

SHELL, GLASS, AND CERAMIC BEAD TYPOLOGIES

Heather Gibson and Sara Dietler

The study at the San Gabriel Mission archaeological site recovered 216 beads, including 123 made of shell, 69 of glass, 22 of ceramic, one of stone, and one of unknown material that may be stone (see Table 9.24). Beads were first classified according to material (shell, stone, glass, ceramic). Depending on material class, the subsequent categories of analysis varied slightly, as described below.

Reference materials for the bead analysis include Bennyhoff and Hughes (1987), DeCorse (1995), DeCorse et al. (2003), Dubin (2009), Francis (1999, 2002), Gibson (1992), Gifford (1947), Karklins and Adams (2013), Karklins and Ross (2007), Karklins and Sprague (1972), Karklins (1985), Kidd and Kidd (1983), King (1990), Liu (1995), Milliken and Schwitalla (2012), Spector (1976), Sprague (1985), and van der Sleen (1967). The analysis assigns the shell beads into types taken from Bennyhoff and Hughes (1987) and Gifford (1947). The glass and ceramic bead analyses were tailored to record relevant attributes based on material types. A glass and ceramic bead typology was developed following methods detailed in Karklins (1985), Karklins and Adams (2013), and Kidd and Kidd (1983). Type numbers were assigned sequentially and are specific to the site’s glass and ceramic beads.

Shell Beads

Olivella Shell Beads

The majority of prehistoric and early historic beads in California were made from the shell of the purple olive snail, *Olivella* sp., a small marine snail. As described above, these shell beads were classified using the type and size designations from Bennyhoff and Hughes (1987). *Olivella* beads can fall into three general categories: whole shell beads, wall beads, and callus beads. The collection includes a total of 114 *olivella* beads (Table F-1). One hundred of these are wall disk beads (Classes G1, H, and J), 14 are callus beads (Classes E and K), and none are whole shell beads. Twelve of the callus beads are “lipped” (Class E), meaning that they are made from the portion of the shell at the boundary of the shell wall and the callus (Milliken and Schwitalla 2012). The remaining two are made from the callus portion of the shell.

Table F-1. *Olivella* Bead Types

Bead Type	Wall	Callus	Total
E1a	–	6	6
E1b	–	6	6
G1	16		16
H1a	17	–	17
H1b	15	–	15
H2	36	–	36
H3	8	–	8
J1	6	–	6
K1	–	2	2
Unknown	2		2
Total	100	14	114

Wall Beads

A total of 100 wall disk beads were recovered during the study. Of these, two could not be assigned to a specific type of wall bead due to their poor condition. Because there is limited data available on these two beads, they are not discussed further.

Tiny Saucer (Class G1)

A total of 16 Tiny Saucer beads were recovered. This bead type comes from the wall portion of the olivella shell and is round-to-oval in outline and slightly curved in cross section. Both sides of the bead are normally unground and exhibit the natural side of the shell wall. The periphery of the bead is always carefully ground. Although Class G saucers are diagnostic of the Middle period (1400 B.C to A.D. 1150), Tiny Saucer beads can occur in contexts dating to any time period. The mean diameter (4.18 mm) of the examples from the site places them in the Tiny Saucer subtype (Figure F-1). Eleven of the Class G1 olivella wall disk beads identified were found within Area 1. Of particular note, 10 of the 11 were located within Excavation Unit (EU) 151, within the large structure (Feature 3/5) and adjacent to the large trash pit (Feature 14) all from a depth of 170–180 cm below datum (Datum 3). The eleventh Class G1 bead was found within EU 191, also within the large structure, and also from a depth of 170–180 cm below datum. The remaining four examples were found in Area 2, and one from surface collection during Phase I/II of the project.

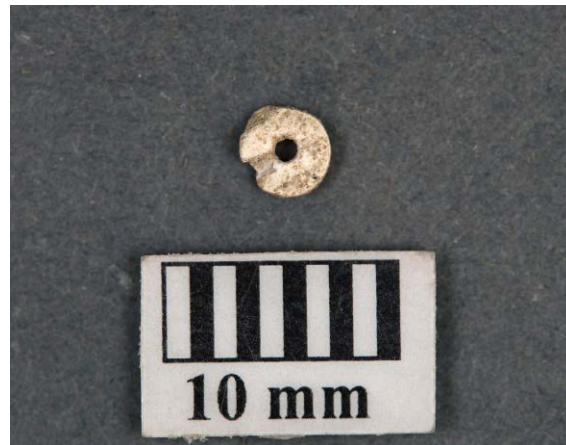


Figure F-1. Class G1 olivella wall disk bead from Hand Trench 1. Catalog Number 15150.1.

Ground, Rough, and Chipped Disk (Class H)

Wall beads continued to be made in aboriginal California well into the nineteenth century. Originally called Saucers (Type G2), wall beads became larger and less refined over time. King (1974:90–92) has interpreted this change as reflecting a breakdown in Native American society and the emergence of entrepreneurial individuals who took advantage of disruption and depopulation following contact to further their own prestige and wealth. These particular beads are needle-drilled wall disk beads, and they include Ground (Type H1a), Semi-ground Disk (Type H1b), Rough Disk (Type H2), and Chipped Disk (Type H3) varieties.

Appendix F: Shell, Glass, and Ceramic Bead Typologies

Needle-drilled wall disk beads were likely made along the southern California coast and in the Channel Islands (Milliken and Schwitalla 2012:56), as well as at the missions where Native American populations had been relocated. Several authors have speculated that shell beads were produced at San Gabriel Mission (e.g., Johnston 1980; Kirkish 2011:121, 212; McCawley 1996), but evidence for on-site production has not been identified to date.

Type H1a beads are temporal indicators of the early Mission period, A.D. 1770–1800 (Bennyhoff and Hughes 1987:135), and possibly persisting until 1810 according to Milliken and Schwitalla (2012:57). Type H1b beads are markers of the late Mission period (A.D. 1800–1816) according to Bennyhoff and Hughes (1987), but may occur in mixed contexts with Type H1a beads as early as 1790 (Milliken and Schwitalla 2012). Type H2 beads are a marker type for the Terminal Mission period (A.D. 1816–1834), and Type H3 are a marker type for the post-Mission period, ca. 1834 to at least 1900 (Bennyhoff and Hughes 1987:135).

A total of 76 Class H beads were collected. Of these, 17 are Ground Disks (Type H1a), 15 are Semi-ground Disks (Type H1b), 36 are Rough Disks (Type H2), and eight are Chipped Disks (Type H3). This class dominates the collection in terms of shell beads (Figure F-2). Nearly 62 percent of the shell beads recovered from the site are Class H beads. The majority of these beads, a total of 61, come from units excavated near the Millrace Complex (Area 2).



Figure F-2. Class H olivella wall disk bead from EU 246. Catalog Number 15049.1.

South Coast Wall Disk (Class J)

Six olivella wall disk beads were recovered representing Class J (Bennyhoff and Hughes 1987). Milliken and Schwitalla (2012) further define these beads as South Coast Wall Disk beads for southern California. These beads are usually round-to-oval in outline, and are evenly curved in cross section. Both sides of the bead are normally unground, and they exhibit the natural sides of the shell wall. As the name implies, the bead blank for this type originates from the wall area of the *Olivella biplicata* shell. These beads are a temporal indicator for the Mission period, A.D. 1770–1834 (Milliken and Schwitalla 2012), and they became larger over time with a less finished or rolled edge. They are distinguished from Class H beads

because they exhibit a biconical chert-drilled perforation, and generally occur in mixed protohistoric contexts with Class H beads (Milliken and Schwitalla 2013:59). The shell beads from the site are large wall disks (Figure F-3) with ground edges. External diameter varies from 5.4 mm to 6.1 mm with a mean diameter of 5.7 mm. These beads tend to be 1.0 mm thick and many are conically drilled, with maximum perforation diameters of 2.0 mm. Two of the Class J beads were recovered during the Phase I/II excavation, and three of the four recovered during data recovery were from Area 2, as well as one from the South Midden.

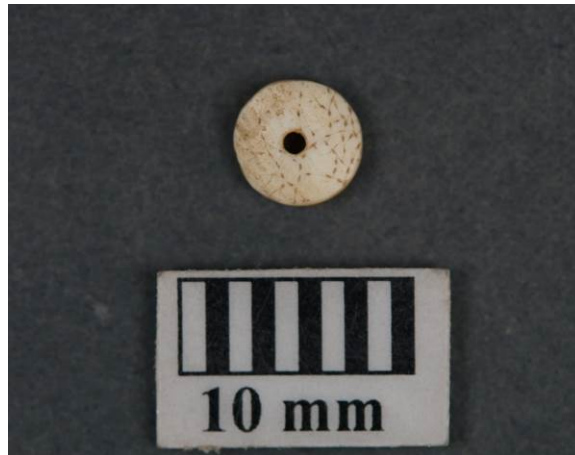


Figure F-3. Class J South Coast Wall Disk olivella bead from EU 199. Catalog Number 13509.1.

Callus Beads

Fourteen olivella beads from the site were categorized as callus beads, including Lipped Class E beads and Cupped Class K beads.

Lipped (Class E)

Twelve Class E beads were recovered, including six Round Thin Lipped (Type E1a) and six Oval Thin Lipped (Type E1b) beads. These bead types were manufactured from the wall and callus section of the olivella shell and have cross sections combining the thicker side (the callus portion) with the thinner side (wall portion) of the shell whorl (Figure F-4). This type transitions into both cupped and full-lipped forms, depending on the overall size of the bead. According to Bennyhoff and Hughes (1987), in southern California, Type E1a is associated with Phase 2 of the Late period (A.D. 1500–1600). Type E1b is temporally associated with a date range of A.D. 1600–1700, but King (1990) indicates that they persisted into the early portion of the Late period, Phase 2b (here given as ca. 1750). Small numbers of these beads may have remained in circulation through the Mission period, however. Thin lipped beads were used as a medium of exchange between individuals and households. These beads were fairly evenly distributed across the site: four were collected from Area 1, six from Area 2, one from the South Midden, and one from the Phase I/II testing.

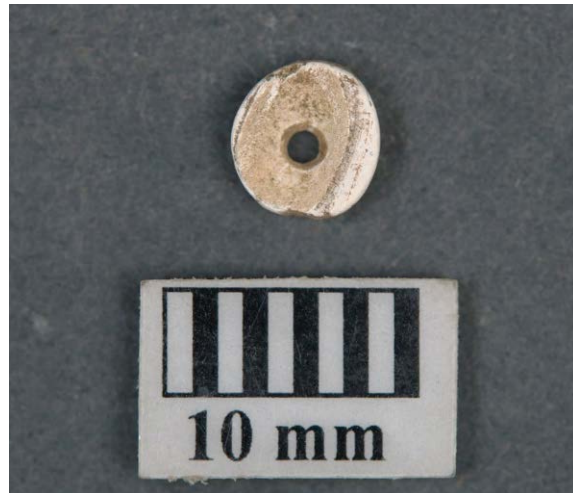


Figure F-4. Class E olivella Lipped Bead from Feature 14. Catalog Number 07860.1.

Cupped (Class K1)

Two olivella Class K Cupped beads were recovered from the site, representing shell bead Type K1 (Bennyhoff and Hughes 1987). The shape of a Cupped bead is round in outline and evenly curved and cup-shaped in cross section. Because Cupped beads are only made from the parietal callus area of the *Olivella biplicata* shell, the ventral or inner side of the shell is more curved than the outer dorsal side, thus giving the bead a cup-like appearance. Cups are usually thicker than wall disks (Figure F-5). At the San Gabriel Mission archaeological site, perforations were conically drilled with hole diameters ranging from 1.6 to 1.7 mm. External diameters ranged from 3.9 to 4.0 mm. Both Cupped beads were recovered from Area 2, the northern portion of the millrace area (EU 223 and Hand Trench 2).

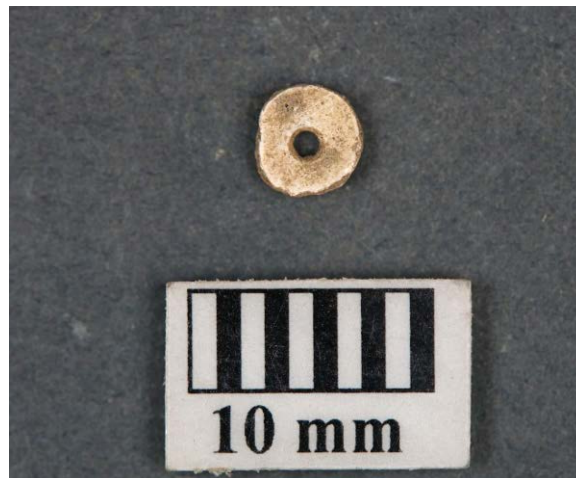


Figure F-5. Class K Cupped olivella bead from EU 223. Catalog Number 11036.3.

Olivella Cupped beads are time markers for the Late period in California. Based on King's typology, they first appear in southern California during early Phase 1 (ca. A.D. 1150) and continue through Late Phase 2 (ca. A.D. 1750). King (1990) distinguishes two types of olivella Cupped beads based on size, one ranging from 3.8 mm to 4.3 mm and the other varying from 2.1 mm to 3.8 mm (see also Milliken and

Schwitalla 2012). It is King's opinion that the larger type precedes the smaller one chronologically and that the change coincides with the adoption of cylinder and lipped beads. Based on King's study, the Cupped beads found at the San Gabriel Mission archaeological site are of the older type and could date from Phase 1 of the Late period (ca. A.D. 1150).

Cupped beads are thought to have functioned as a medium of exchange between individuals and/or households (Gibson 1992). While Cupped beads have been found in association with other bead types, it is thought that they were often strung separately. Although these two examples do not demonstrate this, the presence of asphaltum on recovered Cupped beads also suggests they were used as an appliqué or inlay. There is some evidence that these bead types are associated with persons of high status or wealth (King 1990).

Other Shell Beads

Epidermis Disk (*Haliotis rufescens*)

This bead type is made from the outer layer (epidermis) of the *Haliotis rufescens* (red abalone) shell (Figure F-6). A total of six epidermis Disk beads (Types K1cII and KK2) were recovered from the San Gabriel Mission archaeological site. This type of bead is characterized by a circular-to-oval outline and varies in color from deep red to an almost translucent cream color. Haliotis Disk beads occur from the end of Phase 1 of the Late period (A.D. 1150–1550) through Phase 2 (A.D. 1550–1780) and become more common in Phase 3 (Historic period, A.D. 1780–1834). Phase 2 sizes tend to be small and usually average 2.6 mm in diameter, 1.0 mm in thickness, and with a perforation size of 1.2 mm. In Phase 3 the beads become larger and range from 3.5 to 6.5 mm in diameter, with larger sizes occurring later in time (Gibson 1994:34). The abalone Disk beads found at the San Gabriel Mission archaeological site range from 4.9 to 5.9 mm with a mean diameter of 5.5 mm. Given this size range, the haliotis beads are later types and are thus typical for the Historic period. Four of the haliotis beads were recovered from Area 2, and the remaining two were recovered from the South Midden area.

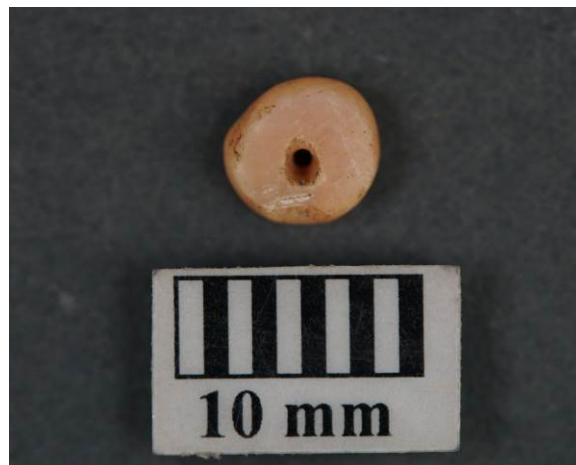


Figure F-6. Haliotis Disk bead from EU 214. Catalog Number 11349.1.

Columella Tube (*Kelletia kelletii* Class AU3)

One columella Tube bead was recovered from the San Gabriel Mission archaeological site during the Phase II excavations, and is typed Class AU3 by Gifford (1947). According to King (1990), columella beads were made during the Late period and were manufactured from medium-to-large gastropods (Figure F-7). Large columella tube beads normally come from the Kellet's whelk (*Kelletia kelletii*) and are produced by removing all parts of the shell except for a central columella. The smaller columella beads were sometimes fashioned into pendants. This example was recovered from EU 5, in the northern portion of Area 1.



Figure F-7. Class AU3 columella Tube bead from EU 5. Catalog Number 01973.1.

Mytilus Disk

Two mytilus Disk beads made from the California mussel (*Mytilus californianus*) were recovered from the San Gabriel Mission archaeological site (Figure F-8). This type has been described by King (1990) and Gibson (1992:33, 34) as circular in outline and flat in cross section. As described by Gibson, the dimensions of these beads can vary from 2.0 to 6.0 mm in diameter with a thickness of 1.0 to 3.6 mm.

Both King and Gibson describe mytilus beads as generally dark blue-black in color and typically combined on strings with white shell beads such as olivella and clam disks. King (1990:148) suggests that these beads are always found in context with *Olivella biplicata* wall disk beads, and that the blue-black-colored beads were used because of their contrast to the white shell beads. Neither of the San Gabriel Mission mytilus beads are blue-black, however. One is pale orange and the other is light yellow, representing other colors occasionally found on California mussel shells. The color of these beads may have changed due to post-depositional deterioration. Even when fresh, however, they may not have been as dark as the examples described by King and Gibson.

King (1990) has assigned the mytilus disk to the Middle and Late periods, but the color difference described above may also be an indication of a different chronological placement for these beads. The beads were recovered during Phase I and II testing, respectively.



Figure F-8. Mytilus Disk bead from EU 3. Catalog Number 01754.1.

Glass and Ceramic Beads

Glass and ceramic beads were assigned to types according to manufacturing technique (blown, drawn, molded, wound, etc.; Table F-2), structure (simple, complex, compound, or composite; Table F-3), color (referenced to standardized Munsell color names and numbers; Munsell Color 2012), perforation type (straight, conical, biconical, polyhedral, drilled), luster (shiny, dull), diaphaneity (opaque, translucent, transparent), decoration (trailed, combed, facets, stripes, floral, etc.), and condition (light, moderate, or heavy patina; weathered, chipped, longitudinal/latitudinal breakage, mended, residue, etc.). Glass and ceramic beads were also classified according to shape (circular, tubular, round, oblate, globular, doughnut-shaped, cylindrical, barrel-shaped, discoid, conical, biconical, coil, etc.). Length and diameter of the bead and perforation diameter were measured using digital calipers and recorded to the nearest hundredth of a millimeter.

Type-varieties identified within the San Gabriel Mission assemblage are assigned numbers designated by Arabic numerals 1 through 25. In addition to the descriptive analysis outlined above, classification of the glass and Prosser molded ceramic beads was made with reference to a typology developed by Karklins and Ross (2007), which expands upon the taxonomic system created by Kidd and Kidd (1983; see also Karklins 1985). This classification system is based upon manufacture method and physical attributes such as shape, size, and color of the bead (Kidd and Kidd 1983:220–221). Following standard conventions, varieties that do not appear in the Kidd and Kidd lists are marked by an asterisk (Karklins and Ross 2007:E1). A total of 25 glass and ceramic bead types were identified (see Table 9.26). For each of these types, a representative type bead was selected and photographed (see Figures 9.21 and 9.22).

Table F-2. Glass and Ceramic Bead Manufacture Methods

Method	Brief Description of Method**
Wound	Molten glass was wound around a metallic wire or rod. Individually made and therefore expensive, this type can have a great diversity of color, shape, and modification.

Table F-2. Glass and Ceramic Bead Manufacture Methods

Method	Brief Description of Method**
Drawn	Molten glass was stretched between two men as far as 100 feet (30 m) apart, a bubble of air remaining in the center of the tube to create the perforation. The glass rods were cooled and broken into sections. The beads were left as-was or tumbled in sand and ash over heat and constantly stirred to shape and polish them.
Molded	Molten glass was poured, pressed, or blown into a mold while still plastic. The type is usually identifiable by the presence of a mold seam or ridge where the mold comes together.
Prosser Molded	Powdered mixture of sand, feldspar, and calcium fluoride, mixed with small amount of milk for moisture. Mixture pressed into shape in mold, then beads fired in oven on metal sheet.
Unknown	Bead types not represented by any known literature.

* This list is not exhaustive; it represents manufacturing methods noted in the collection.

**Descriptions are based on Dubin 2009, Spector 1976, Sprague 1985, Sprague 2002, and Karklins 2007.

Table F-3. Glass Bead Structure

Structure	Description*
Simple	Single layer of glass
Compound	Two or more layers of glass
Complex	Simple, with adventitious decoration
Composite	Compound, with adventitious decoration

* Descriptions are based on Karklins 1985.

Drawn Glass Beads

Drawn beads are the most common type at the San Gabriel Mission archaeological site, comprising 56 specimens. These were made by blowing air into a piece of melted glass and then pulled at each end to form a rod or cane. Once the rod had hardened, the cane was snapped into short sections that were then placed into a rotating drum containing hot sand. This produced rounded beads that needed only a minimal amount of touch-up polishing to be fully finished (Gibson 1976). A massive quantity of beads could be manufactured in one episode of manufacture.

San Gabriel (SG) Type 3 (Ia*, IIa*, and IIa39)

Type 3 is a drawn bead made of translucent glass ranging from bright aqua blue to medium turquoise in color (Figure F-9). The beads are circular or tubular in shape. They range from 2.72 to 5.06 mm in diameter and 2.33 to 4.70 mm in length. These are small beads known as “seed beads” that were commonly used in embroidery (Sprague 1985:91). This type corresponds to Type-Variety Ia, a simple drawn bead that is undecorated and tubular, or Type-Variety IIa, a simple drawn bead that is undecorated and non-tubular (Karklins 1985:89, 94). The circular shape is formed by heat rounding, whereas tubular beads can have broken ends. In the Kidd and Kidd system, the beads are further divided into type-variety based on color and size. These attributes have been recorded for the individual beads in the assemblage,

and the corresponding type variety has been noted, but for the purpose of this study, all bright aqua blue to turquoise seed beads are grouped into Type 3. The assemblage includes 15 examples of Type 3 beads.

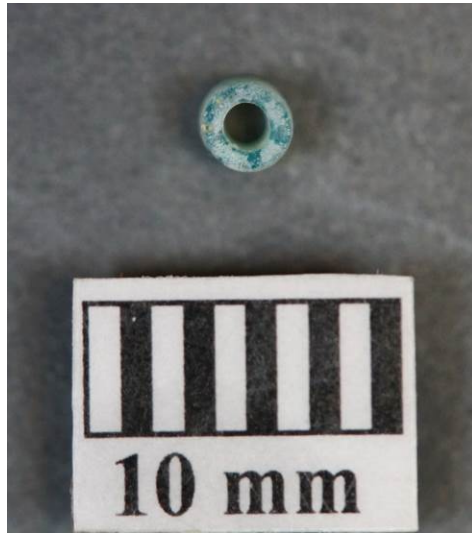


Figure F-9. Type 3 bead from EU 272. Catalog Number 15886.1.

SG Type 4 (IIa*)

Type 4 is a drawn bead made of dark emerald green translucent glass (Figure F-10). The bead is circular in shape, measuring 3.61 mm in diameter and 3.06 mm in length. Similar to Type 3, this is a seed bead likely used in embroidery. This type corresponds to Type-Variety IIa, a simple drawn bead that is undecorated and non-tubular (Karklins 1985:89, 94). The assemblage includes one example of a Type 4 bead; the bead is coated in heavy patina.

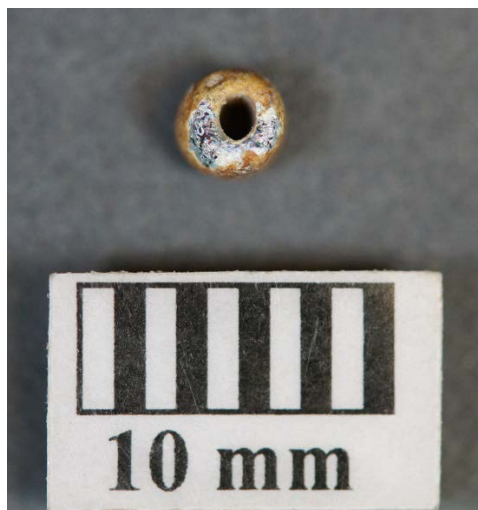


Figure F-10. Type 4 bead from EU 205. Catalog Number 17755.1.

SG Type 6 (IIa7)

Type 6 is a simple drawn bead made of opaque black glass and is circular in shape (Figure F-11). A rose-wine tint is visible when the bead is held to light. The beads range from 3.5 to 5.48 mm in diameter and 1.41 to 3.15 mm in length, making them seed beads. Type 6 corresponds to Type-Variety IIa7 as defined by Kidd and Kidd (1983). The assemblage includes six examples of Type 6 beads.

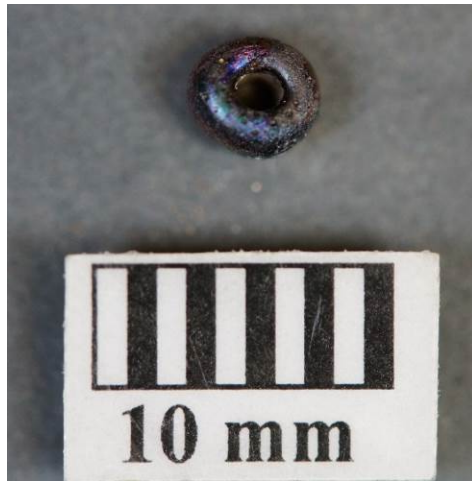


Figure F-11. Type 6 bead from EU 155. Catalog Number 08800.1.

SG Type 7 (IIa*)

Type 7 is a simple drawn bead made of transparent or translucent colorless glass and is circular in shape (Figure F-12). Type 7 beads are seed beads and range from 3.45 to 3.82 mm in diameter and 2.01 to 2.11 mm in length. Type 7 corresponds to Type-Variety IIa as defined by Kidd and Kidd (1983) and Karklins (1985). There are two examples of Type 7 beads in the assemblage, both of which were recovered from EU 154, adjacent to Chapman's Millrace.

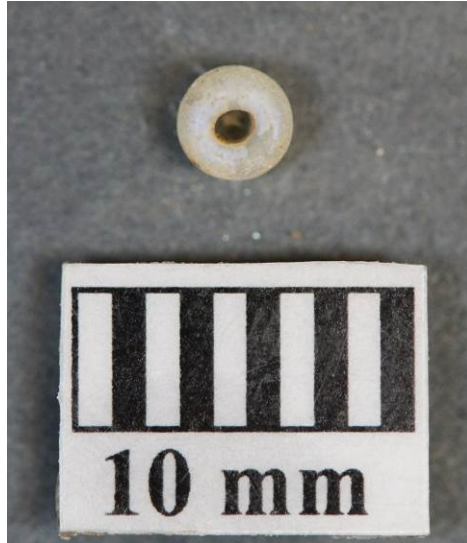


Figure F-12. Type 7 bead from EU 154. Catalog Number 11341.1.

SG Type 9 (Ia5 and IIa14)

Type 9 is a simple drawn bead made of opaque white glass and is either circular or tubular in shape (Figure F-13). The beads range from 2.49 to 4.33 mm in diameter and 2.19 to 4.05 mm in length. The beads are heat rounded and the ends exhibit air bubbles and a coarse texture, which may be evidence of grinding or smoothing. Type 9 corresponds to simple drawn bead Type-Varieties Ia (tubular) or IIa (circular) as defined by Kidd and Kidd (1983) and Karklins (1985). There are eight examples of this type in the assemblage.

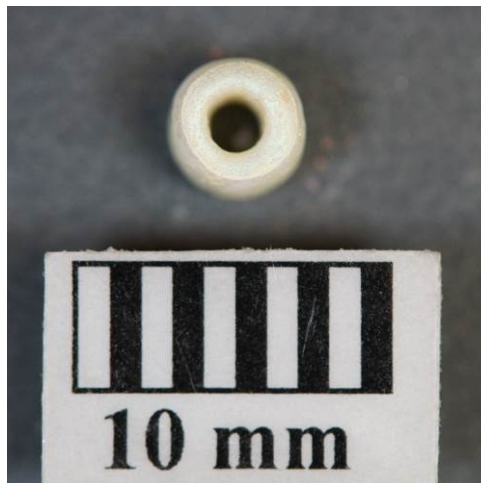


Figure F-13. Type 9 bead from EU 106. Catalog Number 04658.1.

SG Type 10 (Ia* and IIa*)

Type 10 is a simple drawn bead made of translucent medium blue glass and is either circular or tubular in shape (Figure F-14). The beads range from 3.14 to 5.35 mm in diameter and from 1.89 to 6.53 mm in

length. The circular shape is formed by heat rounding, whereas tubular beads can have broken ends. Type 10 corresponds to Type-Variety Ia (tubular) and Type-Variety IIa (circular) as defined by Kidd and Kidd (1983) and Karklins (1985). There are 11 examples of Type 10 seed beads in the assemblage.

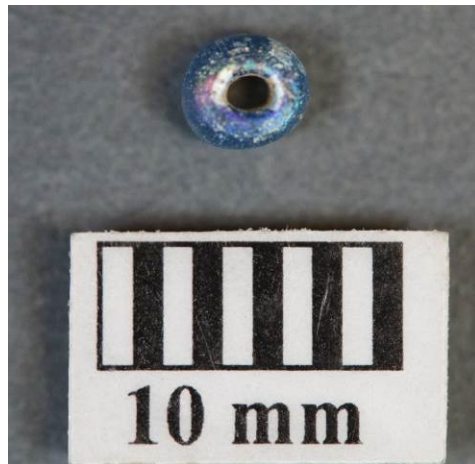


Figure F-14. Type 10 bead from EU 126. Catalog Number 03828.1.

SG Type 11 (IIa43)

Type 11 is a simple drawn bead made of translucent bright aqua blue glass that is circular in shape (Figure F-15). The bead measures 5.54 mm in diameter and 4.58 mm in length. Type 11 corresponds to Type-Variety IIa as defined by Kidd and Kidd (1983) and Karklins (1985). There is one example of a Type 11 bead in the assemblage; it is approximately 40 percent complete.



Figure F-15. Type 11 bead from EU 239. Catalog Number 14497.1.

SG Type 12 (IIIa* and IVa*)

Type 12 is a compound drawn bead made of two layers of glass: the interior layer is light lemon yellow translucent glass, and the exterior layer is brick red opaque glass (Figure F-16). The bead is tubular or

circular in shape and the ends exhibit heat rounding. These beads range from 2.56 to 5.01 mm in diameter and 2.15 to 4.32 mm in length. Type 12 corresponds to Kidd and Kidd (1983) and Karklins (1985) Type-Varieties IIIa (tubular) or IVa (circular), an undecorated multi-layered (compound) drawn bead.

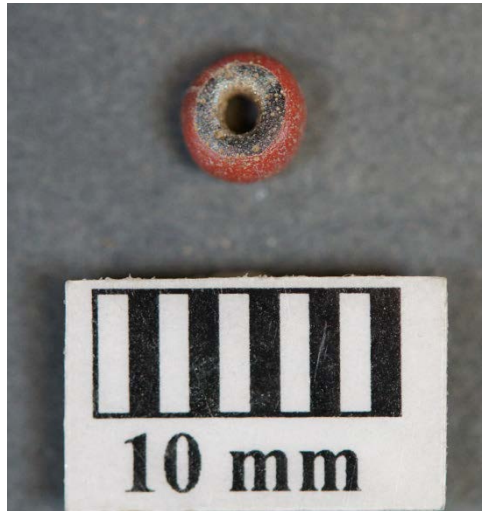


Figure F-16. Type 12 bead from EU 198. Catalog Number 08789.1.

SG Type 14 (IIa*)

Type 14 is a simple drawn bead made of opaque light blue glass and is circular in shape (Figure F-17). The bead is a seed bead 3.07 mm in diameter and 2.42 mm in length. Type 14 corresponds to simple drawn bead Type-Variety IIa as defined by Kidd and Kidd (1983) and Karklins (1985).

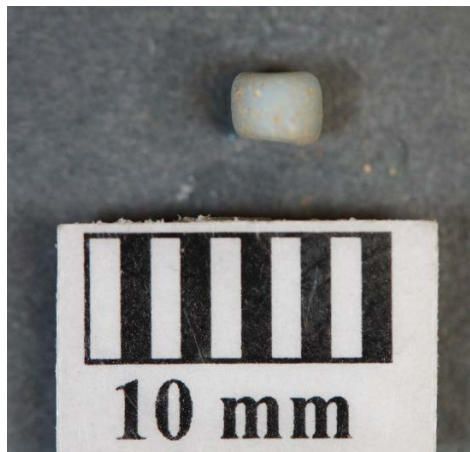


Figure F-17. Type 14 bead from EU 253. Catalog Number 14279.1.

SG Type 15 (If*)

Type 15 is a simple drawn bead made of translucent medium blue glass with a tubular shape, of the cornerless-hexagonal style (Figure F-18). The bead features facets ranging from triangular to hexagonal.

This bead is 6.33 mm in diameter and 6.12 mm in length. This type corresponds to Type-Variety Type If as defined by Kidd and Kidd (1983) and Karklins (1985).



Figure F-18. Type 15 bead from EU 151. Catalog Number 09490.1.

SG Type 17 (Ia and*; IIa*)

Type 17 is a simple drawn bead made of translucent leaf-green-colored glass and is circular or tubular in shape (Figures 9.37 and 9.38). These beads range from 2.55 to 3.81 mm in diameter and 1.69 to 4.41 mm in length. Type 17 corresponds to simple drawn bead Type-Varieties Ia (tubular) and IIa (circular) as defined by Kidd and Kidd (1983) and Karklins (1985). There are three examples of this type in the assemblage. One example (Catalog Number 10221.1, see Figure F-19) has ferrous metal in the perforation, and the other two examples (Catalog Number 04849.1; see Figure F-20) are attached via a ferrous metal fastener through the perforation. These beads appear to have been strung for jewelry.

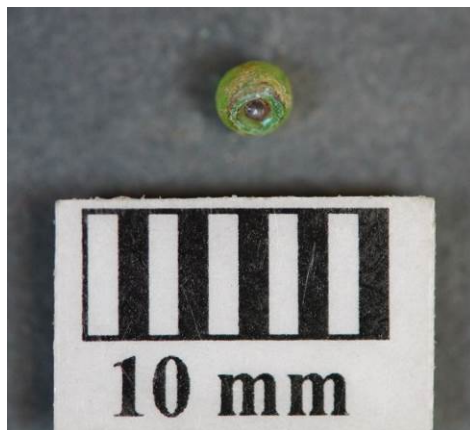


Figure F-19. Type 17 bead from EU 168. Catalog Number 10221.1.



Figure F-20. Type 17 beads from EU 129. Catalog Number 04849.1.

SG Type 25 (IIIInn-a)

Type 25 is a composite drawn bead with a tubular shape, of the cornerless-hexagonal style (Figure F-21). This bead, commonly known as a Chevron bead, is composed of multiple layers of glass. The bead is covered in heavy patina and partially decomposed, making it difficult to determine the color of the glass. The body of the bead appears to be made of layers of blue and red glass, with compound stripes of opaque white and gold glass. The body and ends of the bead are faceted. This bead is 6.87 mm in diameter and 21.65 mm long. Type 25 corresponds to a Class III bead as defined by Kidd and Kidd (1983), and specifically drawn bead Type-Variety IIIInn-a, a tubular, multi-layered chevron bead decorated with compound stripes as described by Karklin and Adams (2013:85).



Figure F-21. Type 25 bead from EU 264. Catalog 11586.1

Wound Glass Beads

The process of forming wound glass beads entailed a cane or rod of glass without a hole being heated over a small flame until it became malleable. After becoming plastic, the rod was wound around a mandrel or wire. The mandrel was likely coated with graphite to facilitate the removal of the bead or beads after cooling. This type is distinguished by a concentric layering observable on the exterior of the bead, with elongated air bubbles oriented perpendicular to the perforation (Gibson 1976:104; Sprague 1985:93). Thirteen wound beads were found at the San Gabriel Mission archaeological site. The most common color for these beads was blue.

SG Type 1 (WIIIc* and WIIId*)

Type 1 beads (Figure F-22) are wound, complex beads made of ultramarine glass (6.25PB 3/12). Type 1 beads incorporate overlaid or inlaid decoration in the form of a gold-colored wavy line (Karklins 1985:106, 109). The decoration is simple (only one color of glass) and the line is undulating. The beads are heat rounded and vary from round globular to barrel-shaped. In most cases, the Type 1 beads in the assemblage exhibit heavy patina. Size of the Type 1 beads ranges from 5.52 to 7.61 mm in diameter and 4.92 to 7.99 mm in length. These beads correspond to Type-Varieties WIIIc or WIIId, which are simple beads made of a single layer of glass and feature overlaid (WIIIc) or inlaid (WIIId) decoration (Karklins 1985:99). The specific variety observed in the assemblage (i.e., ultramarine body with gold wavy line decoration) was not described in Kidd and Kidd (1983), Karklins (1985), or Karklins and Ross (2007). There are five examples of Type 1 beads in the assemblage.



Figure F-22. Type 1 Bead from EU 206. Catalog Number 13486.1.

SG Type 2 (WIf*)

Type 2 beads are coil shaped wound beads made of translucent colorless glass (Figure F-23). The coil shape of this bead is created by winding a rod of glass around a metal mandrel in a spiral motion. This

shape is not heat rounded, such that the coil formed by the rod of glass is preserved. Karklins describes this shape as Type-Variety W1f, or a “raised spiral.” He explains the raised spiral form as “shaped like a compressed cylindrical spring, this type consists of a glass rod wound in a spiral fashion” (Karklins 1985:97). This type, called “coil beads” by collectors, was one of the most popular types of bead for centuries in China, and they were exported as early as the ninth century (Francis 1999). One example of a Type 2 bead is present in the assemblage.

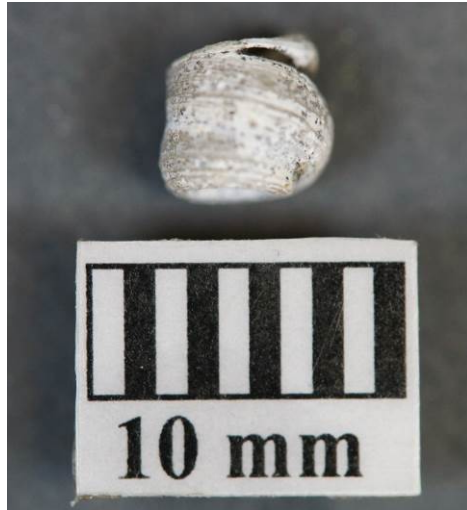


Figure F-23. Type 2 bead from EU 113. Catalog Number 02768.1.

SG Type 5 (W1b1)

Type 5 beads are wound beads made of translucent light gray glass, and they are round and globular in shape (Figure F-24). The corresponding type in the Kidd and Kidd/Karklins system is Type-Variety W1b, a simple (single-layered), round, wound bead. The surface of the bead is not smoothed, with wind marks evident. There is one example of a Type 5 bead in the assemblage; it is 6.91 mm in diameter and 6.43 mm in length.

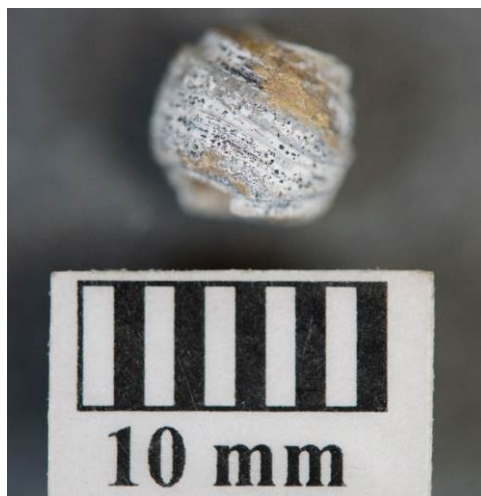


Figure F-24. Type 5 bead from EU 264. Catalog Number 15385.1.

SG Type 8 (WId*)

Type 8 beads are doughnut-shaped wound beads made of translucent royal blue glass (Figure F-25). The corresponding type in the Kidd and Kidd/Karklins system is Type-Variety WId, a simple (single-layered), doughnut-shaped, wound bead. There is one example of a Type 8 bead in the assemblage; it is 6.34 mm in diameter and 3.43 mm in length.

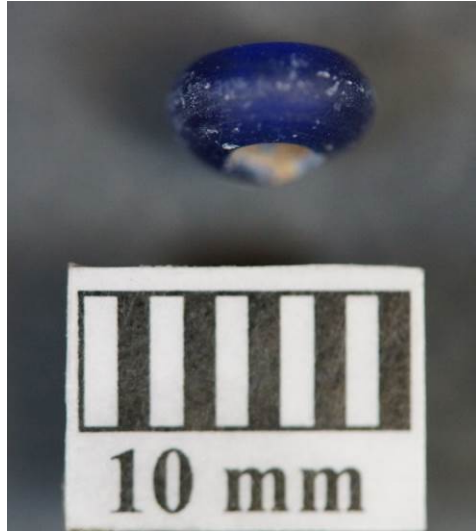


Figure F-25. Type 8 bead from EU 267. Catalog Number 17503.1.

SG Type 13 (Wlb*)

Type 13 beads are simple wound beads made of yellow-brown colored glass, and they are round and globular in shape (Figure F-26). This type corresponds to Type-Variety Wlb (Kidd and Kidd 1983; Karklins 1985), a single layered wound, round bead. There is one example of a Type 13 bead in the assemblage; it measures 6.36 mm in diameter and 6.38 mm in length. This bead exhibits heavy patina and has a projection at one end, creating a slightly irregular shape.

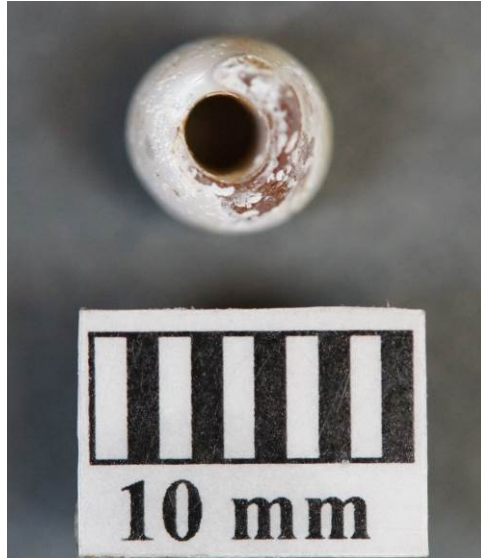


Figure F-26. Type 13 bead from EU 196. Catalog Number 10749.1.

SG Type 16 (W1b*)

Type 16 is a wound bead made of translucent scarlet glass that is round in shape (Figure F-27). There is one example of Type 16 bead in the assemblage and it is approximately 25 percent complete. The bead is 8.13 mm in diameter, and measurement of the length is not possible. This type corresponds to Kidd and Kidd (1983) and Karklins (1985) Type-Variety W1b.



Figure F-27. Type 16 bead from Undefined Hand Excavation 34. Catalog Number 16400.1.

Red beads were historically the most expensive and/or rare. The color red or ruby in glass is created by dissolving gold in a solution of nitric and hydrochloric acids, which is then added to the molten glass. This delicate process is very expensive due to the value of the gold, and thus red glass is typically reserved for specialty items. Red, white, and black glass beads occur more rarely in the archaeological

record and may have been associated with elevated social status in post-contact Native American society in southern California, such as on the Channel Islands, where “notions of value may have been closely related to bead color” (Graesch 2001:277).

SG Type 20 (W1b*)

Type 20 is a simple wound bead made of translucent medium-blue glass, and is round barrel-shaped (Figure F-28). There is one example of a Type 20 bead in the assemblage, and it measures 5.4 mm in diameter and 4.2 mm in length. This type corresponds to Kidd and Kidd (1983) and Karklins (1985) Type-Variety W1b.

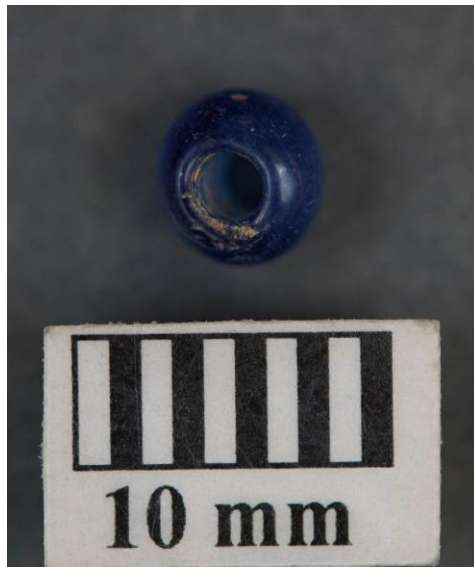


Figure F-28. Type 20 bead from EU 112. Catalog Number 03080.1.

SG Type 24 (W11o*)

Type 24 is a simple wound bead made of translucent bright aqua blue glass (2.5B 6/7), with a long square barrel shape corresponding to Beck’s Type IX.D.1.b (see Karklins 1985:108) (Figures F-29 and F-30). The shape of this bead was created by pressing the sides after winding in order to flatten them into the square barrel form. Type 24 beads range from 4.43 to 4.76 mm in diameter and 10.49 to 10.71 mm in length. There are two examples present in the assemblage.

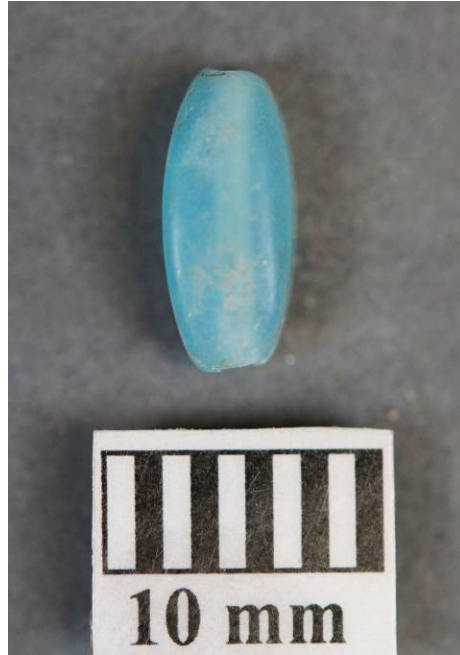


Figure F-29. Type 24 bead from EU 207, side view. Catalog Number 12843.1.

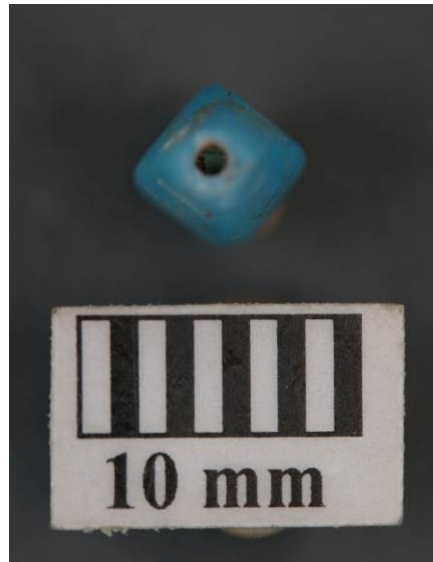


Figure F-30. Type 24 bead from EU 207, perforation view. Catalog Number 12843.1.

Prosser Molded Beads

A total of 22 Prosser molded beads were identified in the San Gabriel Mission archaeological site assemblage (Kirkish 2014). Originally invented by the Prosser Brothers in England to make buttons, the Prosser manufacture process was patented in 1840 by Richard Prosser in London, and in 1841 by his brother Thomas Prosser in New Jersey. The process entailed the use of “clay-earths” that were crushed to make a fine powder and then subjected to great pressure using a “common fly screw-press” to form the

molded button (Sprague 2002). Eventually, the process was adopted by a French manufacturer, Jean-Félix Bapterosses, who was able to make 500 buttons or beads at a time. Interestingly, Bapterosses used milk in the process, presumably to make the clay powder more plastic. Although these beads are frequently mistaken for glass artifacts, they are actually composed of ceramic material and are more closely akin to porcelain (Sprague 2002).

SG Type 18 (PM*)

Type 18 is a Prosser molded bead that is twilight blue in color (5PB 6/7 to 5PB 6/8) and cylindrical in shape (Figure F-31). These opaque beads range from 5.86 to 6.2 mm in diameter and 4.68 to 5.51 mm in length. There are seven examples of Type 18 beads in the assemblage.

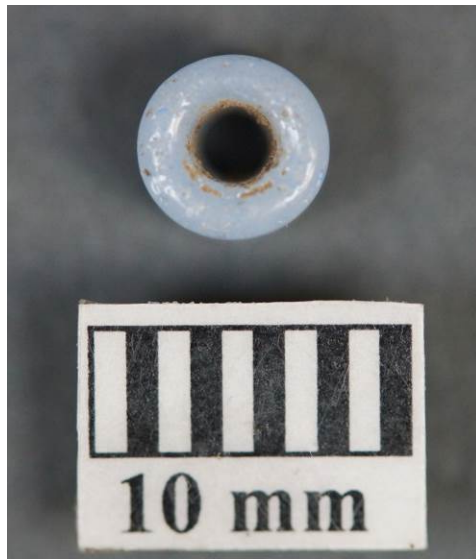


Figure F-31. Type 18 bead from EU 207. Catalog Number 13968.1.

SG Type 19 (PM*)

Type 19 is a Prosser molded bead that is oyster white in color (N8) and cylindrical in shape (Figure F-32). These opaque beads range from 5.53 to 6.17 mm in diameter and 5.42 to 5.9 mm in length. There are eight examples of Type 19 beads in the assemblage.

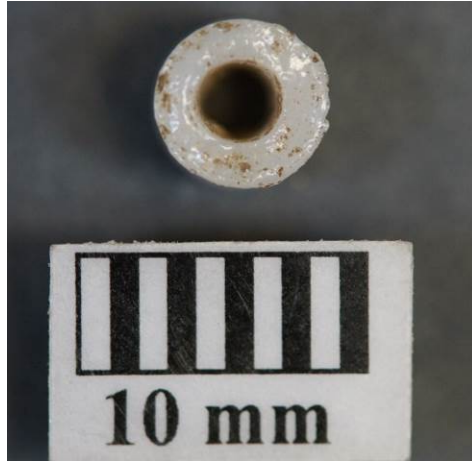


Figure F-32. Type 19 bead from EU 130. Catalog Number 03741.1.

SG Type 21 (PM*)

Type 21 is a Prosser molded bead that is dark jade green in color (10G 4/5) and cylindrical in shape (Figure F-33). These opaque beads range from 5.92 to 6.09 mm in diameter and 4.78 to 5.18 mm in length. There are four examples of Type 21 beads in the assemblage.

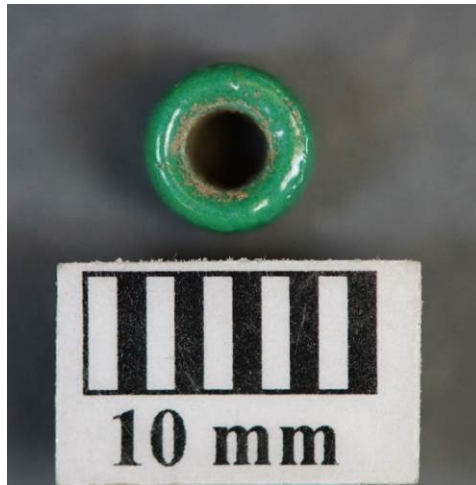


Figure F-33. Type 21 bead from EU 207. Catalog Number 11774.1.

SG Type 22 (PM*)

Type 22 is a Prosser molded bead that is garnet in color (2.5R 2/6) and cylindrical in shape (Figure F-34). These opaque beads range from 5.91 to 6.07 mm in diameter and 5.07 to 5.20 mm in length. There are two examples of Type 22 beads in the assemblage.

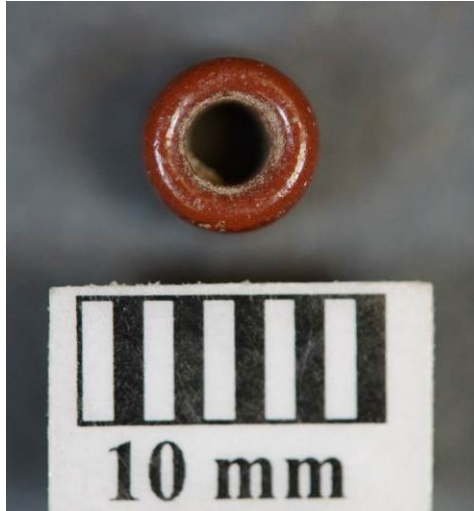


Figure F-34. Type 22 bead from EU 237. Catalog Number 12222.1.

SG Type 23 (PM*)

Type 23 is a Prosser molded bead that is oyster white in color (N8) and round in shape (Figure F-35). This opaque bead is 4.36 mm in diameter and 3.87 mm in length. There is one example of a Type 23 bead in the assemblage.

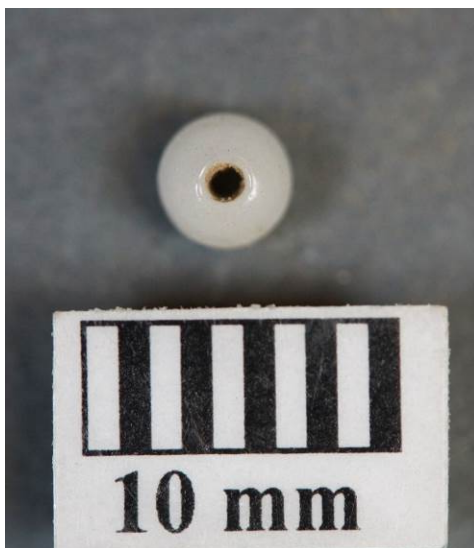


Figure F-35. Type 23 bead from EU 215. Catalog Number 10283.1.