PROSSER BEADS FROM THE MISSION SAN GABRIEL ARCÁNGEL (CA-LAN-184H)

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Recent excavations at Mission San Gabriel Arcángel (CA-LAN-184H) have revealed a collection of unusual beads, called Prosser (or tile) beads, which were deeply deposited near the remains of the Chapman millrace. These beads, which look like glass cane beads, are porcelaneous in composition and were made using a mold-pressed technique.

Recently, a number of unusual-looking trade beads were found at the San Gabriel Mission in Los Angeles County. The beads appeared to be glass beads, but certain features suggested that these 20-odd beads were something different from the typical glass trade beads found at historic sites throughout southern California.

The beads were recovered during Phase II and Phase III investigations carried out to mitigate impacts from a proposed rail project (Dietler et al. 2010). The project entails the construction of a large trench just south of the mission to develop a grade separation of the Southern Pacific rail line from the existing surface streets in the area. The majority of the excavation was conducted along the Area of Potential Effects (APE) of this project. The beads were found in the southeast portion of the sampled area and came from levels deeper than 110 cm. This particular area was largely undisturbed and was adjacent to the well-known Chapman's millrace, a feature that was associated with a Mission-period gristmill (Dietler et al. 2010).

BEAD DESCRIPTION

What made these beads so distinctive was the fact that all 20 beads shared the same common characteristics: metric indices were the same, approximately 6.0 mm x 6.0 mm; each bead had an unfinished end; and all were opaque. However, color varied, and white, grey, green, red, and blue were all represented (Figure 1). Likely these formal similarities relate to the actual production process, which has been referred to as mold-press.

First invented in 1840 by Richard and Thomas Prosser in England, the manufacturing involved clay earths, flint, and feldspar being crushed into a powder and then placed in a die, which was then subjected to 200 PSI using a fly press. As depicted in Figure 2, the flywheel of the device possessed weights on the handle to increase leverage and transmit the necessary compression to compact the powder. After being sufficiently compressed, the bead mold was then fired in a kiln (Sprague 1983:168). Although the first patent was for the production of "knobs, rings, and other articles," subsequent patents were for buttons only (Sprague 2002:113). The evidence is rather vague as to whether beads were also made at this time using this method. Given the above reference to knobs and other articles, it seems reasonable to suppose that not just buttons were manufactured. A few years after the process was invented, a Frenchman by the name of J. Felix Bapterosses adopted the Prosser method and refined various manufacturing aspects to the point that buttons, beads, and other items could be mass-produced (Sprague 2002:115). After taking out another patent, Bapterosses began producing large quantities of beads and buttons. Although Bapterosses duplicated the Prosser technique, he did add milk to the powdered clay to enhance plasticity. The final product was similar to that made by the Prosser method, and both produced a porcelaneous-looking button or bead. An excellent summary of the various processes was written by Richard Prosser's son in 1881:

> We refer to Mr. Richard Prosser's "agate" buttons, as they were not unhappily called, for which a patent was granted in 1840. The process, which was exceedingly simple,

Figure 1. Prosser beads found at CA-LAN-184H.

> consisted in pressing a finely–powdered mixture of clay, feldspar, flint, &c. – the proportions of which vary according to circumstances – between dies of the shape of the button required. A single pressure only was requisite, and the buttons were then fired and glazed in the usual manner of treating porcelain articles. The process was taken up by Mr. Minton, of Stoke-on-Trent, and at the beginning of the year 1852 a make of 5000 gross per week was found insufficient to supply the demand. For a few years, the process was successfully carried on at Stoke, and shortly afterwards the manufacture was commenced in France. M. Bapterosses took out several patents for improved machinery by which he was enabled to make no less than 500 buttons at a single operation of the press and in consequence of the low price of labour in France, the "agate" buttons could be sold here for less than it cost to sew them on the cards at Stoke. This, of course, ruined the home trade, and they have ceased to be made here for many years past. There is, however, a very large establishment at Briare, about forty miles from Orleans, where they are manufactured in enormous quantities. Mr. Prosser's patent included also a claim for a new form of button with two holes connected by a channel for the thread to lie in, which had the effect of protecting it from wear. At the suggestion of Mr. Blashfields, the process was applied to making tesserae and tiles, and the foundation of a most important industry was laid [Sprague 1983:170].

Interestingly, Prosser beads are sometimes referred to as tile beads, and it is possible this moniker came from the association of the process with the production of tiles. What is evident from the above is

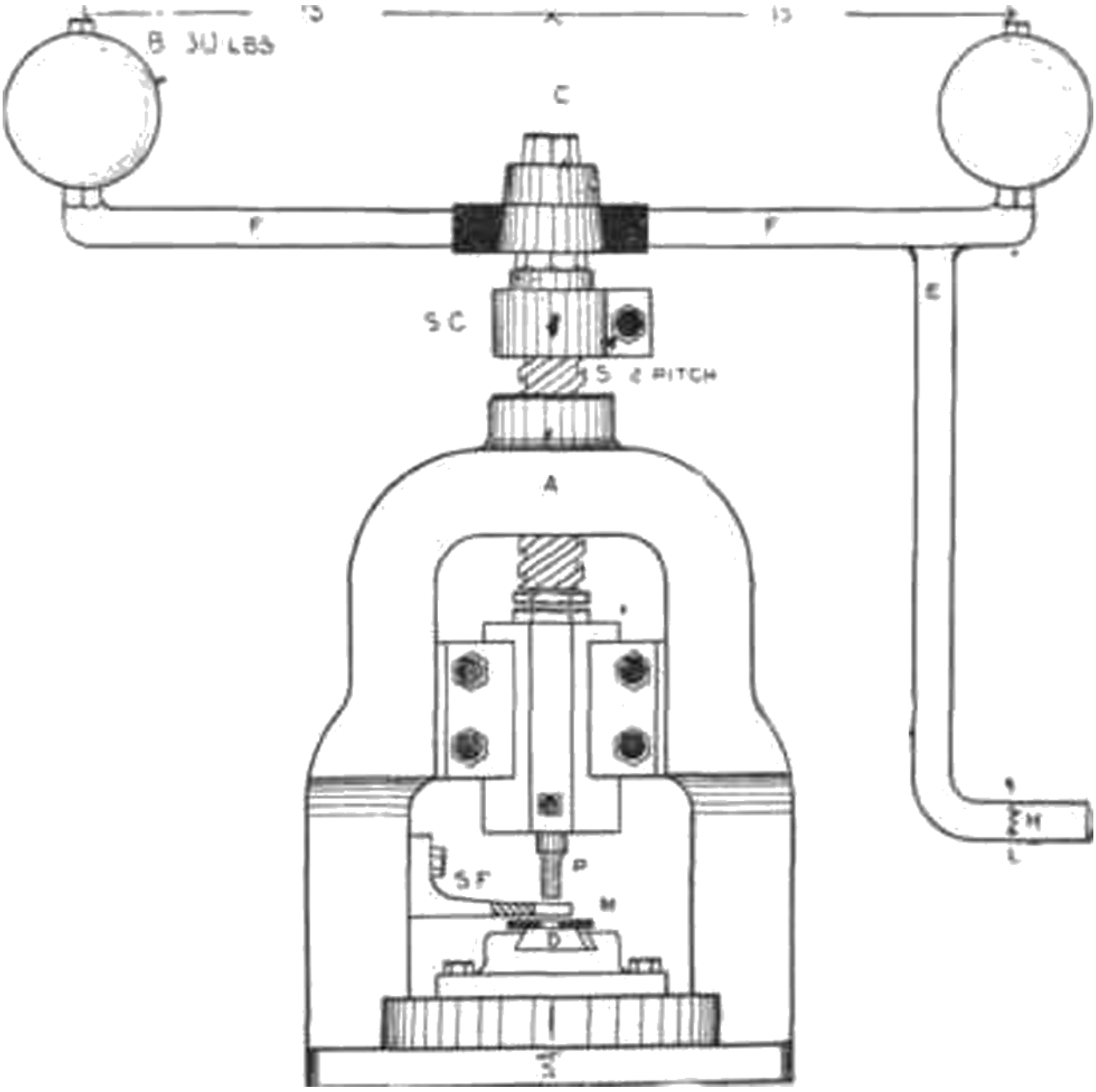

Figure 2. A fly press similar to this one likely was used to produce Prosser beads.

that the Prosser method was initially developed to manufacture buttons but sometime during the initial use of the system beads were also made. It has been documented that the French manufacturer, Felix Bapterosess, stated, "Be it known that I, Jean Felix Bapterosses, manufacturer, of Paris, France, have invented Improvements in fabrication of Buttons, Pearls, and other Objects of Ceramic Matter" (Sprague 1983:170).

It then appears that Prosser beads may have been made in the 1840s, 1850s, and 1860s in England and France. The beads produced were "ceramic" (or porcelain) in appearance. For all intents and purposes, the beads look like glass. However, they differ from glass beads in that (1) they have a crystalline composition, (2) one end of the bead has a rough finish (orange peel), and (3) the hole tends to taper down towards the smooth end. In addition, these beads are always opaque and possess similar dimensions in terms of length and thickness – at least the cylindrical version (Sprague 1985). The overall

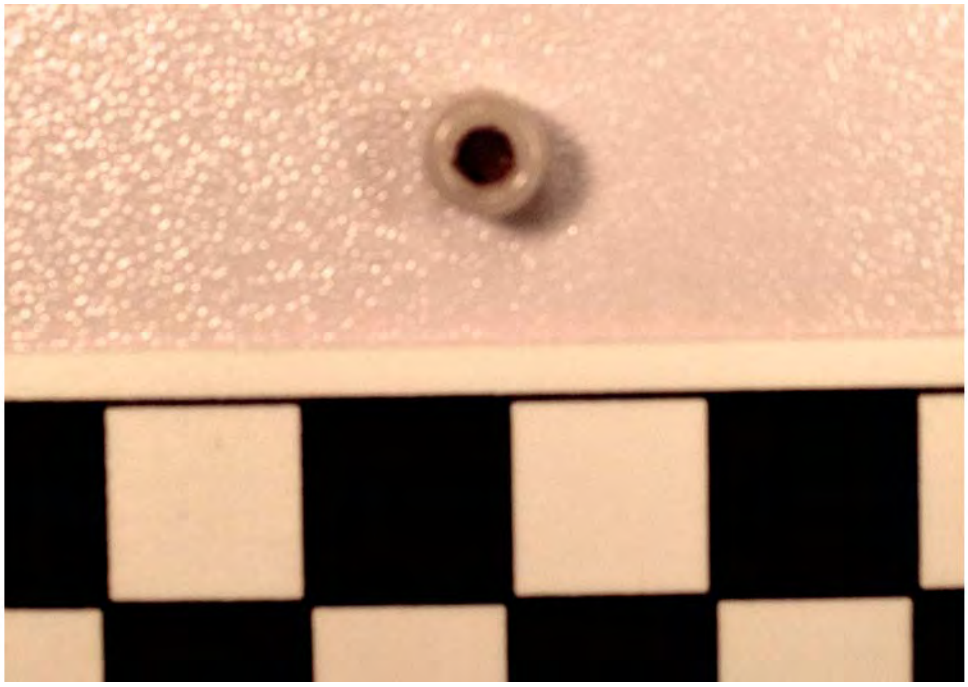

Figure 3. Prosser bead, smooth end up.

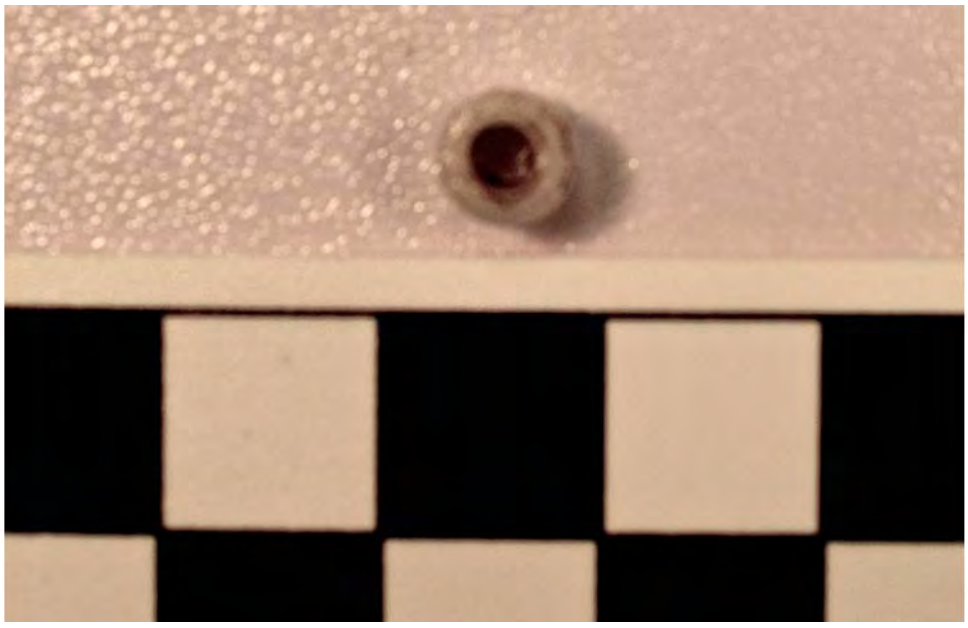

Figure 4. Prosser bead, rough side up.

look is much like glass trade beads, especially drawn beads, and can be easily confused with these beads during analysis. Possibly the most diagnostic aspect of this bead type is the "orange peel" end (Figures 3 and 4), which makes it quite distinctive from glass beads. According to Sprague (2002:119), the orange peel appearance may have been created from either striking the clay off the top of the metal mold or from that surface being baked on a metal shelf during firing. Personally, I favor the last theory. Another source suggests that over time the orange peel effect disappeared due to improvements in manufacturing techniques. If this is true, the Prosser beads found at San Gabriel Mission are of the older type.

Figure 5. Interaction sphere of the Hudson's Bay Company.

The Prosser beads were found at the mission site in a fairly clustered distribution and, as stated previously, were recovered at depths exceeding 110 cm. The distribution of the beads, as well as the nature of the deposit, suggest limited disturbance and argue against an intrusive factor at work. Also significant is the temporal consistency within the overall bead assemblage at the site. Based on typology of the shell beads recovered at the site, the temporal range is ca. A.D. 1770 to 1900. Nearly 32 percent of the collection was from Class H *Olivella* disk beads (Bennyhoff and Hughes 1987), which strongly reinforces this time range and easily accommodates the purported manufacturing dates of the Prosser beads.

PROSSER BEAD INTERACTION SPHERE

The next question to address is how these relatively rare beads found their way to Mission San Gabriel. It appears that Prosser beads have been found frequently at archaeological sites in the lower Columbia River area and in the region once called the Oregon Territory in the 1800s, and may have been associated with the Hudson's Bay Company (HBC). Lester Ross (1990) has reported Prosser beads for Fort Vancouver, Roderick Sprague (1983) documented them in eastern Washington, and Karklins and Adams (2013) have recovered them from the York Factory in Canada. All these areas were within the interaction sphere of the HBC (Figure 5). Either "trapping brigades" were sent south to trade with the southern missions or some other factor was present. In the latter case, one interesting possibility to consider is the John C. Fremont expeditions in southern California. Both his second and third expeditions were in the Los Angeles area during the 1840s. As commander of the California Battalion, he was ordered to occupy various parts of California during this time period. In fact, in January 1847, after the signing of the Treaty of Cahuenga, the battalion bivouacked at Mission San Gabriel (Chaffin 2002:367). Fremont and his scout Kit Carson were well known to trade with Native groups they encountered, and it is not hard

to imagine the bivouacked soldiers trading with Native Americans still living at the mission (Chaffin 2002:296). Interestingly, Fremont and his men, prior to their reentry into California, were in the Columbia River region where Prosser beads could have been obtained from the HBC (Chaffin 2002:184-189).

Many questions remain unanswered concerning these beads. For instance, what is the true distribution of Prosser beads in southern California? If, as suspected, these beads have been frequently misidentified, then their relative rarity may be an erroneous assessment. Also, was the HBC the primary distributor of the beads, and if so, what were the mechanisms of exchange and the point of origin? Prosser beads were also made in Germany and the Czech Republic in the later 1800s (Dubin 1987:112; Sprague 1983:171). Robert Liu (1995:166) has even gathered some evidence that Prosser-like beads are still being produced in Morocco using handed-down equipment from the now defunct Czech bead industry.

CONCLUSIONS

To recap, Prosser beads were recovered from recent excavations at the Mission San Gabriel, and the origin of these artifacts is largely unknown. What is clear from the limited research conducted here is that these beads look like glass and may at first glance appear to be indistinguishable from glass trade beads. Nevertheless, certain unique characteristics are present to the discerning eye, and awareness of these features can aid in their correct identification. Again, these attributes include the following: (1) cylindrical Prosser beads have a similar diameter and thickness, ranging from 5.5 mm to 6.0 mm; (2) one end of the bead may be pebbly looking (i.e., orange peel); (3) the bore hole is somewhat large and usually tapers toward the smooth end; (4) the beads are always opaque, but color varies; and (5) the beads are smooth-looking yet have a slightly grainy appearance.

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