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Glass Trade Beads from Two Shasta Sites in Siskiyou County, California

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GLASS beads are found in nearly all contact-period archaeological sites in North America, and they occur in greater quantity and have a wider geographical distribution than any other artifact type. Much can be learned from the occurrence of glass beads at aboriginal sites in terms of temporal affinities, trade, status (through burial offerings or accompaniments), and aesthetics. Two protohistoric cemeteries (CA-SIS-168 and CA-SIS-837) in the Klamath Mountains of Siskiyou County, in extreme northern California, provide an opportunity to study these aspects of glass bead distribution. Also, in this examination a check and, in several cases, a refinement of the temporal position of some glass bead types is possible through cross-dating and study of bead co-occurrence. Finally, intrasite variability of a sampling of Shasta sites is examined for evidence of ethnic differences and similarities.

The introduction of glass beads to the Northern Hemisphere is credited to Christopher Columbus. According to the log of Columbus' first voyage of discovery, glass beads were given to the natives encountered on the shore of Watlings Island in the Bahamas on October 12, 1492 (Morrison 1963:64-66). Four days later "little beads of green glass" were distributed to the inhabitants of Santa María de la Concepción (Morrison 1963:69-71). These beads apparently were an immediate success, and news of them was quickly spread by the Indians who had initially received them.

The Portuguese navigator Juan Rodriquez Cabrillo is believed to have been the first European to distribute glass beads to Indians living along the coast of California. On October 7, 1542, his ship arrived at the islands of Santa Cruz and Anacapa where "beads and little presents" were given to the Indians encountered on the shore (Putnam 1879:305-306).

Although seafaring explorers were responsible for introducing glass beads to the Northern Hemisphere, early Spanish land expeditions to upper California and the establishment of the mission system were responsible for the mass distribution of glass beads in California. Glass beads were mentioned as an important item carried on these expeditions, and they were offered to the Indians as a token of friendship.

In northern California in 1809, a Russian trading expedition made contact with the Coast Miwok and established friendly relations. In 1811, the land for Fort Ross was purchased from the Kashaya Pomo by Captain Ivan Alexandrovich Kuskov, for "three blankets, three pairs of breeches, two axes, three hoes and some beads" (Bancroft 1885: 297). Following its construction, (1812-1814), Fort Ross became the West Coast headquarters of the Russian-American Fur Company.

An indication of the importance of glass beads to early Spanish explorers, the mission system, and other Euroamericans is reflected

in the archaeological record. At Mission Santa Clara (1777-1836) over 1,000 glass beads were recovered (Bone 1975), and at the San Buenaventura Mission (1782-1840) in excess of 4,300 were excavated in 1770 to post-1870 contexts (Gibson 1976). Archaeological work at Fort Ross has produced over 700 specimens (Motz 1979), while at the Cooper-Molera Adobe, Monterey State Historic Park, over 1,200 glass beads have been excavated from deposits dating from the late 1820s to the 1900s (Motz 1983). In addition, glass beads were utilized by Russian, American, and Hudson's Bay Company trappers, and by gold miners, ranchers, and colonists. They were an important article of commerce well into the nineteenth century. Thousands of glass beads were recovered from Fort Vancouver, Washington (1829-1860) (Ross 1976:668-770), and many have been excavated from Old Sacramento, California, in turn-of-the-century deposits (Motz and Schulz 1980: 49-68).

MATERIALS AND METHODS

The specimens analyzed for this report were collected from two cemeteries, Cedar Gulch (SIS-168) and Graveyard Gulch (SIS-837), that were used by the Shasta Indians from ca. 1850 to 1930. The collection from SIS-168 includes 106 glass beads. These were recovered at various times in 1982, mostly in the backdirt of vandals, but also from the surface and disturbed areas such as slough from excavation sidewalls. In general association were barrel-shaped Type 1 digger pine nut beads (Glenn Farris, personal communication 1982), dentalium beads, ironstone ceramic sherds, hole-in-top cans, miscellaneous metal pieces including a button and a revolver trigger guard, obsidian flakes, glass fragments, horse and coyote bones, and human osteological material. Field rocks and stone markers formerly marked the graves, as indicated on Bennyhoff's 1952 site record.

Forty-seven whole beads and one half-bead were recovered from Graveyard Gulch Cemetery. Of these, 29 were collected during surface survey and partial testing carried out on September 4, 1982. The remainder were collected by a member of the Shasta Nation who visited the site at a different time. The archaeological investigation was conducted at the request of the Shasta Nation and the State of California Native American Heritage Commission. Joseph W. Hopkins III enlisted 17 volunteers for the controlled surface survey collection and excavation of six test units.

The Cedar Gulch and Graveyard Gulch collections contain 25 descriptive types representing two manufacturing methods: drawn and wound. In addition, they have been categorized structurally as *simple*--manufactured from one undifferentiated mass of monochrome glass, and *compound*--manufactured from two or more layers, or laminae, of glass. The typology is based on method of manufacture, shape (Fig. 1), structural category, color, diaphaneity, and number of facets.

The measurements are noted in millimeters. Where two or more specimens are included in a type, the dimensions of the smallest examples and largest are indicated as follows: length of smallest-largest; diameter of smallest-largest.

A bead is considered opaque if it is not capable of transmitting light. It is considered translucent if any part of the specimen is capable of transmitting light when backlighted by a frosted 100-watt incandescent lamp. All examples were analyzed wet under magnification (7x-30x) with the aid of a binocular dissecting microscope incorporating a high intensity (6,460 lumens/M^2) illuminator. The bead types were compared to those described by Meighan (MS), Dietz (1976),

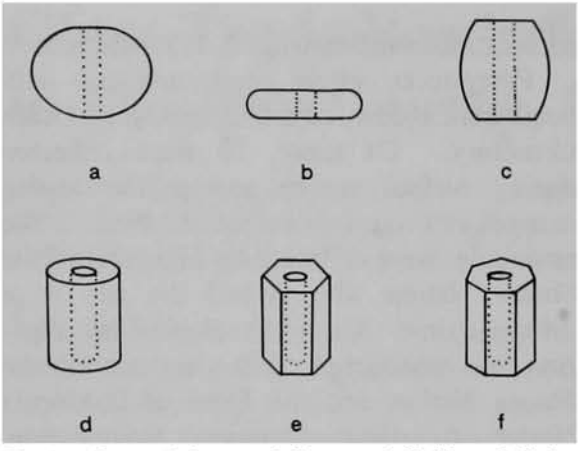

Fig. 1. General shapes of Graveyard Gulch and Cedar Gulch beads: a, oblate spheroid; b, donut; c, barrel; d, cylinder; e, hexagonal, faceted hollow-cane; f, heptagonal, faceted hollow-cane.

Gibson (1976), Motz (1979), Motz and Schulz (1980), and Ross (1976). The California Department of Parks and Recreation glass bead type collection also was referenced.

It was not possible to identify six bead types (Types 3, 4, 8, 10, 15, and 16) from Cedar Gulch and Graveyard Gulch using only the published information. These beads do not possess distinctive diagnostic features such as color, shape, or decoration that would enable an identification without comparing them to the actual type specimens in the collections referenced. Also, when comparing unknown specimens with the examples in the type collection, it is extremely difficult to identify specific types because of the subtle difference in the color of some of the beads. In addition, when only one example of a nondescript bead is recovered, the difficulty of precise identification is compounded due to the variation in color, shape, and size within identical lots.

MANUFACTURING METHODS

Drawn or Hollow-Cane Method

For this method, a glass blower inserted a blow pipe into a furnace containing molten glass, removed a glob of the plastic material, and blew into the pipe to form an air bubble. Next, a second worker inserted a rod into the mass opposite the blow pipe. The two men then pulled the pipe and rod in opposite directions, forming a tube 50 m. or more in length and one to 12 mm. in diameter (Angus-Butterworth 1948:19). Length and diameter were dependent upon the speed of the pulling (drawing) process. After cooling, the tube was broken into 90-cm. pieces (Sleen 1973:22-26). Fifteen to 20 of the pieces were gathered and placed in an iron gauge where they were cut in lengths determined by the adjustment of the gauge. This operation produced a hollow-cane bead with sharp, jagged ends which, in some cases, was distributed without further processing. The majority of drawn beads, however, were subjected to an additional treatment to produce "finished" beads. In order to remove the sharp ends resulting from the segmenting process and to produce round beads, the beads were placed in a hot rotating barrel with a mixture of sand and ashes (Woodward 1967:7-9). After removal from the barrel, the beads were polished in large bags containing bran which were shaken from side to side. The finished beads were sorted into sizes in sifting screens and sent to warehouses to be packaged for export (Kidd 1979:15).

To produce drawn beads of two or more concentric layers of glass, the glob of glass removed from the first furnace was, before drawing, immersed in a second furnace where a layer of differently colored glass was added. This process could be repeated several times to produce beads of up to 12 layers of differently colored glass (Kidd and Kidd 1970:48-50). Another method of producing drawn beads of various layers required rolling the glob of glass, prior to drawing, over a marble plate (marver) which

was coated with glass of a different color (Sleen 1973:25).

Type 1. Milk white, glossy, opaque, donut-shaped, simple, tumbled (Fig. 1b). The surfaces of some of the specimens are pitted and a brownish discoloration is present around the asymmetrical perforations. Thirty-four examples, from Cedar Gulch: length 1.2-2.0 mm.; diameter 1.8-2.7 mm. This type probably was introduced to California by the Hudson's Bay Company around 1830 and was popular until ca. 1900. Examples were found with a burial in Kern County (KER-74) that had brass buttons dating to around 1840-1850 and at SIS-169 and -262 (Meighan MS:Types 184 and 187). Similar types appear at Fort Ross (Motz 1979:21, Types 3 and 4), which was occupied by the Russian-American Fur Company from 1812 to 1841 and by Euroamerican settlers from 1841 to 1870. This type also occurred at Fort Vancouver (Ross 1976:709), where it was the most popular variety of bead recovered. Over 31,000 examples were collected at Fort Vancouver, representing 30% of the total number of beads studied.

Type 2. Bone white, opaque, barrel-shaped, compound, tumbled (Fig. 1c). The surfaces of these beads are lusterless, pitted, and longitudinally striated. They have a dull greyish-white, eroded powdery core. The area around the perforation is discolored. Three examples, from Cedar Gulch: length 2.7-2.9 mm.; diameter 2.9-3.0 mm. This type has limited distribution in California and has occurred in only five other sites, SHA-20, -47, -206, YOL-13, and Fort Ross; a date of post-1870 is suggested (Meighan MS:Type 366; Motz 1979:25, Type 20).

Type 3. Greenish blue, glossy, opaque, donut-shaped, simple, tumbled (Fig. 1b). The surface is pitted and longitudinally striated. Fourteen examples, from Cedar Gulch: length 1.8-2.4 mm.; diameter 2.6-2.9 mm.

Type 4. Sea green, translucent, donut-shaped, simple, tumbled (Fig. 1b). Surface longitudinal striations and subsurface globular and longitudinally elongated bubbles are evident. This type has a large perforation in relation to the diameter of the bead. Two examples, from Cedar Gulch: length 1.8-1.9 mm.; diameter 2.9-3.1 mm.

Type 5. Black, glossy, opaque, barrel-shaped, simple, tumbled (Fig. 1c). The surface has an orange-peel texture, and globular pits are present on the ends around the perforation. Two examples, from Cedar Gulch: length 2.4-2.8 mm.; diameter 3.2-3.3 mm. This type was popular from 1790 to 1910 in California, with most examples recovered from 1850 to 1870 contexts. It is found at the Hudson's Bay Company post at Fort Yukon, occupied from 1847 to 1867. It also occurred at SIS-169 and -262 (Meighan MS:Type 222).

Type 6. Red, glossy, translucent exterior, milk white opaque core, donut-shaped, compound, tumbled (Fig. 1b). Subsurface globular and longitudinally elongated bubbles are evident. The surface is pitted. Fifteen examples, from Cedar Gulch: length 1.5-4.2 mm.; diameter 2.3-5.4 mm. This type is known as a Cornaline d'Allepo form (Woodward 1967: 19) and was widely distributed in the second quarter of the last century. Sorensen and LeRoy (1968:44, Type 1-37) stated that they were first traded in the early 1840s, and are also known as "late Hudson Bay," "white hearts," or "California trade beads." Variations of this form are present at MRN-402, which was occupied from 1833 to 1884 (Dietz 1976:113, Type 18). Beads of this type are concentrated mainly in the northern part of the state and were popular between 1850 and 1870; they were also recovered at SIS-159, -169, and -262 (Meighan MS:Types 99 and 100), at Fort Ross (Motz 1979:25, Type 22), and at Old

Sacramento (1849-1900) (Motz and Schulz 1980:53, Type 15). These examples are similar to bead variety No. 1037 in the Fort Vancouver collection (Ross 1976:723).

Type 7. Brick red, glossy, opaque exterior, light green translucent core, barrel-shaped, compound, tumbled (Fig. 1c). Subsurface longitudinal striations are evident. One example, from Cedar Gulch: length 3.2 mm.; diameter 3.6 mm. Archaeological evidence indicates that this type spans the entire period of historic contact in California. Examples occurred at four missions (La Purísima, Ventura, Carmel, and San Jose), and a date range of between 1780 and 1830 is indicated. These beads are also associated with 1856 half-dollars at CAL-83 (Meighan MS:Type 105), and are present at Fort Ross (Motz 1979:26, Type 23). This variety of bead was relatively common at Fort Vancouver, Washington in pre-1844 contexts, but was almost nonexistent in later deposits (Ross 1976:677). The bead is a variety of the Cornaline d'Allepo and is also known as a Hudson's Bay and California trade bead (cf. Type 6, above). The type is widely distributed throughout North America and dates from around 1600 to 1725 and in some areas to the very early 1800s. These beads are especially common in the San Joaquin Valley (Sorensen and LeRoy 1968:42, Type 1-5).

Type 8. Medium blue, translucent, donut-shaped, simple, tumbled (Fig. 1b). Subsurface globular and longitudinally elongated bubbles are evident. Two examples, from Graveyard Gulch: length 2.3-2.4 mm.; diameter 3.3-3.6 mm.

Type 9. Red, glossy, translucent exterior, milk white opaque core, cylinder, compound, tumbled (Fig. 1d). Subsurface globular and longitudinally elongated bubbles are evident. The surface is orange-peeled. One example, from Graveyard Gulch: length 7.2 mm.; diameter 4.4 mm. According to Meighan (MS: Type 34), this type occurred in California from 1850 to 1870 and was recovered from SIS-262.

Wound Method

The initial step in the manufacture of wound beads was the same as that for drawn beads except that a cavity was not formed in the molten mass. The glob of glass was drawn and allowed to cool, resulting in a solid glass rod. One end of this rod was then reheated to a plastic state by a glass-blowing lamp or blow torch and wrapped or wound around an iron rod to form the desired bead diameter and length (Sleen 1973: 23). Frequently, a small projection of glass exists on the bead end around the perforation as a result of being broken from the parent cane (Beck 1973:60). The diameter of the rod determined the perforation size.

Type 10. Pearlescent, translucent, oblate spheroid, simple (Fig. 1a). This type has a small projection of glass on the bead end around the perforation. Two examples, from Cedar Gulch: length 2.0-2.2 mm.; diameter 2.5-2.6 mm.

Type 11. Wine red, translucent, donut-shaped, simple, tumbled (Fig. 1b). The winding pattern is evident on the surface. Five examples, from Cedar Gulch: length 1.9-2.5 mm.; diameter 2.9-3.4 mm. According to Meighan (MS:Types 218 and 220), these examples date from around 1850 to as late as 1900. This date range is based on association of the type with post-1850 brass buttons from a burial at KER-74, and on the occurrence of these beads in recent sites in Shasta County. This type also was recovered from SIS-262.

Type 12. Pink, lusterless, opaque, donut-shaped, simple, tumbled (Fig. 1b). The winding pattern is evident on the sidewalls of the perforation and on the area around

the perforation. Three examples, from Cedar Gulch: length 1.9-2.3 mm.; diameter 2.7-2.8 mm. Beads of this color are relatively rare in California and have a limited distribution. Of the seven similar types identified by Meighan (MS:Types 144, 230, 231, 232, 304, 305, and 424), four were recovered from SIS-169 and -262. These bead types occur in contexts dating from ca. 1840-1900.

Type 13. Blue green, translucent, oblate spheroid, simple, tumbled (Fig. 1a). This type has a small projection of glass on the ends around the perforation. The winding pattern is evident on the surface and walls of the perforation. Six examples (five from Cedar Gulch, one from Graveyard Gulch): length 4.8-5.4 mm.; diameter 6.4-6.8 mm. The occurrence of this type in Hudson's Bay Company posts as well as the large concentration of these beads in northern California suggests that the type was introduced by the Hudson's Bay Company and that it spans the period from 1820 to 1840. These beads also occurred at SIS-169 and -262, YOL-13, several sites in Shasta and Tehama counties, Fort Vancouver, and Fort Spokane (Meighan MS:Type 51). Gibson (1976:122, Type W1d) has recovered this type from contexts dating from ca. 1816-1850. Similar examples were recovered from excavations at Fort Ross (Motz 1979:33, Type 51).

Type 14. Blue, translucent, oblate spheroid, simple, tumbled (Fig. 1a). Evidence of winding on bead surface and on sidewalls of perforation. Two fragmented examples, from Cedar Gulch: length unknown; diameter 8.7 mm. This variety occurs in California in contexts dating from 1800 to post-1900. Similar specimens were recovered from La Purísima Mission and from very late sites in Shasta County which include burials as recent as 1914 (Meighan MS:Type 68). Beads similar to this type were recovered from Fort Ross (Motz 1979:33, Type 52).

Type 15. Blue, translucent, oblate spheroid, simple (Fig. 1a). There is a small projection of glass on the ends and on the sidewalls of the perforation. One example, from Cedar Gulch: length 2.3 mm.; diameter 2.5 mm.

Type 16. Bone white, opaque, donut-shaped, simple, tumbled (Fig. 1b). The surface is pitted and shows evidence of winding. One example, from Graveyard Gulch: length 4.0 mm.; diameter 5.3 mm.

Faceted Method

Faceted beads were produced by several processes. Some were cut and polished by hand; others were made by holding small segments of glass tubing against a rotating abrasive wheel for a split second. These facets have an asymmetrical appearance but are not as uneven as the ones manufactured during the seventeenth century. They were roughly faceted by a small metal spatula, while the glass was still in a semi-plastic state (Woodward 1967:9). According to Kidd and Kidd (1970:50-53), faceted beads were formed in two-part molds or faceting was produced by grinding. Sleen (1973:40) stated that these beads were always molded or pressed in a form. Glass beads of all forms may, while still plastic, be shaped into a variety of configurations in one or two-part molds or by pressing with wooden or metal objects (Sleen 1973:23-26). Also, while still ductile, the surface may be altered by rolling it over a corrugated or fluted marble plate or board (marver). The marver also was used with a spatula to shape beads into various forms (Kidd and Kidd 1970.49).

The collection consists of 57 hollow-cane, multifaceted beads representing nine descriptive types. These types correspond to similar examples recovered from Mission San Buenaventura in post-1850 contexts (Gibson 1976:116-118, 123). Ross (1976:689-697) in-

dicated that this style was associated with post-1820 Euroamerican and Native American sites in the northwestern area of the United States. Meighan (MS) suggested that faceted beads of this class were introduced only after the establishment of the Hudson's Bay Company posts in the Northwest.

Type 17. Clear, transparent, heptagonal hollow-cane, multifaceted, simple, tumbled (Fig. 1f). This type has seven asymmetrical facets cut around each end, leaving seven equatorial facets. Subsurface longitudinal striations are evident. One example, from Cedar Gulch: length 7.2 mm.; diameter 8.0 mm. Multifaceted, six- or seven-sided beads such as this type also occur in various colors, including black, red, green, blue, purple, and amber. They date from 1847 to 1867. All were probably introduced by the Hudson's Bay Company; like types have been recovered from SIS-162 (Meighan MS:Type 161). Similar types also occur in well-dated deposits in Old Sacramento from 1852 to ca. 1885 (Motz and Schulz 1980:51, Type 31.

Type 18. Clear, transparent, hexagonal hollow-cane, multifaceted, simple, tumbled (Fig. 1e). Six asymmetrical facets were cut around each end, leaving six equatorial facets. Subsurface striations are evident. Two examples, from Cedar Gulch: length 4.0-5.0 mm.; diameter 5.0-5.0 mm. It is suggested that this type also was introduced by the Hudson's Bay Company and dates from 1847 to 1867; similar types were recovered at SIS-169 (Meighan MS:Type 299). Like types occur in dateable contexts in Old Sacramento ca. 1855 (Motz and Schulz 1980:51, Type 2).

Type 19. Clear, frosty, translucent, hexagonal hollow-cane, multifaceted, compound, tumbled (Fig. 1e). The surface is clear with six asymmetrical facets cut around each end, leaving six equatorial facets. The core consists of concentric translucent layers of clear and white glass; subsurface longitudinal striations are evident. Two examples, from Cedar Gulch: length 6.9-7.3 mm.; diameter 7.8-8.2 mm. These specimens date from 1850 to 1900 in California. Similar types were recovered from SIS-262 (Meighan MS: Type 160). They are found in contexts in Old Sacramento dated from ca. 1860-1885 (Motz and Schulz 1980:51, Types 4 and 5).

Type 20. Cobalt blue, translucent, hexagonal hollow-cane, multifaceted, simple, tumbled (Fig. 1e). There are six asymmetrical facets cut around each end, leaving six equatorial facets. Subsurface longitudinal striations are evident. Nine examples were found, eight at Cedar Gulch and one at Graveyard Gulch: length 5.8-7.3 mm.; diameter 6.1-7.2 mm. These beads also were considered to be a Hudson's Bay Company type and date from around 1873 to post-1880 (similar to Meighan MS:Type 146). Gibson (1976:123, Type F1f) has recovered this type at the Ventura Mission in contexts dating after 1839. Beads of this type also occur in several sites in southern California. Similar beads were recovered from Old Sacramento in contexts dating from ca. 1849 to 1900 (Motz and Schulz 1980:53, Type 18). This type occurred at Fort Ross (Motz 1979:Type 25), which was occupied between 1812 and 1841 by the Russian-American Fur Company and, after 1841, by Euroamerican settlers. It was the Kashaya Pomo Indians living near the post, however, who used these beads.

Type 21. Burgundy, translucent, heptagonal hollow-cane, multifaceted, simple, tumbled (Fig. 1f). Seven asymmetrical facets have been cut around each end, leaving seven equatorial facets. One example, from Cedar Gulch: length 4.6 mm.; diameter 4.6 mm. This type also was probably introduced by Hudson's Bay Company sources and dates from 1847 to 1867. Examples of this bead were recovered from SIS-192 and -262 (Meighan MS:Type 379).

Type 22. Cobalt blue, translucent, heptagonal hollow-cane, multifaceted, simple, tumbled (Fig. 1f). Seven facets were cut around each end, leaving seven equatorial facets. Subsurface longitudinal striations are evident. Thirty-nine examples, from Graveyard Gulch: length 4.5-9.7 mm.; diameter 5.3-9.9 mm. This type was popular during the period 1847-1867 in California (Meighan MS:Type 146).

Type 23. Wine red, translucent, heptagonal hollow-cane, multifaceted, simple, tumbled (Fig. 1f). There are seven facets cut around each end, leaving seven equatorial facets. Subsurface globular bubbles and longitudinal striations are present. One example, from Graveyard Gulch: length 4.8 mm.; diameter 4.7 mm. This type occurs in California sites dating from 1847 to 1867 (Meighan MS:Type 380).

Type 24. Royal blue, translucent, hexagonal hollow-cane, multifaceted, compound, tumbled (Fig. 1e). Six facets are cut around each end, leaving six equatorial facets. Subsurface longitudinal striations are evident. The core consists of a concentric layer of white glass. One example, from Graveyard Gulch: length 5.1 mm.; diameter 5.0 mm. Examples of this type occur in California around 1847 to 1867 (Meighan MS:Type 372).

Type 25. White, frosty, translucent, heptagonal hollow-cane, multifaceted, compound, tumbled (Fig. 1f). The surface is clear with seven facets cut around each end, leaving seven equatorial facets. The core is a concentric layer of white glass. Subsurface longitudinal striations are evident. One example, from Graveyard Gulch: length 7.9 mm.; diameter 9.5 mm. The occurrence of this type in California is also within the 1847-1867 period (Meighan MS:Type 159). The type was found in an 1860s context in Old Sacramento (Motz and Schulz 1980:52, Type 6).

SUMMARY

Analysis of the glass bead types recovered from the Cedar Gulch and Graveyard Gulch cemeteries and comparison with other collections show that similar types are commonly found throughout California in Native American as well as in European and Euroamerican sites. The glass beads were stocked as items for trade and sale to Native Americans (see below), and were also used by Europeans as decorations on clothing and household items. The analysis also suggests a range of deposition from around 1810 to post 1900 for Cedar Gulch (Fig. 2), and around 1840 to post-1870 for Graveyard Gulch (Fig. 3). The dates represent the temporal span during which similar examples were popular in different areas of California as determined by association with datable artifacts and ethnographic specimens. In the present case, it should not be construed that these dates represent the time of introduction of these types to the area but rather the periods when they were used by the Shasta as burial goods. The time spans are in accord with ethnographic information, which indicates a use of Cedar Gulch cemetery prior to 1851 and into the 1930s (Betty Hall, personal communication 1982).

Obviously these bead types were manufactured before the date ranges, and many remained in production long after. Also, many of the beads became heirlooms and were prized possessions that were passed on from generation to generation. Several varieties such as Types 5 and 7 were popular during the entire historic period in California and cannot be considered indicative of a specific period. Thus, the assigned dates are tenuous at best.

Since Cedar Gulch and Graveyard Gulch cemeteries are in relative proximity (within 25 km.) and both were utilized by the Shasta

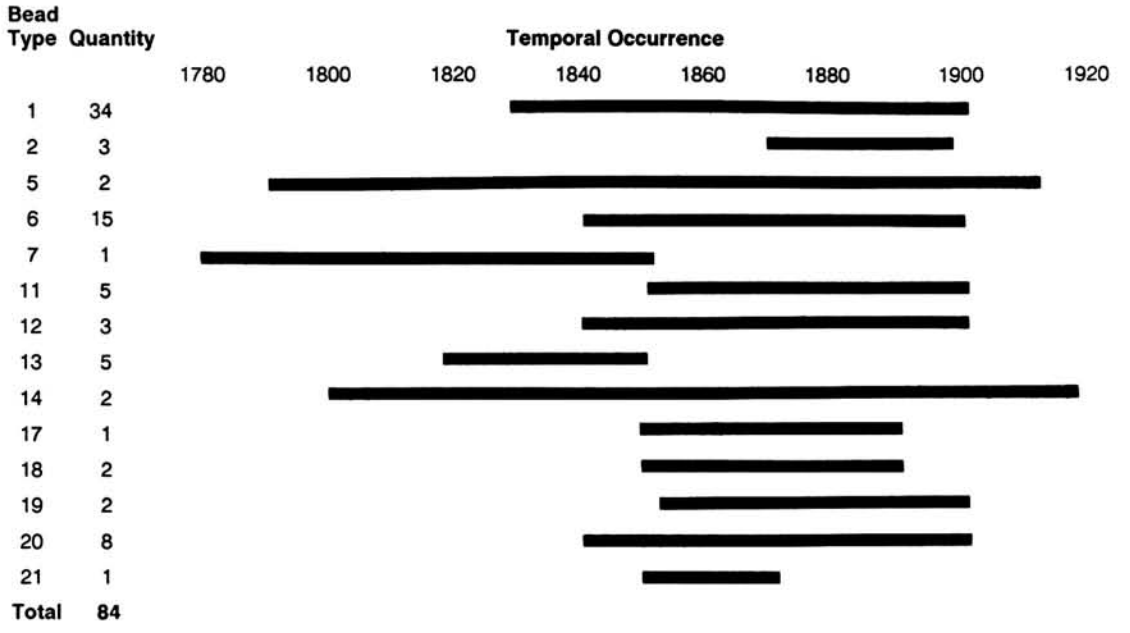

Fig. 2. Temporal occurrence of Cedar Gulch Cemetery (SIS-168) glass beads in other California sites.

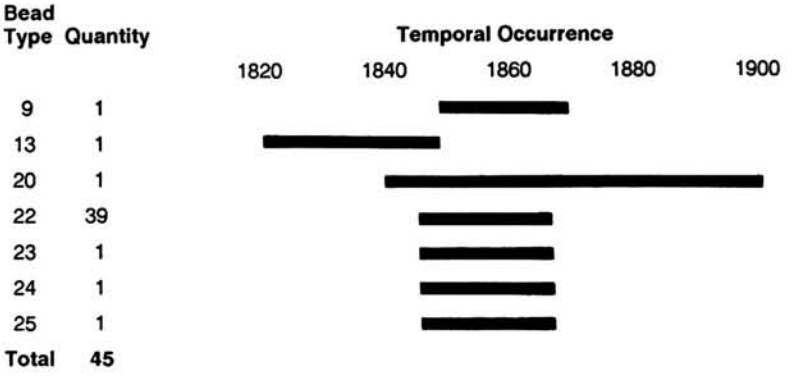

Fig. 3. Temporal occurrence of Graveyard Gulch Cemetery (SIS-837) glass bead types in other California sites.

within approximately the same historical time span, it would be expected that the glass bead collection from both sites would contain similar types. However, this was not the case. Of the 25 descriptive types, only two (types 13 and 20) were common to both sites.

Although only a small sampling of beads from each site was available for analysis, two interesting dissimilarities exist between the Cedar Gulch and Graveyard Gulch collections. It was immediately apparent that the Cedar Gulch specimens were smaller than the Graveyard Gulch examples. Some of the differences can probably be attributed to vandalism, especially at Cedar Gulch, with larger

beads recovered by collectors (perhaps because of screen size or because larger ones were more visible on the site surface), and smaller beads were often missed and hence subsequently recovered archaeologically. Also, of the 106 beads from Cedar Gulch, 15 examples (14.5%) are of the hollow-cane, multifaceted variety, with nine of these being blue; while of the 48 beads from Graveyard Gulch, 43 examples (89.5%) are of the hollow-cane, multifaceted variety. Of these, 41 are blue. Again, the differences in the samples can perhaps be explained by collection bias, as noted. However, other hypotheses should also be considered. The disparity in the Graveyard Gulch and Cedar Gulch collections may be due to the two areas having different sources of trade. It is also possible that a burial or burials of high social or religious standing were disturbed. The Shasta not only included beads and other property with burials, but property brought to the funeral was also distributed to the mourners. The wealthier the dead person, the more goods available for burial and for distribution (Holt 1946:324). The greater quantity and types of beads found widely dispersed at Cedar Gulch may be attributed to the disturbance of a larger number of burials than at Graveyard Gulch.

The time and source of the introduction of glass beads to the Shasta remain in question. Possibly, the Shasta were introduced to European trade goods as early as 1800. According to Layton (1981:127-136), California was an integral part of the Pacific-Plateau and Middle-Missouri trade system by the end of the eighteenth century. A trade center was established near the California-Oregon border at Yainax Butte, 30 miles east of Klamath Lake. Groups including the Klamath, Modoc, Pit River, Shasta, and Columbia River peoples, gathered here to trade for horses, slaves, and goods from the missions to the south. Yainax Butte was thus established as a center of commerce for the distribution of trade goods long before the arrival of the European trappers and traders of the Russian-American Fur Company and the Hudson's Bay Company.

Several of the bead varieties, however, suggest that the Russian and English fur traders also supplied these trade items to the Shasta. Although faceted hollow-cane beads are commonly referred to as "Russian" trade beads, the archaeological evidence suggests that the smaller hexagonal types were actually introduced to California by the Hudson's Bay Company and the larger cylindrical faceted heptagonal deep blue ones were originally distributed along the Pacific Northwest from southern Alaska to as far south as Oregon by the Russian-American Fur Company (Woodward 1970:17). It is suggested that the popularity of these deep blue faceted types did not go unnoticed by the English company, and that they capitalized on the Russian success by distributing similar examples. They were evidently not traded exclusively by either fur company, however, as similar beads are found throughout the western and northern plains states, with the heaviest concentration located in the northern San Joaquin Valley and adjacent foothills (Woodward 1967:10).

While many varieties of the so-called "Russian" types are recovered from areas outside the Russian and English influence, the large deep blue faceted hollow-cane bead (large perforation, seven facets cut around each end) is characteristic of the Russian northwest trade (Woodward 1970:17). According to Sorensen and LeRoy (1968:45, Type 72), examples of this type are probably the true Russian bead distributed by the Russian-American Fur Company from the late 1700s into the early 1800s. Ross (1976:691) stated that the Russian fur traders

introduced this type in the Alaskan region in the late eighteenth and early nineteenth centuries. Ross also indicated this style was primarily associated in the northwestern United States with the non-Russian fur trade. The bead is relatively scarce in California sites, although it is occasionally found in association with the smaller faceted "Russian" examples. It is interesting then that the relatively small collection of 154 glass beads from Cedar Gulch and Graveyard Gulch contains 48 examples that are diagnostic of the Russian Northwest trade.

It is noteworthy that only the Cedar Gulch collection contains examples (Types 6 and 7) that are commonly referred to as "Hudson Bay" beads. Sorensen and LeRoy (1968:42, No. 5; 44, No. 37) stated that the red-on-white styles are known as "late Hudson Bay" beads, were first traded during the early 1840s, and are found throughout the western states. The red-on-green type was popular from 1600 to as late as the very early 1800s. One other variety of bead (Type 1) attributed to the Hudson's Bay Company was recovered from Cedar Gulch but was not collected at Graveyard Gulch. The concentration of this type mainly in northern California and its popularity at Fort Vancouver suggest that these beads were initially introduced by the Hudson's Bay Company.

It was not until fur-trapping parties entered the region around 1830 that a regular trade system was established. In 1827, Peter Skene Ogden, a Hudson's Bay Company trapper, traveled through the area. Jedediah Smith, who entered the region in 1828 (Cline 1963:153), and John Work, who passed through the Shasta territory during the period 1832-1833 (Maloney 1945:11), undoubtedly traded with the Native Americans they encountered. Various others, such as Michel La Framboise and Thomas McKay, explored the area during the period 1830--1845 (Hoover et al. 1970:501). In 1836 a Hudson's Bay Company party of 16 men, led by Thomas McKay, entered Scott Valley and established a camp at Oro Fino, which is located 5 miles southeast of Graveyard Gulch and 12 miles west of Cedar Gulch. Several other camps were subsequently established in the region by trappers (Lewis 1984:5-6).

Subsequent to the arrival of trappers and traders, the influx of gold miners and settlers to the area was also responsible for the distribution of many glass beads to the Shasta. The distribution of glass beads was not, however, restricted to trappers, traders, and settlers. American retail and wholesale merchants were also a ready source of supply. The commercial establishment of E. Fitzgerald and Company, San Francisco, advertised "an unusual full stock of every variety required for the trade," including 10,000 pounds of red and blue styles and 20,000 pounds of "Mammoth size white" beads (Advertisement, *Sacramento Union*, Jan. 12, 1853:1). The Sacramento firm of Hoope and L'amourex offered "a full assortment of chalk white, milk white and red beads" (Advertisement, *Sacramento Union*, Oct. 3, 1851:1).

Despite some loss of site integrity by vandalism, the considerable variability in glass bead assemblages from relatively close and largely contemporary Shasta cemeteries is a valuable discovery. The collections apparently represent the exchange of goods between two or more trade sources. Cedar Gulch appears to have been primarily associated with the Hudson's Bay Company traders, and Graveyard Gulch users perhaps were involved mainly with traders of the Russian-American Fur Company. Some of the glass beads (e.g., hollow-cane multifaceted blue, plain blue, white, and red) seem to have been of higher value than other types. Of

the 154 beads recovered from the two cemeteries, 79 examples (51.3%) were blue, 41 (26.6%) were white, and 23 (14.9%) specimens were red.

The Shasta were quick to acquire European goods, although pine nut and dentalium beads continued to be valued. Mixed grave lots aid in providing general information concerning the distribution, chronology, and the areal significance of glass beads, but individual grave lots would have been more informative with regard to understanding these values and other aspects of the protohistoric Shasta culture.

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