

BULLETIN

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A Lipan Apache Mission

San Lorenzo de la Santa Cruz · 1762-1771

PART I

THE ARCHEOLOGICAL INVESTIGATION

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PART II

THE ETHNOHISTORICAL INVESTIGATION

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PART III

SUMMARY AND CONCLUSIONS

THE TEXAS MEMORIAL MUSEUM

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(Fig. 58, E), 12 cm. long. Its smoothly sloping shoulder has a long, narrow neck tapered in slightly toward the lip, which is straight and smoothly finished. A narrow band of glass about 1.2 cm. wide and 2 mm. thick has been added around the exterior of the neck just below the lip. This reinforcing band is smoothly polished onto the bottle neck. The exterior diameter ranges from about 6 cm. on the slope of the shoulder to 2.9 cm. near the lip. There are no mold marks on this fragment.

Pale green flat glass (8 sherds)

The color and transparency of these pieces match those of the bottle glass described above. A few widely scattered, small bubbles are visible, all of which are elongated. The surfaces of the sherds are very smooth and flat and the thickness on each sherd except one is uniform. One sherd is 1 mm. thick, two are 2 mm. thick, and the others are 4 mm. thick. All are heavily patinated and the patina ranges from off-white to brownish-gold in color. Although the patina is hard and smooth, it can be scraped and cut with a knife point. One sherd has been broken into the shape of one-quarter of a circle and the edges are ground smooth. The radius of this fragment is 3 cm. Possibly it was used as an inlay or one element in a leaded glass panel. The other flat glass sherds may be fragments of square bottles or flat panes.

Colorless glass (2 sherds)

Two sherds of a small, thin-walled vessel were found in the midden, its glass colorless and transparent with a few widely scattered, small, spherical bubbles. The surface is coated with a layer of white patina which has a pearly lustre in bright light. The vessel was a small glass with vertical sides and a straight, smooth lip. There are no mold marks. The sherd thickness is rather uniform 2 mm. The estimated diameter of the complete vessel, at the lip, is 6.5 cm.

Pale blue-green bottle glass (23 sherds)

A pale aquamarine is the color of these transparent sherds, containing a few tiny, spherical bubbles. All sherds are heavily coated with a dull white, chalky patina and all are from small bottles (Fig. 58, D), with no mold marks visible. Thickness ranges from 1 mm. to 6 mm., and is variable on each sherd. The only large sherd is a

bottle neck fragment which has a sloping shoulder and a short, vertical neck with a slightly thickened, rounded lip. A thin (less than 0.5 mm.) flap of glass was folded down from the lip and smoothed tightly against the upper 4 mm. of the inner neck surface. The neck of the bottle was 1.8 cm. long and had an estimated exterior diameter of 2 cm. at the lip. These sherds were found on the surface and just beneath the surface outside Structure 2. Their association with the mission occupation is uncertain.

Recent bottle glass (89 sherds)

These sherds are of recent origin and a variety of colors: white, dark brown, dark green, colorless. Some have trade names such as "Lea & Perrins." One molded dark green whiskey bottle (21 sherds), with a hand-finished neck, (Fig. 58, B and C) was found in a disturbed area on the floor of Structure 8. This bottle probably dates to the Camp Wood occupation in the mid-nineteenth century.

Beads

In the comparatively small collection of 132 beads from San Lorenzo there are twelve distinct types. Four types not commonly reported in North American historic sites are included—amber, alabaster, red coral, and pearl—although glass beads comprise the bulk of the collection.

Glass beads, the most frequently found type of artifact in many historical sites, have seldom been described or illustrated sufficiently for purposes of intersite comparisons. With more than 80 per cent of these specimens unquestionably associated with the mission occupation, i.e., in burials or on house floors (Fig. 61), this dated sample from a restricted time period—1762 to 1771—is described in detail for comparison by other investigators.

GLASS BEADS

The glass beads found at the site of Mission San Lorenzo undoubtedly originated in the Republic of Venice, which held a tight monopoly on the glass bead industry at that time. So carefully guarded were secrets of the industry that as late as 1762 a local law forbade glassmakers to go abroad on pain of having their families in Venice imprisoned; and, "... if in spite of the imprison-

Fig. 59. Provenience of glass.

	Pale green bottle	Pale green flat	Colorless glass	Pale blue-green bottle glass	Recent bottle glass
Structure 2					
outside	5	..	..	17 (one bottle)	10
floor	1	..	..	..	..
Structure 3					
floor	1	..	..	..	..
Structure 7					
fill	2	1	..	..	2
floor	..	..	..	..	..
Structure 8					
outside	..	..	..	..	1
floor	2	..	..	..	21 (one bottle)
Structure 11					
floor	..	1	..	..	..
Structure 13					
floor	..	1	..	..	..
Structure 14					
fill	..	2	..	..	..
floor	..	1	..	..	..
Midden	6	..	2	..	..
W. Wall Area	..	..	..	1	1
Surface	12	2	..	5	54
Totals	31	8	2	23	89

ment of his relations he should persist in remaining abroad, an emissary will be charged to kill him" (Sauzay, 1871: 45). At least sixty different kinds of glass beads were manufactured in large quantities at Venice and the nearby island of Murano. Lardner (1832: 183-184) states that "... the principal trade in these is carried on with Spain and the coast of Africa; but some portions find their way to nearly all parts of the world." The Venetian monopoly lasted until late in the nineteenth century (Scientific American Supplement: May, 1900: 20400).

All the glass beads from San Lorenzo are the *hollow-cane* variety, made in the following manner: (1) A cylindrical mass of molten glass containing a large central bubble was drawn out to form a long, thin tube or cane. (2) When cool, this cane was broken into cylindrical bead-size fragments. (3) The fragments were stirred in a mixture of ash and sand until the holes were filled. (4) This mass was heated and stirred until the edges of the cylindrical fragments were

smoothly rounded. (5) The completed beads were cleaned and size-graded with a sieve.

The San Lorenzo specimens are all either *simple hollow-cane* (made of a single layer of glass) or *compound hollow-cane* beads (made of two or more concentric layers of glass) (Edward B. Jelks, personal communication). Although hollow-cane type beads are basically cylindrical, many terms have been used in the literature to describe the slight variations in form which are largely caused by temperature and/or time involved in the fourth step of the manufacturing process.

Additional details about glass bead manufacture are found in: Lardner, 1832: 182-183; Orchard, 1929: 82-88; Sauzay, 1871: 205-206; Scientific American Supplement: May, 1900: 20400; Harris and Harris, 1967. Terminology employed in the following descriptions follows in part that proposed by Duffield and Jelks (1961: 41).

The glass beads from San Lorenzo fall readily into three distinct size groups—large, about 9 mm. in diameter; medium, about 5 mm. in diameter; small, about 3 mm. in diameter—with no graduation between groups. All sizes were apparently used for necklaces (see burial associations). In examining them microscopically (30X), one or more specimens of each type were broken to determine their internal structure and characteristics. A vernier caliper was used for measurements.

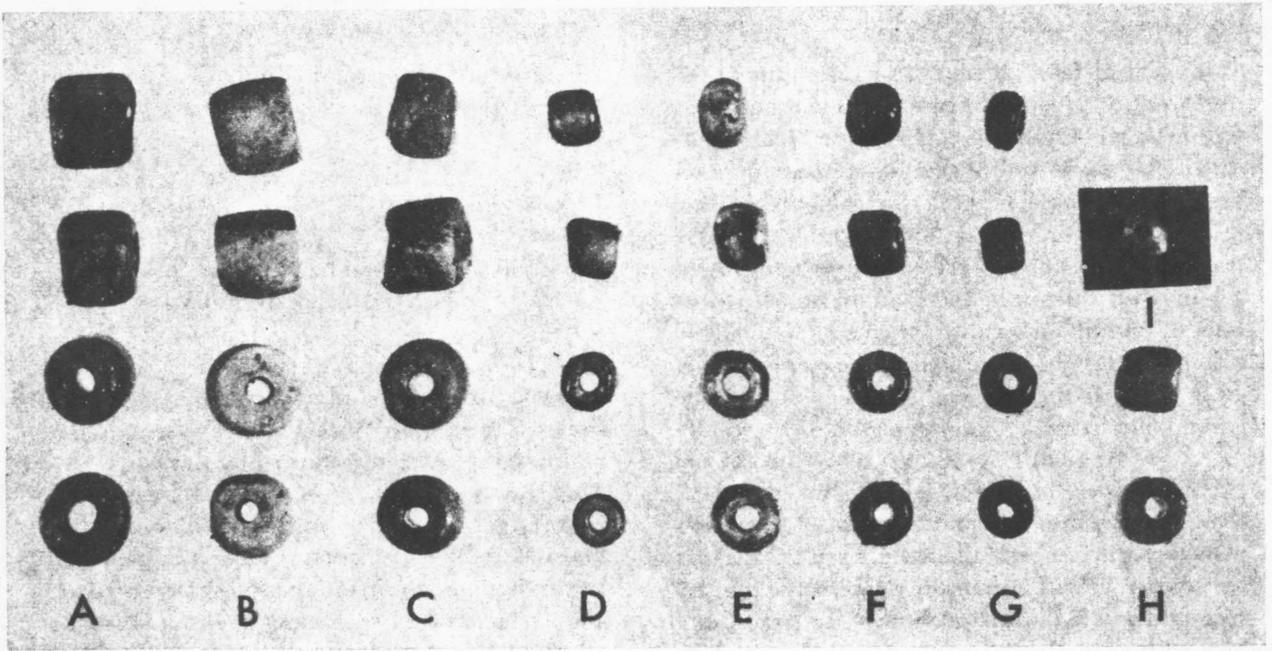
MEDIUM-SIZE, COMPOUND, RED BEADS

(Fig. 60, A), 29 specimens

Description

Short and cylindrical; most are slightly asymmetrical. End edges of all specimens well rounded and coated with an opaque white patina which flakes away easily with washing or dry brushing, leaving a smooth outer surface.

Fig. 60. Glass beads and plant remains. A, medium-size compound red beads; B, alabaster beads; C, medium-size, simple, blue-green beads; D, small-size compound, red beads; E, small-size, simple, clear beads; F, small-size, simple, blue beads; G, small-size, simple, dark burgundy red beads; H, coral beads; I, pearl bead; J, seeds of a prickly pear cactus (*Opuntia* sp.); K, L, charred corn grains from Structure 10; A-H, upper scale; J-L, lower scale.



0 10
mm.



0 10
mm.

Components

Composed of four layers: (1) a thin (about 0.2 mm.) outer layer of translucent pale green glass with no visible bubbles; (2) two identical superimposed, opaque red layers (sometimes appearing to be a single layer), each about 0.1 mm. thick and seeming to contain no bubbles; (3) a translucent pale green core layer averaging about 1.4 mm. in thickness and containing chains or lines of tiny bubbles running parallel to the hole. The green layers are probably the same type of glass used in making eighteenth century pale green wine bottles. A gold or copper-derived pigment was frequently used to produce bright red glass (Lardner, 1832: 210-215). The red glass in these beads probably contains one of these expensive pigments, and the use of very thin layers of red over a thick green core enabled the makers to produce a brilliant red bead with a minimal expenditure of the red pigment.

Dimensions

Diameter 4.3 to 5.3, average 5.0 mm.; length 3.3 to 4.5, average 4.0 mm.; hole diameter 1.2 to 1.5, average 1.3 mm.

Description of comparable beads

Comparable to those called "Cornaline d'Aleppo" by Duffield and Jelks, 1961: 49 (medium-sized, clear/red/green, oblate beads); probably also like the short specimens shown in Pratt, 1961: #72; Watt and Meroney, 1937: 54-55; and Watt, 1937: 64, #82; Harris, *et al.* 1965: 313, #51, #55; Harris and Harris, 1967: 147, #86, #99.

Provenience. Fig. 61.

SMALL-SIZE, COMPOUND, RED BEADS
(Fig. 60, D), 6 specimens

Description

Identical to medium compound red beads described above, except for size and probably manufactured by the same process.

Dimensions

Diameter a uniform 3 mm.; length 2.6 to 3.2, average 3.0 mm.; hole diameter 0.8 to 0.9 mm.

Description of comparable beads

(See medium compound red above) Harris *et al.* 1965: 313, #51; Harris and Harris, 1967: 147, #87.

Provenience. Fig. 61.

MEDIUM-SIZE, SIMPLE, BLUE-GREEN BEADS
(Fig. 60, C), 4 specimens

Description

Short, cylindrical, and rather asymmetrical in shape. Three have well rounded edges; the remaining specimen has sharp, angular edges. Made of one layer of light, translucent blue-green glass containing many bubbles which pit the surface. Two specimens have a bubble about 1 mm. in diameter opening onto exterior surface, and surfaces of all specimens are coated with an opaque white patina which can be easily flaked away.

Dimensions

Diameter 4.5 to 5.0 mm.; length 3.3 to 4.3 mm.; hole diameter 1.1 to 1.5 mm.

Description of comparable beads

Duffield and Jelks, 1961: 44 (medium-sized robin-egg blue, subcylindrical beads); Pratt, 1961: #66; Watt, 1937: 66, #114; Harris, *et al.* 1965: 309, #10; Harris and Harris, 1967: 152, #138.

Provenience. Fig. 61.

SMALL-SIZE, SIMPLE, BLUE BEADS
(Fig. 60, F), 16 specimens

Description

Short, cylindrical specimens with well rounded edges, composed of a single layer of dark blue translucent glass. Unlike the other blue specimens, these have very few visible bubbles in the glass, leaving the surface smooth and only slightly frosted (no heavy patina).

Dimensions

Diameter 3.3 to 3.5 mm.; length 2.3 to 2.9 mm.; hole diameter 1.2 to 1.3 mm.

Description of comparable beads

Harris, *et al.* 1965: 313, #48; Harris and Harris, 1967: 144, #48.

Provenience. Fig. 61.

SMALL-SIZE, SIMPLE, DARK BURGUNDY RED BEADS
(Fig. 60, G), 33 specimens

Description

Very short, cylindrical (doughnut-shaped), with well rounded edges, appearing to be opaque dark brown or black, but freshly broken slivers examined against a strong light show them to be a deep burgundy red. Composed of a single layer of glass with a few chains of bubbles running parallel to the hole. None was patinated—surfaces smooth and slightly frosted.

Dimensions

Diameter 2.8 to 3.5, average 3.1 mm.; length 1.8 to 2.3, average 2.0 mm.; hole diameter about 1 mm.

Description of comparable beads

Duffield and Jelks, 1961: 45 (small and medium, purple-black, doughnut-shaped beads); Pratt, 1961: #84; possibly like Watt, 1937: 66, #126; Harris, *et al.* 1965: 313, #50 (?); Harris and Harris, 1967: 144, #50 (?).

Provenience. Fig. 61.

SMALL-SIZE, SIMPLE, CLEAR BEADS
(Fig. 60, E), 20 specimens

Description

Short, cylindrical beads—some might be called doughnut-shaped, edges well rounded. Made of a single layer of translucent glass with few visible bubbles, the surface is smooth, slightly frosted, and has some patches of an opaque patina. The central hole, visible through the wall of each bead, gives these specimens a distinctive opalescent lustre.

Dimensions

Diameter 3.3 to 4.0 mm., average 3.8 mm.; length 2.1 to 3.1 mm., average 2.8 mm.; hole diameter averages about 1.0 mm.

Description of comparable beads

Duffield and Jelks, 1961: 46 (small, translucent, colorless, doughnut-shaped beads); Smith, 1960: 141 to 143, reports small colorless beads which may be comparable to these; Watt, 1937: 62, #22; Harris, *et al.* 1965: 313, #49; Harris and Harris, 1967: 144, #49.

Provenience. Fig. 61.

SMALL-SIZE, COMPOUND, WHITE BEADS,
6 specimens

Description

Short and cylindrical, with well rounded edges. Some small chains of bubbles open onto the bead surfaces; ends are heavily pitted by bubbles. Surfaces are partially coated with an opalescent white patina. Hole is not centrally situated on some specimens.

Components

Two layers were used: (1) a thin outer layer of clear, transparent glass containing some chains of bubbles paralleling the hole, average thickness about 0.1 mm.; (2) a core component of opaque white glass containing a very large quantity of bubbles and probably pigmented with a phosphate of lime (Lardner, 1832: 217). Because of the excessively bubbly nature of the white glass core, the clear glass coating may have been added for durability.

Dimensions

Diameter 3.0 to 3.5 mm.; length 2.5 to 2.9 mm.; hole diameter averages about 0.7 mm.

Descriptions of comparable beads

Duffield and Jelks, 1961: 46 (small, clear/white, subcylindrical beads); Ray and Jelks, 1964: 130; also possibly like beads shown in Pratt, 1961: #110; Smith, 1953: 45 (white, milky, opaque); Harris, *et al.* 1965: 312, #45; Harris and Harris, 1967: 144, #45.

Provenience. Fig. 61.

AMBER BEADS

Amber, fossilized resin of long-disappeared conifer forests, occurs in some alluvial soils in Eu-

rope and Asia and is especially abundant on the beaches along the Baltic Sea. It is highly translucent, soft, takes a high polish, and its colors range from yellow or pale pink to light brown. If rubbed briskly, a piece of amber will become electrified and attract bits of paper. These five beads are probably of European origin.

Description

These specimens are so heavily weathered that only one bead is sufficiently complete for detailed description. It is cylindrical but not perfectly circular in cross section as there are flattened areas on its sides. It has flattened ends, rounded edges, and a well smoothed and frosted surface. The hole is a uniform diameter throughout, apparently drilled from one end only. The amber is heavily laced with cracks which render it rather opaque, but small detached fragments of the amber, a light pinkish brown, are transparent. The amber is easily cut and scratched with a knife blade.

Dimensions

Diameter 4.0 mm.; length 4.5 mm., hole diameter a uniform 1.0 mm. Incomplete specimens were apparently of approximately this same size.

Description of comparable beads

Casanowics (1909: 354) mentions rose tinted amber used for beads in a Roman catholic rosary. Webster's New International Dictionary (second edition, unabridged, 1951) mentions the use of amber for beads.

Provenience. Fig. 61.

ALABASTER BEADS (Fig. 60, B)

A very fine-grained, compact, non-crystalline form of gypsum was used to fashion these beads, which are white to dark pink, with fine, irregular banding visible under magnification. Although alabaster has long been used for statuary, small vessels, and other ornamentation, a specific reference to its use for beads has not been found. Webster's New International Dictionary also uses the word alabaster for a compact, banded form of calcite. Orchard's mention (1929: 34) of calcite beads from Jamaica may refer to beads

similar to these eight specimens from San Lorenzo.

Description

Generally cylindrical in shape, but slightly irregular in cross section. Various flattened areas are present on the well smoothed and highly polished surface. Ends are straight to slightly concave, edges are sharply defined. The holes, frequently not exactly centered, are smooth, straight, and are of uniform diameter.

Dimensions

Diameter 4.2 to 5.0 mm.; length 3.8 to 4.3; hole diameter is a uniform 1 mm. on all specimens.

Provenience. Fig. 61.

CORAL BEADS (Fig. 60, H)

A thorough examination and comparison with specimens of red "precious" coral (*Corallium nobile*) from the Mediterranean reveals these beads to be made of that material. This occurrence of true coral in good association (Fig. 61) with Mission San Lorenzo in the 1760's is somewhat earlier than the first well-documented occurrence of this material in the Southwest. In an article on the use of coral, Clara Lee Tanner (1950: 124-125) states:

The red and red-orange coral of the Southwest tribes of the United States Indians, originated off the coast of Sardinia and on the banks off Sciacca, Sicily. It was manufactured in Torre del Greco in the Province of Naples, as well as in Leghorn, Italy. As to the time this material was sent into the Southwest, we regret our inability to give you any information. It was shipped by manufacturers from the above centers in Italy in the early 1800's, while coral concerns in the United States started late in that [the nineteenth] century.

The statement regarding the shipment of coral in the early 1800's would fit in with the first known date for the existence of real coral in the Southwest [Feb. 6, 1822], recently published by Arthur Woodward [1947: 25-26]. Shipment [of red coral] from the Mediterranean via Mexico is reported, but remains a question (Tanner, 1950: 130).

It is quite probable that the coral beads from San Lorenzo came via Mexico and answer the above question insofar as the Texas frontier is con-

cerned. This red coral has long been used for jewelry and beads and it is highly prized by the modern Southwestern Indians.

Description

Cylindrical, with flattened ends and rounded edges. Surfaces well smoothed and polished to a high gloss, but parallel ridges found on original coral stems are visible on bead surfaces running parallel to the hole. This indicates that the beads are simple short sections broken from the small round coral stems, polished, and perforated. Holes are centrally situated and of a uniform diameter. Color is a brilliant red-orange similar to 1-J-12 in Maerz and Paul (1930).

Dimensions

Diameter 3.5 to 4.0 mm. (the same as the finer stems on the coral specimens used for comparison); length 2.8 to 3.7 mm.; hole diameter a uniform 1 mm.

Provenience. Fig. 61.

PEARL BEAD
(Fig. 60, I)

This tiny, eccentric specimen could have been taken from a local Nueces River mussel and perforated, although it is not definitely known whether it is from a salt or fresh water mollusk. Orchard (1929: 29) discusses the use of pearls from fresh water mussels as beads, and Harring-

ton (1922: 250) illustrates some tiny, eccentric fresh water mussel pearl beads from aboriginal sites in the eastern United States. Although pearls have long been highly prized as beads, they are unreported from Spanish colonial sites in Texas or the Southwest.

Description

Eccentric in shape, smooth but undulating surface, opaque white with brilliant, iridescent gleam. Hole is circular and of uniform diameter throughout.

Dimensions

Length 2.9 mm., width 2.1 mm., thickness 1.8 mm., hole diameter 0.8 mm.

Provenience. Fig. 61.

Worked Stone

In addition to its use as a construction material, stone was utilized in the manufacture of a variety of tools at San Lorenzo. All of the stone artifacts and debitage are locally occurring cherts and limestone with the exception of three metate and mano fragments of vesicular basalt and a pipe made of an unidentified igneous material. The local cherts occur in nodular form in the limestone and are abundantly represented in the river gravels. The chert ranges from light reddish brown to tan to medium gray in color,

Fig. 61. Provenience of beads.

Provenience Unit	Glass Beads								Amber	Alabaster	Coral	Pearl	Totals
	Medium compound red	Small compound red	Small compound white	Large simple blue	Medium simple blue-green	Small simple blue	Small simple burgundy red	Small simple clear					
Burial 1	28	..	1	..	..	..	29
Burial 4	17	..	2	1	20
Burial 8-1	29	6	..	..	4	7	..	..	..	..	1	..	47
Burial 10	2	..	..	..	5	..	..	7
Structure 13, floor	2	..	..	1	..	..	..	..	1	..	4
Structure 4, floor	3	..	..	..	3
Structure 7, fill	1	..	..	..	1
Midden	3	..	..	5	5	3	..	1	..	1	18
Surface	1	1	..	1	..	..	..	..	..	..	3
Totals	29	6	6	1	4	16	32	20	5	8	3	1	132