dug out before the burning took place, and un-gathered ones were types that had no pit and no urn. There were 20 urn-gathered, 10 pit-gathered, and 20 un-gathered types (Rogers 1929). The others were not designated because Rogers did not excavate them, or they were disturbed. He listed the artifacts associated with these cremations, however.

Since Rogers' excavations, a skeleton was discovered by hikers on an eroding bank at *Amat Inuk* in 1963. The skull was submitted to the sheriff. The human remains were determined a possible Christianized Kumeyaay female (because traditional Kumeyaay did not bury their dead, but cremated them) or a non-Kumeyaay about 35–40 years old. The skeleton was entangled in mesquite tree roots, making excavation difficult.

Shell Beads and Shell Bead Manufacture

Ample archaeological and ethnographic evidence exists to indicate that the Chumash had craft specialization in the form of shell bead manufacturing (King 1976; Arnold 1987), and that their beads were traded extensively (King 1990a:107–157; Gibson 1994, 1995a). In order

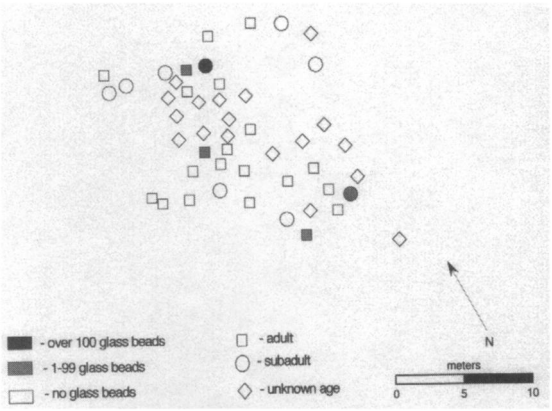

FIGURE 5. Distribution of glass beads in Cemetery A.

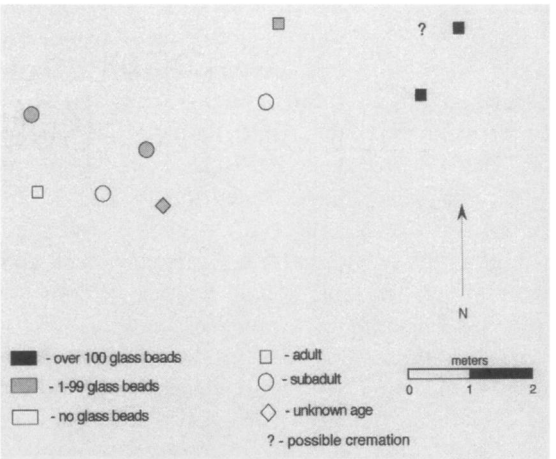

FIGURE 7. Distribution of glass beads in Cemetery C.

to address the issue of exchange of shell beads from the Santa Barbara region to San Diego County, the *Amat Inuk* bead collection was chosen because of the large numbers of shell beads that were found at the site.

Olivella biplicata shell was the most commonly used material for beads in California throughout all time periods (King 1990a:103) (Figure 8). *Olivella biplicata* beads are one of many shell bead types that are temporally diagnostic in King's (1990a) bead typology for southern California. *Olivella biplicata* shells can be found along the West Coast from Vancouver, Canada, to Baja California. The maximum body length of *Olivella biplicata* shells is approximately 20 to 38 mm, which is relatively large compared to other *Olivella* species (Rehder 1986:585; Mitchell 1992:49). The *Olivella biplicata* shell is hard and durable, making it an appealing material for bead manufacturing. Different parts of the *Olivella biplicata* shell, including the spire, wall, and callus, were used in bead manufacturing (Figure 8). Beads made from the hardest part, the callus, were considered more valuable because of the difficulty of working the callus during bead manufacturing (King 1981:13).

Other *Olivella* species in southern California are *Olivella dama*, found in the Gulf of California, and *Olivella baetica* found along the West Coast from Alaska to Baja California. The *Olivella dama* and *Olivella baetica* are smaller and more slender than *Olivella biplicata* (Rehder 1986:585–586; Mitchell 1992:46, 49). Some *Olivella biplicata* are nearly white in color, while others are very dark, ranging from bluish-gray to purple (Morris 1966:99). *Olivella baetica* range from blue to brown in color (Morris 1966:98). *Olivella dama* are similar to the latter in color, with the spire sometimes pale gray (Morris 1966:192). Usually the color fades over time, with most beads from archaeological contexts being white. Perhaps the availability, durability, and high value due to the difficulty of working the shell made the *Olivella biplicata* shell the most commonly used material for bead manufacturing in California.

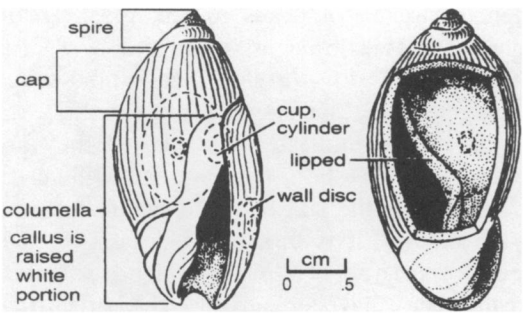

FIGURE 8. Areas of the *Olivella biplicata* shell used to manufacture beads (after King 1978:60).

Ethnographic accounts indicate that shell beads were used for decorative, economic, and ceremonial purposes among southern California Indians. According to Gifford (1947:37), the Kamia (Eastern Kumeyaay) women wore necklaces of "blue beads" made from clamshell from the Gulf of California, and the men wore shells or strings of small, white clamshell discs in their nasal septums. Among the Cahuilla, shell bead money was used in ceremonial exchanges. Clan chiefs of each ceremonial group had several strings of shell beads. There were two classes of money that were given at different occasions. The first class, named *witcu* by the Palm Springs Cahuilla, was given to all clan leaders at the close of every image-burning ceremony, thus keeping a perpetual exchange. Some strings came from as far away as Santa Catalina Island from the Gabrieleño (Strong 1929:94–96). The other type, called *napanaa*, was sent by all leaders to the clan leader after a death in the clan (Strong 1929:95). Clearly, shell beads were integrated into the culture of southern California Indians.

Shell beads have been used as chronological markers in California, just as pottery sequences have been used to identify particular time periods in the Southwest. King (1990a) developed a detailed chronology of shell bead use among the Chumash based on burial lot seriation. The focus of this research is on *Olivella* wall disk beads. Wall disk or saucer beads were the most frequently made beads during the Middle period (1400 B.C.–A.D. 1050). Their importance and use decreased as cupped beads increased in significance during the initial part of the Late period (A.D. 1050–1150), but wall disk beads regained their significance at the time of Spanish colonization and became the most common type of bead after colonization. By 1776, wall disk beads had larger diameters and ground edges that

were less smooth (Figure 9). These are called *Olivella* rough disk beads (King 1990b:8–19, 1996:23). Small stone drills were used to make the perforation until iron needles were introduced by the Spaniards in 1782. Chumash rough disk beads made with stone drills have perforations larger than 1.0 mm. Iron needles rapidly replaced stone drills and resulted in a smaller perforation of about 1.0 mm in diameter (King 1990a:8–19; Gibson 1995b:4). By 1816 the outside diameter of the rough disk beads was between 5.0 and 6.2 mm. Small disks, however, were still in use and had a diameter between 1.6 and 3.0 mm (King 1990a:179–181). With the passing of time, bead edges and diameters became more variable. Some hole diameters increased due to larger needles, and hole shape changed from the earlier circular shape to a triangular shape (King 1990b, 1995).

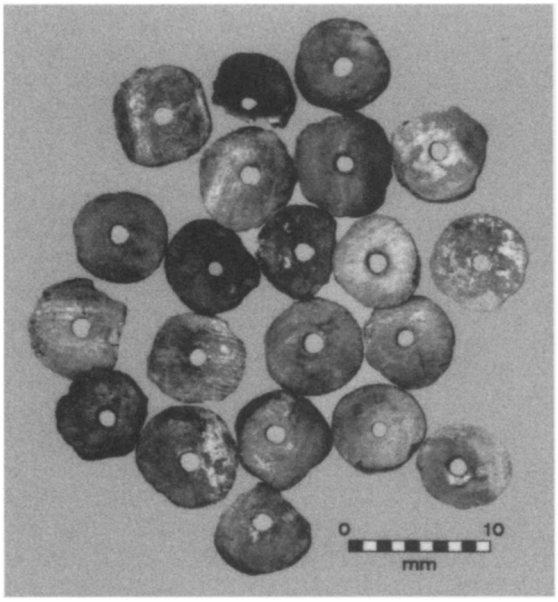

FIGURE 9. A sample of *Olivella* rough disk beads from Cremation 2 at Amat Inuk.

Shell bead manufacturing required an abundance of shell in addition to tools such as drills. Massive amounts of shell detritus, stone microdrills or broken drill bits, and bead blanks indicate evidence of shell bead manufacturing. Results from a study of Late period (A.D. 1300–1782) bead manufacturing sites from the Chumash area show that the ratio of finished beads to bead blank and *Olivella* shell fragments is about 200:1400:60000 (or 1:7:300) per cubic meter (Arnold 1992:135–136). Many sites where shell beads were made have been found on Santa Cruz Island. One of the largest of these in the Chumash area is SCRI-330, a Late period site where a density of 150,000 *Olivella* shell debitage pieces per cubic meter were found (Arnold and Munns 1994:479–480). It is clear that at a bead-manufacturing site where hundreds of shell beads were made, thousands of fragments of detritus should exist.

Very little ethnographic evidence of shell bead manufacturing in San Diego County exists. In three ethnographic accounts, informants claimed to have no knowledge of bead manufacturing (Gifford 1931:37; Drucker 1937:25; Shipek 1991:57). When shell beads are mentioned in ethnographies on the Kumeyaay, it is usually in relation to trade. Gifford stated that shell beads in the Imperial Valley were not common due to the distance to the Gulf of California. The clamshells that the Eastern Kumeyaay used evidently were traded from the Cocopa (Gifford 1931:37). Luomala noted that the coastal Kumeyaay traded their abalone shells for inland products (Luomala 1978:601–602). There is no mention of bead manufacturing by any of these ethnographers.

The archaeological record provides even less evidence of shell bead manufacturing in San Diego County. Rogers (1945:172) suggested that Pacific shell possibly was traded from the Chumash or Shoshonean people because of the similarity between shell beads found in the Kumeyaay area and those found in the Chumash area. No evidence of shell bead manufacture has been identified in San Diego County (although it has been identified in Imperial County), and evidence of shell bead use is limited. A thorough discussion of beads found in San Diego County and their locations is provided by Zepeda (1999). Few *Olivella* shell beads tend to be recovered from San Diego County sites when compared to Chumash sites. When they are present, they have been found in limited numbers at sites along the coast, in the mountains, and in the desert. It is difficult to discuss the full extent of the use of *Olivella* rough disk beads because they have not always been identified as such by archaeologists. The most common *Olivella* bead type found in San Diego County

is the spire-lopped bead. This type of bead is not chronologically sensitive because it was used during most time periods in San Diego County (Martin D. Rosen 1999, pers. comm.).

The only evidence of bead manufacturing from a Kumeyaay site is from the Elmore site (IMP-5427) in Imperial County (Rosen 1994). This protohistoric site (ca. A.D. 1660) produced 229 pieces of *Olivella* shell. Of these, 60 were either completed beads or bead fragments and 169 pieces were *Olivella* detritus, of which 7 were identified as *Olivella dama.* The other pieces did not have enough diagnostic information to identify by species. Of the 60 beads, 14 were *Olivella dama* spire-removed, 3 were *Olivella biplicata* spire-removed, 2 were *Olivella dama* barrel beads, 30 were *Olivella* sp. barrel beads, and 9 pieces could not be identified to the species level. Of the 169 detritus pieces, 89 were canal pieces and 74 were outer body whorl pieces. Both types of detritus would have resulted from the manufacture of spire-removed and barrel beads (Rosen 1994:4–6, 15–18). There was approximately 1 bead for every 3 pieces of detritus at the site (Rosen 1994:7–8). Rosen (1994:13) suggested that there were stronger ties with the south or Gulf of Mexico than with the west or Pacific Ocean because *Olivella dama* beads were more common than *Olivella biplicata* beads at the site. He (Rosen 1994:14) further suggested that evidence of bead making may have been overlooked in San Diego sites because shell detritus was grouped with unworked shell.

Field notes and other records from the Museum of Man also lack discussion of bead manufacturing. Their records indicate which collections have beads, and if they were associated with cremations. According to the list of 40 cremation sites, only 11 had shell beads; of these 11 cremation sites, only 2 (C-160 and W-263) besides *Amat Inuk* contained what appears to be over 1,000 beads, while most had less than 100 beads (San Diego Museum of Man 1920–1940). Undoubtedly, large quantities of shell beads are not characteristic of San Diego County sites, as they are for many Chumash sites, nor is it common for shell bead manufacturing to be discussed in reports. Perhaps a partial explanation for the small quantities of shell beads recovered from San Diego County sites is due to screening and recovery practices used in the past.

Given the relative lack of information on shell beads, an analysis of a substantial collection of beads from *Amat Inuk* is critical in assessing the significance of beads in the San Diego region, their role among the Kumeyaay, and if they are present in the region as a result of long distance exchange. It is probable that if historic shell beads from San Diego sites are similar in size and to types in the Chumash area, then the Kumeyaay trade network was more far-reaching during the historic period than previously documented. Strong (1929:95–96) indicated that beads the Cahuilla used were from the Chumash area. It is possible that the Cahuilla then exchanged Chumash beads with the Kumeyaay. There are also other routes that may have been used. Regardless of the route, it is clear that a fairly complex exchange network that has not previously been documented was still intact approximately 80 years after Mission San Diego de Alcalá was established.

Mortuary Analysis

Only a preliminary mortuary analysis was conducted because the primary focus of this research is to examine exchange between the Kumeyaay and the Chumash. The data provided in this analysis were taken from Rogers' (1929) fieldnotes from *Amat Inuk* (C-144) located at the Museum of Man and from the analysis of beads. The other grave associations were not examined in detail. One individual was assumed per cremation, except in two cases (Cremations 9 and 54). Number 9 appeared to be two adults and number 54 was identified as a mother and an infant. Given the lack of knowledge regarding the exact placement of the beads, the dual cremations were considered one cremation when the spatial distribution of grave goods was mapped. The sex of most of the individual cremations was not identified by Rogers, therefore data on sex are not presented in this analysis. Several variables were examined, including cremation type, age of individual at death, presence of grave goods, and spatial distribution of grave goods, especially glass and *Olivella*

biplicata rough disk beads. These variables were chosen because of their potential significance in interpreting Kumeyaay social organization.

A few minor problems were encountered during the course of analysis. There were discrepancies between the cremations Rogers designated as containing *Olivella* beads and the cremations in the collection at the Museum of Man that were found to contain *Olivella* beads at the time of the bead analysis. In Cemetery A, Rogers identified eight cremations with *Olivella* beads, however only five in the collection appeared to have beads. One of these cremations only had a few fragile beads and it is likely that they were not taken to the museum or had broken subsequently. In Cemetery C, Rogers indicated seven cremations with *Olivella* beads, but beads were located with only five of the cremations. None of the beads recorded by Rogers in the isolated cremations was located at the time of the bead analysis. Three boxes (identified as Cemetery A/Glenn, Trench 2, and tin can) contained *Olivella* beads that were not labeled as associated with any particular cremation. One of these boxes was labeled as the Glenn cremation, which was assumed to be beads from all nine cremations excavated by John Glenn. These three boxes were not used in the mortuary analysis section of the results because they lacked provenience information. This means that 21% (n = 265) of the total bead sample was not used in the mortuary analysis. This percentage of beads, however, was included in the comparative bead analysis of the *Olivella biplicata* rough disk bead measurements (Table 1).

The human remains from the two cemeteries and the isolated cremations at *Amat Inuk* indicate that age at death varied considerably. There were 54 cremated individuals in Cemetery A and C (this number does not include the nine cremations excavated by Glenn, but includes the two dual cremations as four), of which the majority were adults (Tables 2–4). The adult and subadult cremations appear to be intermixed within the cemeteries, possibly a result of families being cremated together (Figures 3–7), however almost twice as many adults when compared with subadults were buried in Cemetery A. In Cemetery C, the number of adults to subadults was the same (Table 3).

The total number of beads found in both cemeteries was 884 glass beads and 7,831 shell beads, with the majority being *Olivella biplicata* rough disk beads (n = 7,630) (Table 5). The other types of shell beads included spire, spire-lopped, cylinder, and cap beads (Figure 8), all of which were probably made from *Olivella* spp. shell (King 1990a). In addition, abalone beads were in the collection. The glass beads in the collection were not as temporally sensitive as the shell beads, therefore were not a focus of this study.

The preponderance of artifacts of native origin versus non-native origin can also be seen in the rest of the collection. Most of the pots, as described by Rogers (1929), were wares traditionally found in the Kumeyaay area. As listed earlier, there were artifacts of non-native origin, though they occur in much lower frequencies at the site. Cremations buried with objects of Spanish origin always had objects that were of native origin as well (Zepeda 1999:Table 3).

Mortuary goods appear to be unevenly distributed in the cemeteries at the site. Cemeteries A and C contained historic items, while none of the isolated cremations had them. According to the notes by Rogers and the presence of beads in the collection, the majority (n = 25, or 75.7%) of the cremations in Cemetery A did not have shell or glass beads. Cemetery A had a total of six cremations with shell beads (16.2%) and five (13.5%) with glass beads, while only two (5.4%) of these cremations had both shell and glass beads (Figures 4, 5; Table 5). Despite the limited distribution of beads in Cemetery A, the majority of cremations had grave goods, such as ceramic ollas, bowls, and jars; only four cremations (10.8%) lacked associated goods. In contrast to Cemetery A, most cremations (n = 9, or 81.8%) in Cemetery C had either shell or glass beads. There were eight (72.7%) cremations with shell beads and five (45.5%) with glass beads, while four of these had both shell and glass beads (Figures 6, 7; Table 5). Only two cremations in Cemetery C lacked glass and shell beads.

Certain cremations are distinctive based on their associated funerary goods. Cremation 2 in Cemetery A, a subadult, had the most *Olivella biplicata* rough disk beads (n = 3,733, or 48.9%) in the entire site of *Amat Inuk* and was the only

TABLE 1
SAMPLE OF *OLIVELLA BIPLICATA* ROUGH DISK BEADS FOR MEASUREMENT

Cemetery	Cremation	Box	Total	%	Sample
A	2	27-22	26	100	26
A	2	Cem A	3707	5	183
A	4	27-28	86	100	86
A	5	27-32	49	100	49
A	26	3	4	100	4
A	27	22	272	50	136
A	29-37	Glenn	779	15	117
A	Trench 2	27-14b	13	100	13
C	48	13	2	100	2
C	51	17	947	15	141
C	52	18	24	100	24
C	54		64	100	64
C	54	1	9	100	9
C	54	2	19	100	19
C	54	16	273	50	137
C	54	29	448	25	112
C	55	14	11	100	11
Unk,	Unk.	Tin Can	897	15	135
Total			7630		1268

cremation with a significant amount of glass beads (n = 155) (Figures 4, 5; Table 5). Aside from the glass beads, there were other historic items found by Rogers associated with Cremation 2, including a Spanish spur, two pieces of bronze bridle trapping, and a knife (Rogers 1929:3). The remaining grave goods included a hair net, parts of a willow basket or cradle, and three ceramic vessels. The abundance of grave goods indicate that this individual was treated in a special manner, as no other cremation had this many items. Another individual with numerous grave goods was identified as Cremation 48 from Cemetery C. This adult had the most glass beads (n = 519, 58.7%) found in the entire site; however, only two *Olivella biplicata* rough disk beads and 12 other shell beads were associated with this individual (Figure 6, Table 5).

TABLE 2
AGE OF INDIVIDUALS AT DEATH FROM *AMAT INUK* CEMETERY

Age	n	%
Adult	29	53.7
Subadult	17	31.5
Unknown	8	14.8
Total	54	100.0

Numerous other funerary objects were associated with Cremation 48, including a Piñon Brown bowl, miniature jar, a *tinaja* (ceramic water olla or water jar), a Carrizo Buff II olla, four arrow straighteners (three broken), three arrow points, two quartzite hammerstones, two bone awls, part of an antler flaker, burned abalone and cardium shells, part of a burned twined basket, a red paint stone, a cinerary canteen, a bowl, two pieces of white marl, and piñon gum nodules (Rogers 1929). This represents the greatest variety of grave goods at the site. Both Cremations 2 and 48 were urn-gathered.

The cremations with *Olivella biplicata* rough disk beads at *Amat Inuk* appear clustered in certain areas of the cemetery. The majority of shell beads (n = 5097, or 65.1%) found at the site were concentrated in Cemetery A, while Cemetery C had most of the glass beads (n = 713, or 80.7%) (Table 5). In Cemetery A, all of the individuals with *Olivella biplicata* rough disk beads were concentrated in the northwestern section (Figure 4). Three of the five cremations with *Olivella biplicata* rough disk beads were subadults, and the other two were adults. In contrast to Cemetery A, the cremations with *Olivella biplicata* rough disk beads appeared more evenly distributed throughout Cemetery C (Figure 6). Over half (54.5%) of the cremations

TABLE 3
CREMATION TYPES AND AGE OF INDIVIDUALS FROM CEMETERIES A AND C

Cemetery A

	Urn-gathered		Pit-gathered		Un-gathered		Unknown		Total	
Age	n	%	n	%	n	%	n	%	n	%
Adult	9	60.0	3	42.9	9	60.0	1	100.0	22	57.9
Subadult	4	26.7	4	57.1	2	13.3	0	0.0	10	26.3
Unknown	2	13.3	0	0.0	4	26.7	0	0.0	6	15.8
Total	15	100.0	7	100.0	15	100.0	1	100.0	38	100.0

Cemetery C

	Urn-gathered		Pit-gathered		Un-gathered		Unknown		Total	
Age	n	%	n	%	n	%	n	%	n	%
Adult	1	20.0	2	100.0	1	50.0	1	50.0	5	45.4
Subadult	4	80.0	0	0.0	1	50.0	0	0.0	5	45.4
Unknown	0	0.0	0	0.0	0	0.0	1	50.0	1	9.1
Total	5	100.0	2	100.0	2	100.0	2	100.0	11	99.9

from all cemeteries with *Olivella biplicata* beads were urn-gathered, and over half (54.5%) of them also contained historic items, such as glass beads and metal items (Zepeda 1999:Table 11). Of the cremations with *Olivella* beads, only the urn-gathered ones also had historic items.

Data from this preliminary mortuary analysis indicate a number of different patterns. There appears to be a relatively even distribution of adult and subadult cremations throughout *Amat Inuk*, perhaps indicating family groups. If the ratio of subadults to adults is compared between the two cemeteries, however, there were more subadults buried in Cemetery C than Cemetery A. The ratio in Cemetery C is 1:1, indicating as many children were cremated as adults. Obviously, though, the population in Cemetery C is very small, and it is possible that not all of the cremations in this area were recovered by Rogers prior to looting. Nevertheless, grave goods were distributed unevenly in both cemeteries, with a few individuals buried with the majority of the beads. In particular, Cremations 2 and 48 had an unusual amount of beads when compared to other cremations. *Olivella biplicata* rough disk beads appeared concentrated in the northwestern section of Cemetery A, while glass beads were concentrated in Cemetery C.

Bead Analysis

One of the primary objectives of this research is to compare *Olivell*a rough disk beads from the site of *Amat Inuk* with those from the Chumash area during the historic period to see if they are similar. If they are close in appearance and technique of manufacture, the most likely explanation is that they were traded from the Chumash to the Kumeyaay region. Evidence that the Chumash made massive quantities of

TABLE 4
CREMATION TYPES AND AGES OF INDIVIDUALS FROM ISOLATED CREMATIONS

	Urn-gathered		Pit-gathered		Un-gathered		Unknown		Total	
Age	n	%	n	%	n	%	n	%	n	%
Adult	0		1	100.0	1	33.3	0	0.0	2	40.0
Subadult	0		0	0.0	1	33.3	1	100.0	2	40.0
Unknown	0		0	0.0	1	33.3	0	0.0	1	20.0
Total	0		1	100.0	3	99.9	1	100.0	5	100.0

TABLE 5
AMAT INUK CREMATIONS WITH GLASS AND SHELL BEADS

Cemetery	Cremation	Glass Beads	*Olivella* Disk	Other Shell
A	2	155	3733	5
A	3	7	0	8
A	4	0	86	79
A	5	0	49	0
A	15	3	0	0
A	16	1	0	0
A	26	0	4	0
A	27	0	272	7
A	44	5	0	0
A	29-37	0	779	0
A	Trench 2	0	13	62
C	47	3	0	0
C	48	519	2	12
C	50	129	0	21
C	51	0	947	2
C	52	56	24	0
C	53	2	0	0
C	54	4	813	3
C	55	0	11	0
Unident	Unk	0	897	2
Total		884	7630	201

beads and traded them throughout southern California and into the Great Basin and Southwest strongly supports this hypothesis. Moreover, there is a virtual absence of bead making detritus in San Diego County. *Olivella biplicata* rough disk beads were chosen for study because these bead types were the most common shell bead type in use after Spanish colonization (King 1990a:179, 1990b:8–19), and therefore an important indicator of traditional exchange systems after contact.

Bead diameters, perforation diameters, and bead thicknesses were measured from a sample of beads from *Amat Inuk* in order to compare to Chumash samples. Methods used to analyze the *Olivella* rough disk beads have been standardized by King (1990a) and others (Gibson 1976; Bennyhoff and Hughes 1987). Shell and glass beads from the site were counted, and shell beads were assigned to a type. The only beads that were chosen for measurements were *Olivella biplicata* rough disk beads. A sample of beads was selected for measurements because of the large number of *Olivella biplicata* rough disk beads. The number of beads sampled from each cremation was not always the same. If a cremation had less than 100 beads, all the beads were measured. For cremations with over 100 beads, a percentage of beads was measured so that at least a minimum of 100 beads was measured for each cremation (Table 1). The sample was taken by evenly dispersing the beads on a grid, and then randomly selecting the specified percentage of beads for each cremation box.

TABLE 6
T-TEST COMPARISONS OF BEADS FROM *AMAT INUK* AND MISSION BUENAVENTURA

Location	*p*	*df*	*t*-value
Ventura S8-W6/ *Amat Inuk*	0.01	1249	4.19
Ventura S12-W62/ *Amat Inuk*	0.01	1510	3.22
Ventura S17-W20/ *Amat Inuk*	0.01	1685	1.53

A total of 1,268 *Olivella biplicata* rough disk beads was selected for detailed measurements. The maximum diameter, maximum thickness, and minimum perforation diameter were measured for each bead in the sample. All measurements were taken in millimeters with a dial caliper and comparator. Complete measurements were not possible for all beads because

some were broken or the edges were so eroded that an exact measurement was not possible. The burned state of the beads from *Amat Inuk* resulted in the beads being fragile and subject to erosion. This may have affected the accuracy of the bead measurements, resulting in slightly smaller bead diameters and larger perforation diameters. Of the total sample of 1,268 rough disk beads, the diameters of 120 beads, the hole perforations of 45 beads, and the thickness of 23 beads could not be measured because of erosion or breakage. Finally, each bead was catalogued, and this information was entered into a database (Zepeda 1999:Appendix B).

The results of the bead analysis indicate that the sizes of *Olivella biplicata* rough disk beads from *Amat Inuk* fall within the range of *Olivella biplicata* rough disk beads from the Chumash area. In general, Chumash *Olivella biplicata* rough disk beads have diameters greater than 4.0 mm with straight perforations of 1.0 mm and are on the average 1.0 mm thick (King 1996:8–19). Given the trend for *Olivella biplicata* rough disk beads to increase in overall size between 1780 and 1840 (King 1995:XIII-14, 1996:8–19), beads from *Amat Inuk* fit King's description for historic rough disk beads. Diameters of beads from *Amat Inuk* range between 5.1 and 9.8 mm, with the majority (n = 1,116, or 88.0%) ranging between 5.2 and 8.0 mm. (Figure 10). (There were 32 bead diameters from *Amat Inuk* that were considered outliers and were not used in the sample.) The mean diameter is 6.71 ± 0.018 mm. When the diameters of rough disk beads from *Amat Inuk* are compared to those in King's sequence of diameter ranges for *Olivella biplicata* rough disk beads from several Chumash sites, the *Amat Inuk* diameters coincide most closely with diameters of beads dating from around 1822 to 1850 (King 1995:XIII-17). Diameters of Chumash rough disk beads during this time period range between approximately 5.5 and 7.8 mm.

In order to determine the similarity of *Olivella biplicata* rough disk beads from *Amat Inuk* with those from historic Chumash sites, including Mission San Buenaventura, *Talepop*, Mescalitan Island, Malibu, and Medea Creek, bead diameters were compared (King 1995:XIII-17). Rough disk beads from three midden units (S8-W6, S12-W62, S17-W20) from Mission San Buenaventura provided an ideal comparison because

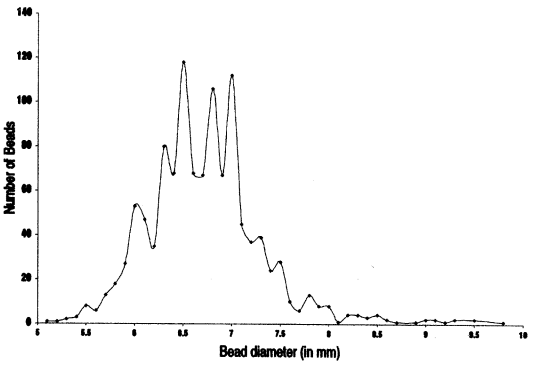

FIGURE 10. Diameter of *Olivella* rough disk beads from *Amat Inuk*.

many beads found after 1815 in southern California may have been made at Mission San Buenaventura (King 1990b:8-8). Bead diameters from *Amat Inuk* are significantly larger than diameters of beads from two units from Mission San Buenaventura (S8-W6 and S12-W62) (Zepeda 1999:Figures 11, 12). T-tests confirm the observation that bead diameters from these two units and *Amat Inuk* are significantly different (Table 6). The t-test comparing bead diameters from *Amat Inuk* and Unit S17-W20 from Mission San Buenaventura indicate no significant differences in diameter sizes (Table 6). King (1995) suggested that Mission San Buenaventura beads were used between 1782 and 1850. Most of the beads from *Amat Inuk* have similar diameters to those at Mission San Buenaventura and are probably from the same time period.

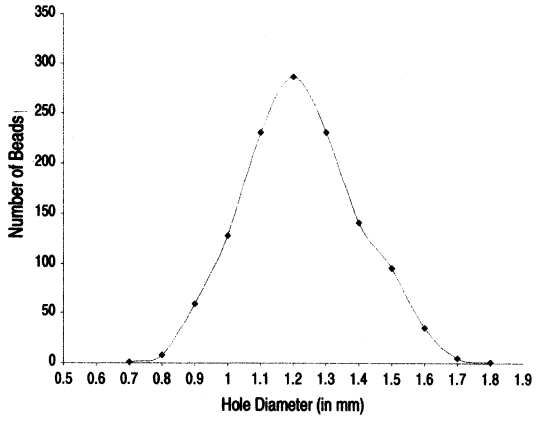

FIGURE 11. Hole Diameters of *Olivella* rough disk beads from *Amat Inuk*.

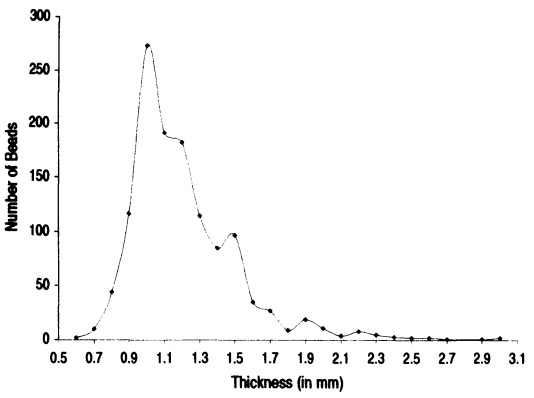

FIGURE 12. Thickness of *Olivella* rough disk beads from *Amat Inuk.*

The measurements of *Olivella* rough disk beads from *Amat Inuk* also were compared to rough disk beads found outside the Chumash area. Beads from Tahquitz Canyon (King 1995), an historic Cahuilla site in Riverside County that has documented evidence of Chumash *Olivella biplicata* rough disk beads, were chosen for this comparison. The diameters of beads from *Amat Inuk* were compared with diameters of beads from three cremation lots and two midden units from Tahquitz Canyon that date to A.D. 1803–1850 (King 1995:XII-77; Schaefer 1995:VI-2). For purposes of this study, each cremation and midden unit was arbitrarily assigned a lot number (Zepeda 1999:Table 7). King (1995:XIII-18) suggested that the *Olivella biplicata* rough disk beads found at Tahquitz Canyon were manufactured by the Chumash, perhaps at the Mission San Buenaventura. The t-tests comparing bead diameters from *Amat Inuk* and bead diameters from Lots 1, 3, and 6 at Tahquitz Canyon indicate a significant difference between the bead diameters from both sites (Table 7). The bead diameters from Tahquitz Canyon Lots 1, 3, and 6 are significantly larger than those from *Amat Inuk.* These may be later than those from *Amat Inuk.* The t-tests comparing bead diameters from *Amat Inuk* and Tahquitz Canyon Lots 4 and 7 indicate no significant difference (Table 7), suggesting they are probably from the same time period during the historic period.

Diameters of perforations of *Olivella biplicata* rough disk beads from *Amat Inuk* range between 0.7 and 1.8 mm, with a mean of 1.22 ± 0.005 mm (Figure 11). The majority of the hole perforations have parallel sides like historic Chumash *Olivella biplicata* rough disk beads. The mean hole diameter of 1.22 mm coincides with beads from the later historic period. The hole perforations may have been enlarged due to erosion, as many were eroded.

Thickness and edge treatment were also examined. The thickness of the *Amat Inuk Olivella biplicata* rough disk beads range between 0.6 and 3.0 mm with an mean of 1.21 ± 0.009 mm (Figure 12). This mean thickness is close to King's 1.0 mm mean thickness for historic Chumash *Olivella biplicata* rough disk beads (King 1990b:8-20). The edges of the majority (52%) of the beads from Mason Valley are slightly ground, coinciding with the trend of edges becoming rougher and ground less smoothly in the historic period (King 1990b:8-19, 1995:XII-14, 1996:23). The majority (75%) of the beads from *Amat Inuk* were burned, as was expected due to their association with cremations.

This analysis demonstrates that the *Amat Inuk Olivella biplicata* rough disk bead measurements conform to the general measurements for *Olivella biplicata* rough disk beads from

TABLE 7
T-TEST COMPARISONS OF BEADS FROM *AMAT INUK* AND TAHQUITZ CANYON [A]

Location	*p*	*df*	*t*-value
Tahquitz Lot 1[b]/ *Amat Inuk*	0.01	1478	8.85
Tahquitz Lot 3[c]/ *Amat Inuk*	0.01	1632	8.77
Tahquitz Lot 4[d]/ *Amat Inuk*	0.01	1208	1.67
Tahquitz Lot 6[e]/ *Amat Inuk*	0.01	1255	5.58
Tahquitz Lot 7[f]/ *Amat Inuk*	0.01	1262	1.43

[a] Lots 2, 5, and 8 were not used in the statistical analysis due to their limited number of beads [Lot 2 = Locus E, West (cremation Unit 47: 18 *Olivella* rough disk beads; Lot 5 = Locus E, West (cremation) Units 17, 28, and 29: 10 *Olivella* rough disk beads; Lot 8 = Locus E, East Feature, midden deposit: 23 *Olivella* rough disk beads.

[b] Lot 1 = Locus E, East (cremation) Units 136, 137, 145, and 148: 332 *Olivella* rough disk beads.

[c] Lot 3 = Locus E, West (cremation) Units 48 and 49: 484 *Olivella* rough disk beads.

[d] Lot 4 = Locus E, West (cremation) Unit 38: 60 *Olivella* rough disk beads.

[e] Lot 6 = Locus C, Features 1 and 2, midden deposits: 109 *Olivella* rough disk beads.

[f] Lot 7 = Locus E, West Feature, midden deposit: 114 *Olivella* rough disk beads.

historic Chumash sites. The similarities of some bead diameters from Mission San Buenaventura, Tahquitz Canyon, and *Amat Inuk* indicate that these sites were occupied during similar time periods. Nevertheless, because the diameters of some of the beads from *Amat Inuk* are larger than those from Mission San Buenaventura, it is likely that *Amat Inuk* was occupied later in time. Some of the bead diameters from Tahquitz Canyon indicate that this site may have been occupied even later than *Amat Inuk.*

Discussion and Conclusions

Very little archaeological research has been conducted on exchange patterns after historic contact in the Kumeyaay region. Even less is known about status and sociopolitical organization during this time period. The results of the mortuary analysis reveal a pattern of uneven distribution of grave goods. This pattern is most apparent in Cemetery A, where over 65% of the shell beads from the site were found. Most of these beads were clustered with individuals in the northwestern section of Cemetery A. One individual in this area (Cremation 2), a subadult, had almost half of the beads (n = 3,893) found at the site. This individual also had a wealth of other grave associations, including Spanish metal goods, ceramic vessels, and other traditional Kumeyaay items. Given that this was a subadult, it is unlikely that they achieved their wealth, but were buried with these items by relatives or others. Ethnographic evidence indicates that the possessions of the dead were placed with the body at the time of cremation and burned or burned one year later at the mourning ceremony (Waterman 1910:306; Kroeber 1925:716; Luomala 1978:603). Based on these accounts, one can assume that the grave goods were the possessions of the dead or close family members. The person (Cremation 2) buried with all these goods had not yet reached adulthood, therefore may have inherited these burial associations. This possibly represents status differentiation among the Kumeyaay that has not previously been documented.

The other individual with an abundance of grave goods (Cremation 48) differed significantly from Cremation 2 in that this person was an adult and was found with numerous glass beads (n = 519), but with only 14 shell beads, 2 of which were *Olivella* rough disk beads. The individual was also found with many other artifacts, including arrow points, arrow shaft straighteners, bone awls, and ceramic vessels. It is possible that this adult earned the goods that were buried with him or her. Certainly, in the 1800s during the Hispanic era, followed by the Mexican and American periods, many non-traditional methods of acquiring wealth and material goods existed, including working on ranchos as cowboys or domestic helpers. The closest rancho was Rancho Cuyamaca to the east and the probable location of the summer and fall settlements for the people of Mason Valley.

This preliminary analysis of mortuary practices at *Amat Inuk* clearly indicates a differential distribution of grave goods and is especially apparent in Cemetery A where approximately 76% of the cremations lacked shell and glass beads. Moreover, the relatively even distribution of adult and subadult cremations could be indicative of members of nuclear families having been placed with each other. The clustering of grave goods, especially beads, further suggests that these families may have held the bulk of wealth and status items that were available to members of Kumeyaay society.

Rogers map (Figure 3) shows the location of three cemeteries in addition to isolated burials. The significance of different cemeteries at *Amat Inuk* that were used contemporaneously is not fully understood. Glass beads were much more prominent in Cemetery C than Cemetery A, while Cemetery A had more shell beads. Cemeteries A and C appear to have been in use between 1782 and 1850, and possibly later. No information was available for Cemetery B. It is possible that the different cemeteries at the site represent burial locations for different families or clans. If this is the case, it may be of particular significance that there was one individual in each cemetery (Cemetery A and C) who was cremated with substantial wealth and who stands out as different from the other individuals. These high status individuals may have been *Kwaaypaay,* members of *Kwaaypaay* families, or other high ranking individuals such as religious specialists. It was noted earlier that the *Kwaapaay* and other Kumeyaay officials, such as religious specialists,

owned the majority of beads and other wealth items. Obviously more research is needed to substantiate these hypotheses.

The analysis of beads from *Amat Inuk* indicates that long distance exchange networks among California Indian societies continued well into the period after Spanish contact. Moreover, this exchange network involved items traditionally produced by southern California Indians. The diameter, hole size, and thickness of *Olivella biplicata* rough disk beads from *Amat Inuk* are within the parameters of historic *Olivella biplicata* rough disk beads found in the Chumash region as described by King (1990a). *Olivella* rough disk beads are described as increasing in overall size between 1780 and 1840. Given that the *Amat Inuk* sample of beads falls within the continuum of bead diameters from Mission San Buenaventura and Tahquitz Canyon, they apparently fit the trend of increasing size during the historic period. The beads probably were made after 1800 because the diameters and hole perforations from *Amat Inuk* are larger and more variable than those described by King for the early historic period and are more similar to those described from the later historic Chumash sites (King 1990b:8-4). Other data indicate that *Amat Inuk* was not abandoned until 1870 at the earliest (Rogers 1929). The lack of evidence for *Olivella biplicata* shell bead manufacturing outside the Santa Barbara Channel area (King 1995:XIII-18) and the standardized size of beads from *Amat Inuk* strongly suggest that the beads found there were manufactured by the Chumash during the historic period and then traded to the Kumeyaay, either directly or indirectly.

Evidence of exchange between California Indians and Spaniards during the historic period is well established (King 1976). Given that there has been no previous documentation of exchange between the Kumeyaay and the Chumash, this research is of particular importance. It is possible that Chumash shell beads were traded to the Cahuilla, who then, through an established communication network, exchanged these beads with the Kumeyaay. Another scenario may be that the beads arrived on Spanish ships or overland on some of the Spanish expeditions that went up and down the California coast. Often American Indian guides accompanied the Spanish. These individuals could have served as middlemen in intertribal trade between the Chumash and the Kumeyaay after Spanish colonization. An example from the Pomo Indians in northern California serves as an interesting parallel. Manufacture of clam shell and baked magnesite beads was an important industry during the historic period in central California north of San Francisco. In 1875, Hudson (Heizer 1975:9–27) wrote about the Pomo bead makers of the time and suggested that this traditional medium of exchange was more valued than the glass beads offered by the Spanish. Archaeologists and anthropologists have tended to overlook the significance of traditional exchange systems that persist well after historic contact. Acculturation, or the lack thereof, is a subject that can and should be more thoroughly examined after Spanish colonization. Too often archaeologists assume that there was rapid disruption of traditional cultural systems after intensive contact situations. This subject is well worth more thorough examination throughout North America.

As early as 6000 B.C., there is evidence of exchange between the Chumash and Great Basin groups. Exchange during the following 8000 years continues to be documented between the Chumash and Great Basin, Southwestern, and California groups. The research presented in this work suggests that this traditional exchange system continued up to 80 years after Spanish colonization and extended further south than previously documented. The perseverance and maintenance of traditional socioeconomic interactions by the California Indians after Spanish colonization is impressive given the attempt by the Spaniards to destroy the traditional life of California Indians. The dramatic changes brought about by missionization, epidemic diseases, the seizure of California Indian lands, and the use of California Indians as a Spanish labor force did not stop traditional long distance exchange networks from operating. In order to continue this exchange network, communication and organization that existed before contact had to persist. Exchange networks could not have survived without the cooperation and effort of the groups involved. Moreover, the fact that the Eastern Kumeyaay did not come under the control of the missions was significant in that it allowed these Kumeyaay to avoid contact for a much longer time than was possible for the coastal Kumeyaay (Van Wormer 1986). It is

apparent from the grave goods in the *Amat Inuk* cemetery and their distribution, that maintenance of traditional social systems persisted despite the efforts of the Spanish to destroy these traditions.

The mortuary analysis provides only hints of Kumeyaay sociopolitical complexity after historic contact. Future research on the timing and development of social differentiation among the Kumeyaay is needed. Given that no other mortuary analyses have been completed in the region, it is difficult to interpret the meaning of all the patterns presented. Further research at this and other Kumeyaay sites is needed to fully understand the nature of Kumeyaay sociopolitical complexity before and during the historic period.

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