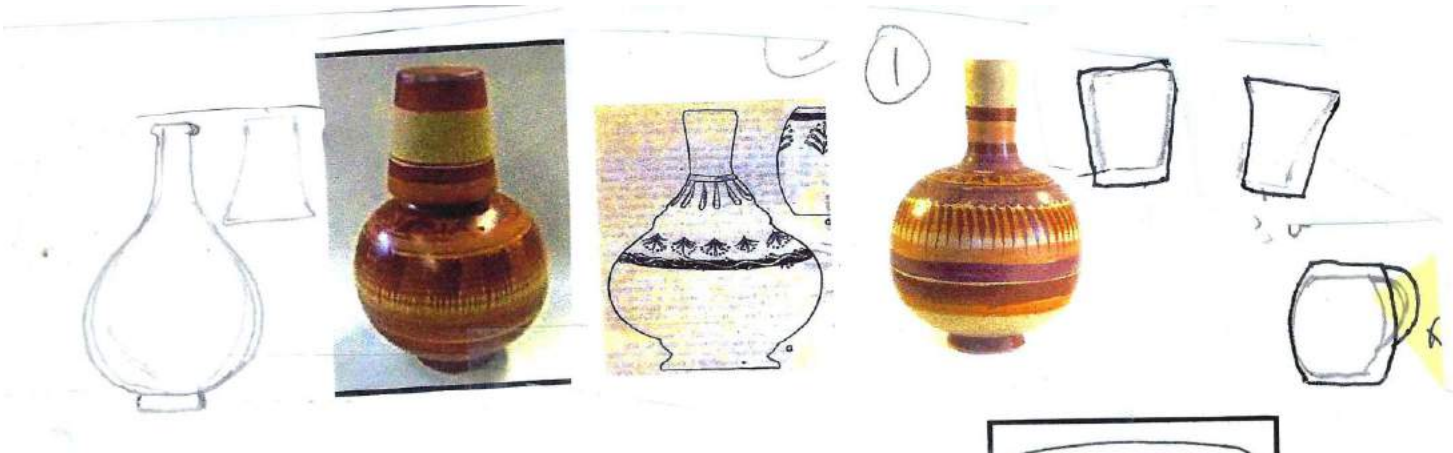
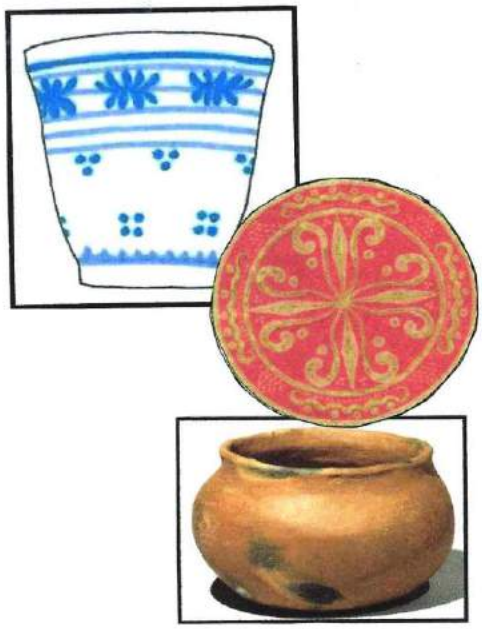


Shadows of the Things That Have Been:
An Analysis of and Identification Guide to Ceramics From the Chapel Complex Excavation of the San Diego Presidio



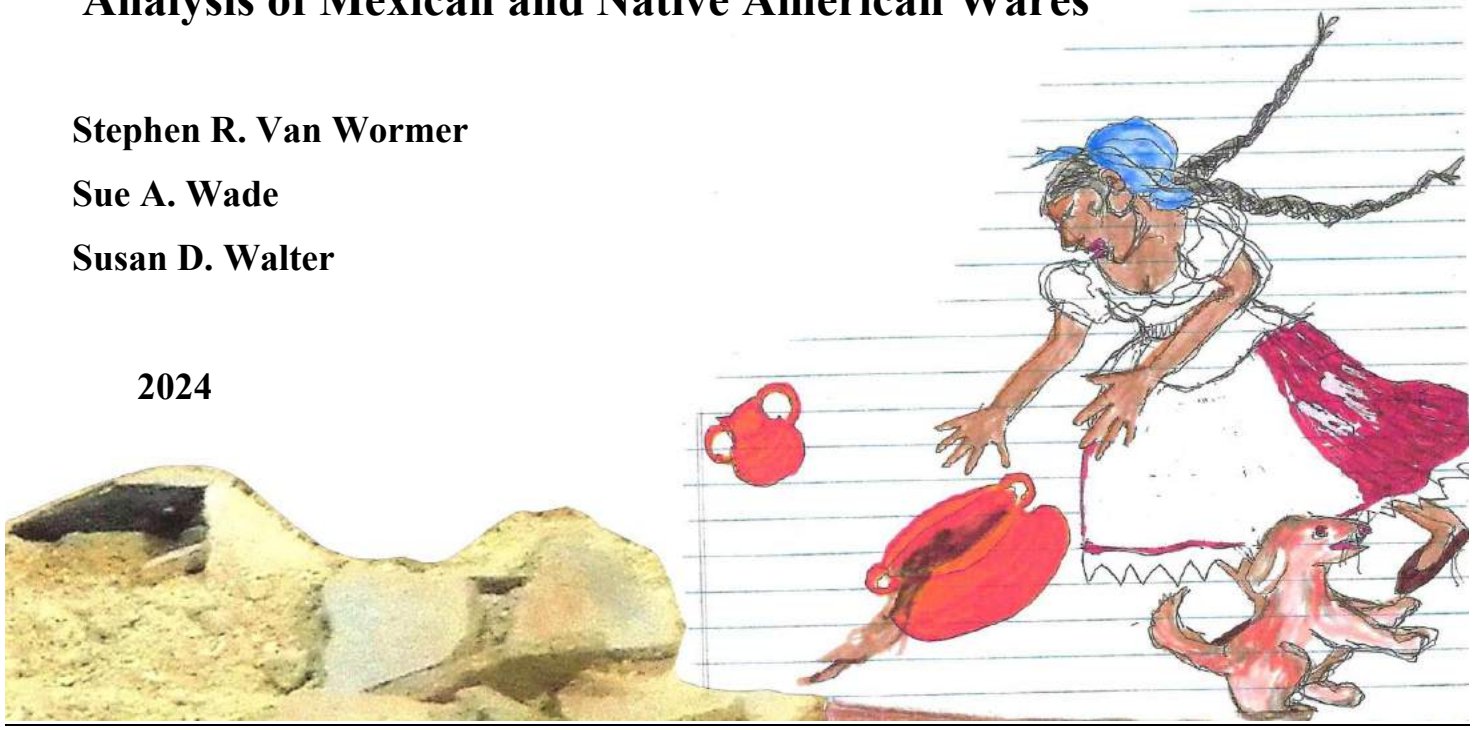
Volume 3:
De Cazuelas, Comales, y Tantas Jarriadas
Analysis of Mexican and Native American Wares

Stephen R. Van Wormer

Sue A. Wade

Susan D. Walter

2024



Shadows of the Things That Have Been:
An Analysis of and Guide to Ceramics of the San Diego Presidio

Cover Design by Susan D. Walter
About the Cover
Volume 3:
De Cazuelas, Comales, y Tantas Jarriadas
Analysis of Mexican and Native American Wares

Except for the conjectural scene of the woman tripping over her dog, all of the items on the cover are somewhere in Volume 3 of *Shadows of the Things That Have Been*.

At the top are pencil sketches of some vessel shapes for the Mexican Folk Vessel Typology and photographs of collected examples of whole items. Continuing clockwise are two illustrations of whole items, a Mayolica taza and a Galera Ware plato, respectively, followed by a Native American Brown Ware olla made in Santa Catarina, Baja California. Next is the conjectural scene of how items may have gotten broken and became sherds, with the Native American items represented by sherds upon dirt / sterile soil.

The artifacts are not to scale on this cover.

Shadows of the Things That Have Been:
An Analysis of and Identification Guide to Ceramics From the Chapel Complex Excavation of the San Diego Presidio

Volume 3: De Cazuelas, Comales, y Tantas Jarriadas: Analysis of Mexican and Native American Wares

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MEXICAN CERAMICS

MEXICAN COLONIAL CERAMIC PRODUCTION

By Stephen R. Van Wormer

Ceramics produced in Mexico in either the Colonial (1521-1821) or Early Republic (1821-1848) periods included lead-glazed Galera Ware, tin-glazed Mayolica, Tonalá Bruñida Ware, and large shipping and storage containers known as Botija-Olive Jars.

Before the Spanish conquest of Mexico, well established pottery traditions had existed in Mesoamerica and Spain for many centuries. Spaniards brought innovations to the Americas that had not been used prior to their arrival. The resulting colonial ceramic industries came about from the merging of indigenous and Spanish knowledge and technologies. Natives contributed a thorough understanding of local clays and other resources, and Spaniards introduced the potter's wheel, lead based glazing, and a greatly expanded use of the closed vault kiln [1] (Peñafiel 1910:5-6; Fournier and Blackman 2007, 2008; Sánchez 2012:103,150; Yanes Rizo 2013:93; Fournier Garcia and Charlton 2019). The effects of this process resulted in the continuation of preconquest native pottery traditions alongside a ceramic industry based on Spanish manufacturing techniques (Charlton et al. 2007; Sánchez 2012:103, 150; Fournier Garcia and Charlton 2019).

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[1] The actual extent of Spanish contribution to New World kiln technology is somewhat ambiguous. Updraft two chambered kilns in precontact contexts have been excavated in central Mexico at various locations (Sánchez 2012:67; Fournier Garcia and Charlton 2019), and yet, even though the updraft kiln technology was not necessarily first brought to New Spain by the Spanish, it has not been encountered at preconquest sites in the basin of Mexico, suggesting that Spanish introduction was highly influential in the spread of this technology following conquest (Fournier Garcia and Charlton 2019).

The 1530s are the earliest known dates of Spanish established potteries in Mexico City. These shops probably produced wheel thrown lead-glazed wares (Fournier Garcia and Charlton 2019). By the 1550s to 1580s, production of traditional Iberian glazed wares by master potters from Spain in both Mexico City and Puebla is well documented (Peñafiel 1910:19-23; Cervantes 1939 I:23; Charlton et al. 2007; Sánchez 2012:103, 150). Native potters, working outside large production shops, quickly adopted the colonial innovations of the kiln and lead glazing. Indian and Mestizo potters remained active throughout New Spain while continuing to use pre conquest vessel forming techniques and maintaining many pre conquest vessel shapes (Charlton et al. 2007; Sánchez 2012:103, 150). Although natives adopted Spanish technologies they did not wholly embrace the colonizers' values. They were undergoing "a process of construction of new identities and sets of values, which led to the integration of indigenous elements with the customs and objects that were introduced from the Old World" (Fournier and Blackman 2007, 2008; Fournier Garcia and Charlton 2019). Through this process they would become Mexican Colonial People.

GALERA WARE

By Stephen R. Van Wormer and Susan D. Walter

Definition

Galera Ware is a traditional utilitarian Mexican lead-glazed redware used for cooking, table settings, and a variety of other functions. Lead glazing sealed the porous low-fired earthenwares so that they became impervious to liquids. The overglaze also helped preserve painted decorations. It is still extremely popular in Mexico for cooking vessels and domestic implements. Since lead leaches through surfaces or substances at very low temperatures, hot meals prepared and served in these containers had levels of toxicity. For the last several decades most ceramics in Mexico have been manufactured with lead free glazes (Foster 1948a, 1948b, 1955, 1959; Gerald 1968:54; Fournier 2008; Sánchez 2012:176-180; Mindling 2015).

This class of ceramics is known by a number of terms including Galera Polychrome (Gerald 1968:52), Mexican Lead-Glazed Earthenware (Barnes 1980), Miscellaneous Lead-Glazed Earthenware, Lead-Glazed Coarse Earthenware (Deagan 1987:52-53), Sandy Paste and Fine Paste Lead-Glazed Wares (Fox and Ulrich 2008:46-58), Galera Ware (May 1976:237, 252; McIntyre 1976:269; Krase 1981; Barbolla 1992:124; Voss 2002:668; Allen et al. 2013:34), or simply lead-glazed wares (Sánchez 2012). During the Colonial Period in New Spain it was referred to as *loza amarilla,*[2] *loza corriente,* and *loza colorada* (Cervantes 1939 I:23; Kaplan 1994:8; Fournier and Blackman 2007, 2008; Sánchez 2012:146; Yanes Rizo 2013:70, 131, 33-342). In Mexico it is currently called *loza colorada*, *loza de barro*, *loza de barro vidriado*, or *loza vidriada*. There is no reason not to assume that these traditional terms have some antiquity.

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[2] Guild ordinances of 1653 defined loza amarilla as, “que se entiende ollas y cazuleas y otros vasos, jarros, colorados” (that which is understood to include pots and cazuleas and other drinking vessels, pitchers, red wares) (Cervantes 1939 I:23).

The most common body pastes are brownish red in color but can vary from beige and light yellow to orange. Often glazed portions appear more orange or yellow than the unglazed sections of the same vessel (Gerald 1968:54). Some sherds show grey to black cores indicating they were fired in a reducing atmosphere (Voss 2002:672-673). The "clear transparent quality" of the glaze distinguishes Galera Wares from other Mexican manufactured ceramics. In Spanish it is sometimes referred to as a varnish (*varnis*) (Fournier and Blackman 2008). Additions of copper or iron oxides will give the glaze a green or red tinge but will not alter its translucency (Barnes 1980:92).

Wide varieties of techniques are used to make Galera Ware vessels. These are "closely attached to the pre-Hispanic and early colonial past" (Sánchez 2012:176). Some are wheel thrown, others are formed with mushroom molds, full height molds, horizontal or vertical half molds, and three part molds. A rotating support known variously as *molde* or *kabal* (*Coyotepec moldes*) is also used. In some cases, vessels are started by using a mold, and then finished on a potter's wheel (Foster 1948a:99-100, 1948b, 1955, 1959; Barnes 1980:93-94; Sánchez 2012:170-176; Yanes Rizo 2013:282). In another method known as "jiggering" (*tornear a terraja*) an apparatus known as a molding board that holds a template of the vessel exterior (*terraja*) is used (Rice 1987:129; Connors McQuade 2005:75-78; Fernándaez Ibáñez y García Muñiz 2006; Yanes Rizo 2013:282). Clay is "thrown on a wheel over an upside down mold of the vessels interior." Then the potter presses the "template against the spinning clay to create a uniform vessel" (Barnes 1980:93).[3] Painted designs on Galera Wares include dots, feathers, nested crescents, and small flower-like motifs in cream, dark brown, and green. "The glaze is generally on the interior and over the rim and upper body" (Fox and Ulrich 2008:50).

History

After the Spanish conquest, utilitarian glazed earthenwares were probably among the first ceramic products to be introduced in the Americas. Indians learned lead glazing from the

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[3] When this method is used to form the vessel interior the process is know as jollying (Rice 1987:129).

Spaniards. Iberians established potteries in Mexico City in the 1530s (Fournier Garcia and Charlton 2019). Production was well established in central Mexico by the mid-sixteenth century (Barnes 1980:107-108; Deagan 1987:47-48, 53; Fournier and Blackman 2008; Yanes Rizo 2013:33-341; Fournier Garcia and Zavala Moynahan 2014). The earliest documentation of a guild for lead-glazed wares is 1583 for the city of Pátzcuaro (Cervantes 1939 I:18; Connors McQuade 2005:67). Archaeological evidence indicates a "technological and stylistic fusion" of European and Native ceramic technologies (Fournier et al. 2007; Fournier and Blackman 2008). Although the potters wheel, kiln, and glazing were introduced, many traditional native techniques, such as the use of molds and traditional vessel shapes continued, resulting in a hybridization or *mestizaje* of Spanish and Native material culture that evolved in central Mexico shortly after the conquest and dispersed from there throughout all of New Spain (Fournier Garcia and Zavala Moynahan 2014).

Manufacturing and distribution became a combination of mass production shops in large urban centers such as Guadalajara, San Luis Potosí, Puebla, Michoacán, and Mexico City while at the same time small scale local fabrication occurred throughout Colonial Mexico (Barnes 1980:95-96, 107-108; Yanes Rizo 2013:33-341; Fournier Garcia and Zavala Moynahan 2014). Local Galera Ware production has been documented for Alta California (Voss 2002:676; Skowronek et al. 2014:272; Skowronik (sic) et al. 2015). However, neutron activation analysis of lead-glazed ceramics from Mexican Colonial and early Republic period sites in California have shown that the majority of lead-glazed ceramics used in the province originated in the interior of Mexico. Over half of the sherds sampled derived from a single undetermined source that was neither Mexico City nor Puebla (Skowronek et al. 2014:277; Skowronik (sic) et al. 2015).

Scholarship

The utilitarian, vernacular, and generic nature of Galera Ware has made it difficult to develop precisely identified typologies. The wares "consists of many styles from various

pottery making centers" Barnes (1980:92). These ceramics were made during the entire Colonial Period and until the present time with little change in morphology, decoration, or surface finishing (Sánchez 2012:97). Differences in glaze coloring and finish could be the result of uncontrolled firing conditions in up-draft kilns rather than temporal or regional variations, consequently the chronology for these vessels remains uncertain, as well as their place of manufacture in Mexico (Fournier 1999:171). Because of this "considerable confusion still exists concerning the dates and places of origin" (Deagan 1987:47), in spite of the fact that these are some of the most abundant wares recovered from Mexican Colonial sites (Fournier 1999:171; Fournier et al. 2007:195; Fournier and Blackman 2007, 2008).

In one of the earliest studies, Gerald (1968:54) defined two major types of lead-glazed wares: "Green Glazes" and "Galera Polychrome." His description of the green glazed ware was extremely brief: "white paste with an overall translucent, emerald green to yellow green glaze." Galera Polychrome consisted of "a common type of [Mexican] glazed redware still available in the markets today …. The paste is brownish-red on the unglazed portions and appears more yellowish through the glaze." Decorations included designs in white, brown, black, green, and sometimes blue. "Earlier" sherds sometimes exhibited designs in "white topped with green" (Gerald 1968:54).

No other effort at classification of Galera Wares was attempted until 1980, when Mark Barnes published an extensive typology of "Mexican Lead-glazed Earthenwares" (Barnes 1980:92). Using material from six Arizona sites, he developed a descriptive typology for vessels produced between 1650 and 1980 (Barnes 1980; Voss 2002:669).
In spite of these efforts Kathleen Deagan concluded in 1987 that generic "description of paste and glaze attributes are at this point the most useful classification method for the lead-glazed coarse earthenware group" (Deagan 1987:53).

In Texas, Fox and Ulrich (2008:46-64) have utilized a typology similar to Gerald's original green glazed and Galera Polychrome categories. Their "Sandy Paste Lead-glazed Wares" seem to correspond to Gerald's Green Glazed Wares. Their "Fine Paste

Lead-glazed Wares" include Galera Polychromes and other types. Studies in Mexico have been equally ambiguous in development of other than generic descriptive typologies, while still emphasizing the importance of this class of ceramics (Charlton et al. 2007; Fournier and Blackman 2008; Valencia Cruz 2013; Fournier Garcia and Zavala Moynahan 2014). Fournier and Blackman (2008:7) noted:

> …, the chronological position of different styles or types of this ceramic class in several regions is still problematical, as well as the identification of their place of origin. In fact, since relatively early times their production started in the viceregal capital and in other population centers, and their manufacture has carried on until the present time.… For most of the collections under study it has not been possible to establish the origin of many vessels that were consumed and discarded, thus being incorporated into the archaeological record.

Because of inconsistencies in terminology in both the Gerald and Barnes typologies and due to "the inability of either typology to account for wares present in the assemblage…," Barbara Voss grouped Galera Ware from the San Francisco Presidio into 10 major descriptive categories. These were "not intended to be used as typological classes," as "further analysis of Galera recovered from other contexts" would be needed "to determine if these groupings were typologically useful" (Voss 2002:670). This study will use descriptive categories based on those developed by Barbara Voss (2002:671-676). Attempts to suggest more precise typologies seem futile.

Chapel Complex Galera Ware

A total of 1,372 sherds of Mexican Galera Ware, weighing 9.297 kilos was recovered from the Chapel Complex Excavation. Of this amount 881 sherds (64.22%) weighing 4,828 grams (52%) consisted of undecorated fragments that provided no evidence for identification of vessel type or decorative style. These were not used in the following

analysis of vessel function and decorative types. The remaining 491 sherds (35.78%), weighing 4.469 kilos (48%) represented a minimum of 78 distinct vessels. Individual vessels were identified through an analysis of pattern designs, body shape, and rim and base diameters and paste.

Clear Glazed Orange Bodied Serving and Tableware[4]

General Description

These plain Serving and Tableware vessels have no decorations. They are covered with a clear glaze on the interior and occasionally on the exterior (Voss 2002:672-673). Specimens exhibit beige to brownish-orange body paste that takes on a bright orange appearance where it has been glazed.

Through an analysis of 14 (2.85%) sherds, three (3.85 %) Clear Orange Bodied Serving and Tableware vessels were identified: two pocillo cups[5] (33.3%) with 3.5 inch (9 cm) rim diameters and an 8.6 inch (15 cm) rim diameter serving olla.[6] The olla (33.3%) had been formed on a mold and finished on a potter's wheel. The pocillo cups show juncture marks on the interior union of the neck and body indicating the vessels were formed as separate pieces in molds and then joined together. Horizontal swirl marks on the exterior suggest finishing on a potter's wheel (Figures 1 - 4).

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4. Voss (2002) used the term Clear Glazed Orange Bodied Tableware.

5. In many cases the Mexican vessel term such as pocillo or cajete has been combined with an English equivalent such as cup or bowl so that meanings remain easier to understand for those not familiar with Mexican vessel terminology. For a complete definition of Mexican vessel terms such as olla, comal, cazuela, etc seeVolume 2: Mexican Folk Vessel Typology.

6. Identified as a result of a complete lack of soot and burning on the vessel.

Figure 1: Clear Glazed Orange Bodied Serving and Tableware Sherds. Top: pocillo cup (MNV # G58A). Bottom: pocillo cup (MNV # G59).

Figure 2: Serving Olla. Above, exterior; below, interior (MNV #s G61A, C, D, H, & J).

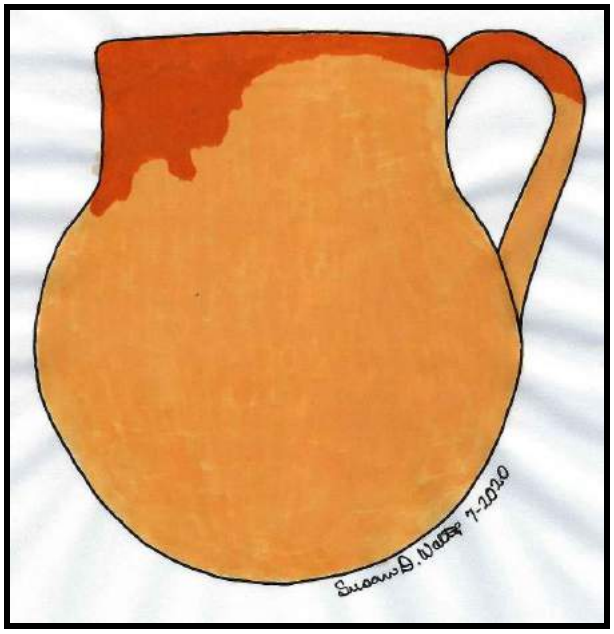

Figure 3: Clear Glaze Orange Bodied Pocillo Cup Facsimile by S.D. Walter (Based on Sherds in Figure 1).

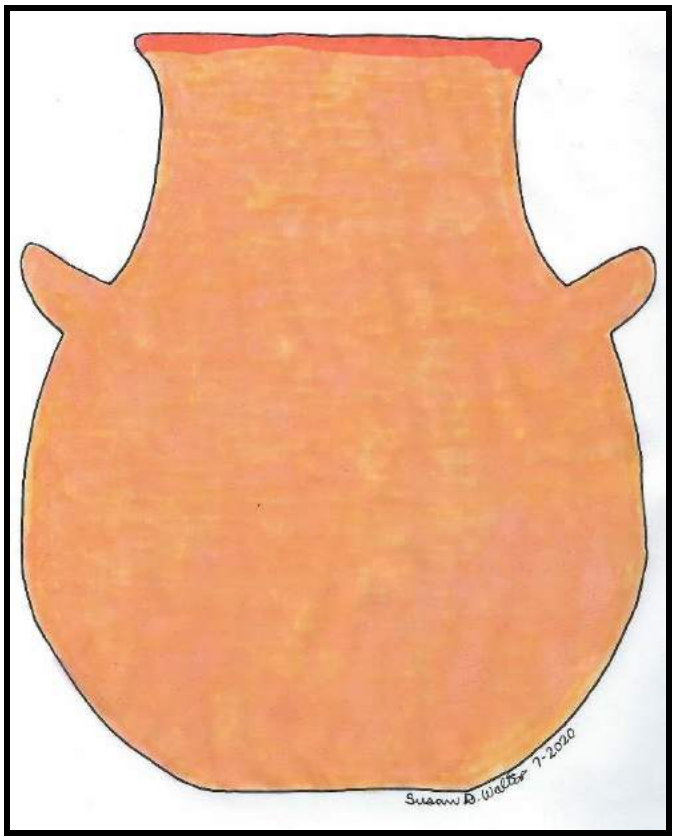

Figure 4: Conjectural Olla Reconstruction by S.D. Walter (Based on Sherds in Figure 2).

Interior Glazed Cooking Vessels

General Description

This category comprises a variety of vessel sizes and forms. The specimens are glazed on the interior surfaces and rims and have no additional decoration. Some show irregular drip lines on the outside below the rims. For the most part, they exhibit the same beige to brownish-orange body paste that takes on a bright orange appearance where it has been glazed.[7] A few have green or red tinted glazes. Most were identified as cooking vessels from soot residue on exterior surfaces (Voss 2002:674).

A minimum number of 37 (47.44 %) individual Interior Glazed Cooking Vessels were identified from 226 (46.02 %) sherds that included cajete style bowls,[8] cazuelas, and a comal. Of the nine (24.32%) cajetes, one had a rim diameter of 3.5 inches (9 cm). Seven others ranged from 6 to 7.5 inches (15 - 19 cm), and one rim was 8.5 inches across (19 cm). One vessel is covered with a green mottled glaze, and another a red-brown tinted glaze. All appeared to be wheel thrown (Figures 5 - 6).

Cazuelas were identified by the presence of flared collars and/or handles, or the attachment for handles protruding from the rim exterior at horizontal angles. Voss (2002:675), in her typology, referred to these vessels as "bean pots." Eight (21.62%) small cazuelas finished on a potter's wheel were identified. They measured approximately 2 inches (5 cm) in depth with rim diameters ranging between 7 and 7.5 inches (18 - 19 cm). Slightly flared handles were attached on opposite sides (Figure 7). Nineteen (51.35 %) large cazuelas had rim diameters of 10.5 to 17 inches (27 - 43 cm) and were approximately 3 to 4 inches (7.5 - 10 cm) deep. One was covered in a green glaze and another in a mottled green glaze. They appear to have been formed on a mold and then wipe-wheel finished (Figures 8 - 11). A single (2.70%) comal (flat griddle) with a diameter of 17 inches (43 cm) had been formed from a pressed slab of clay and was glazed on the upper surface (Figure 12).

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7 . Voss (2002:674) noted body colors of "reddish-yellow or yellowish-red in color."

8 . Voss (2002:445) used the term hollowware cooking vessels.

Figure 5: Cooking Ware Cajete Style Bowls (MNV #S 66A & 66F on the left; 62A includes the three sherds on the right).

Figure 6: Cajete Style Bowls with Red Brown Tinted Glaze (MNV #s 65B & C – top; 65A - bottom two sherds, left sherd shows unglazed exterior surface, the opposite side of this sherd is glazed like the rest).

Figure 7: Contemporary (Late Twentieth and Early Twenty-First century) Lead Glazed Mexican Cajete Bowls (collection of S.R. Van Wormer).

Figure 8: Small Cazuelas (Top, MNV #s G6B 3 sherds; bottom, G3F 3 sherds).

Figure 9: Large Cazuelas Body Sherds and Handles (Top, MNV #s: G46B, F, & H; bottom, G49B, E, and - left two sherds- F).

Figure 10: Large Cazuelas. Above, interior and exterior body sherd surfaces (MNV # G38F). Below, mottled green glaze handle and body sherds (MNV #S G49B, E, & F).

Figure 11: Contemporary Late Twentieth and Early Twenty-First Century Mexican Cazuelas. These rang in size from 7 to 17 inches in diameter. All are glazed except the vessel on the top row, second from the left. It is of unglazed Brown Ware (S.R. Van Wormer collection).

Figure 12: Galera Ware Comal. Left, surface (MNV # G70 B, & C); right, sooted underside (MNV # G70 A, & D).

Monochrome Clear Glazed Serving and Tableware

General Description

Like the Serving and Tableware described above, these vessels are covered with a clear glaze on the interior and sometimes on the exterior (Voss 2002:672-673). The beige to brownish-orange body paste takes on a bright orange appearance where it has been glazed. Hand painted under glaze designs in the form of dotted petals, solid, wavy, and solid single and multiple band rim treatments, as well as dots, spirals, and stacked or nested crescents have been applied in shades of dark brown to black. In Texas, ceramic sherds with these decorations have been classified as Fine Paste Lead-Glazed Brown on Yellow Ware (Fox and Ulrich 2008:58-59).

Twenty-eight individual (35.90 %) Monochrome Clear Glazed serving vessels were identified from 167 (34.01%) sherds. Five (17.86%) pocillo cups had rim diameters of 3.5 inches (9 cm). One was decorated with thin dark brown bands below the rim. Decorations on the other four included dark brown/black bands, scrolls, curved lines, stacked crescents, and petals. All appeared to be wheel thrown (Figure 13). Twenty-three (82.40%) platos exhibited wavy line, straight dotted lines, and dotted petal decorated edges, with curved lines, petals, scrolls and nested crescents on the interiors. Rim diameters ranged from 7.5 to 9 inches (19 - 23 cm). Four had been formed on molds and the interior smoothed by wiping. The rest appeared to be wheel thrown (Figures 14 - 16).

Figure 13: Monochrome Clear Glazed Serving and Tableware. Above, pocillo cups (MNV #s top to bottom 54A, B, &C; 57A, D, & G; and 56A). Below, pocillo cups (MNV # 60A & B). In spite of repeated tries, the bottom sherds photographed slightly more red in color than they actually are.

Figure 14: Monochrome Clear Glazed Tableware Plato (MNV # G21A) Above, and Conjectural Facsimile below by S.D. Walter.

Figure 15: Above, Monochrome Clear Glaze Plato Sherds (MNV #s G19A, B, & C), and below, Conjectural Pattern by S.D. Walter.

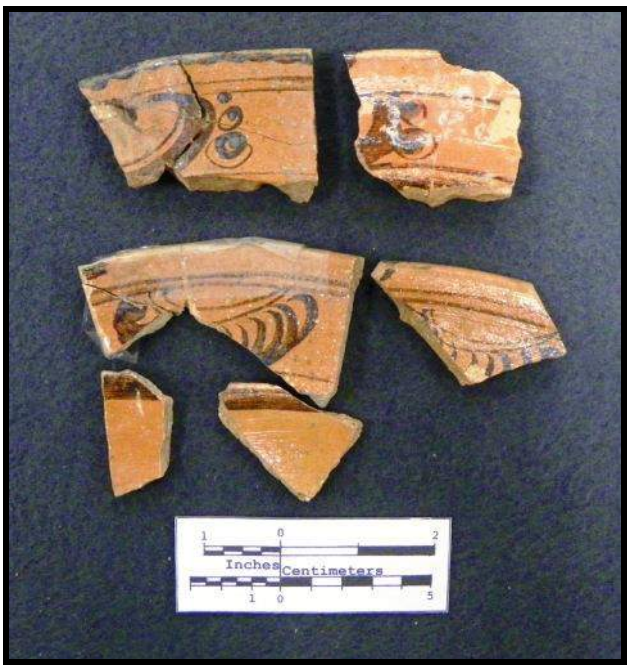

Figure 16: Above, Monochrome Clear Glaze Plato Sherds (MNV #s left to right: top G18C, G16, middle G20D and E, bottom G8A and B), and below, Conjectural Pattern by S.D. Walter.

Polychrome Clear Glazed Serving and Tableware

General Description

Voss (2002:671-676) did not use this descriptive category for Galera Ware vessels at the San Francisco Presidio. None of her categories seemed to fit these vessels, which are covered inside and out with a clear glaze and exhibit the typical brownish orange body paste that takes on a brighter orange appearance where it has been glazed. Hand painted under glaze designs of dark brown/black bands, scrolls curved lines, stacked crescents, and petals, have been combined with white petals and accent lines, white bands, pink bands, and small white dots. One plato has a dark brown/black Tonalá cat nahual motif in the center against a splotchy blue wash background. These decorative styles fall within the description of Gerald's "Galera Polychrome" (Gerald 1968:54).

Analysis of 25 sherds (5.09%) resulted in identification of three (3.85 %) Polychrome Clear Glazed Serving and Tableware Vessels that included two (66.6%) pocillo cups and a (33.3%) plato. The plato appears wheel thrown. The pocillo cups had been manufactured in two parts that are joined together with an overlapping seam at the vessel throat. They are decorated with dark brown/black bands, scrolls, curved lines, stacked crescents, and petals. These have been combined with white petals and accent lines, white bands, pink bands, and small white dots. Rim diameters are 3.5 inches (9 cm) (Figure 17).

The plato has a rim diameter of 7.5 inches (19 cm) and, as mentioned above, exhibits dark brown/black floral and animal motifs in the center against a splotchy blue wash background. A segment of a dark curly mane on the upper left portion of the sherd with the figure, along with a feline foot, indicate that the animal shape is that of a traditional nahual de Tonalá. In the Mexican region of Tonalá Jalisco this mythical creature is known as el "gato con bigotes de señor" (the cat with a man's mustache) (Figures 18 - 20).

Basulto Lemuz and Garcidueñas (2012:92-93) define nahual as:

> Nahual: A nahual is a supernatural being endowed with powers with which they do good or wrong. The term often refers to a sorcerer or shaman. Abilities vary, and include transmutation, or shape shifting (the ability to transform into animals), divination and telepathy. In traditional Tonalteca life, the nahual is the great being in charge of the illogical, a maker of mischief in homes where they hide and steal objects. They can even scare people to death by adopting monstrous forms. Similar to their role in myth and storytelling, the nahual is a rich and useful element in the artisan world of Tonalá. Paintings, sculptures, mosaics, vessels, other clay crafts, as well as crafts in other materials are made on a daily basis that incorporate these figures. In Tonalá the nahual is commonly represented with the form of a cat or feline with a round human face, a large curly mane under the chin, and large human like whiskers.[9]

9 Nahual: Un nahual es un ser sobrenatural dotado de poderes con los que hace el bien o el mal, razón por la que el término permite la connotación de brujo o chamán. Sus capacidades son muy variadas e incluyen la transmutación, la teriantropía (capacidad de transformarse en animales), la adivinación y la telepatía. En la vida tradicional tonalteca, el nahual es el gran responsable de lo ilógico, hace travesuras en las casas, esconde y roba objetos e incluso es capaz de espantar hasta causar la muerte, adoptando formas monstruosas. Así como en la generación de leyendas, el nahual es un elemento rico y socorrido en el mundo artesanal de la región: pinturas, esculturas, mosaicos, vasijas y demás artesanías de barro y otros materiales con este motivo son elaborados diariamente. Es muy común que se le represente con la forma de un gato o felino de redondo rostro humano con grandes bigotes (Basulto Lemuz and Garcidueñas 2012:92-93).

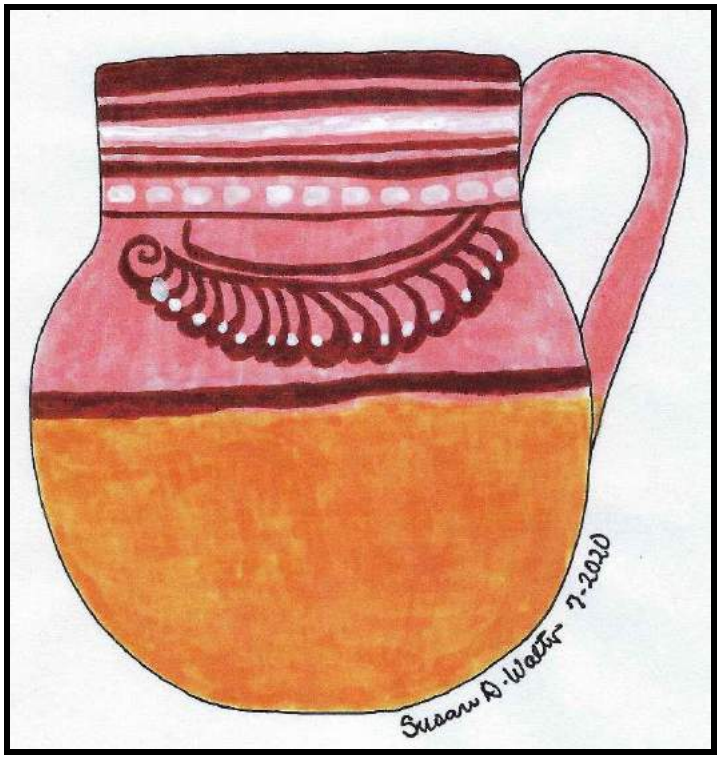

Figure 17: Polychrome Clear Glazed Serving and Tableware. Above, pocillo cups (MNV #s bottom to top: G52 A, C & B, left; G55A, B, & F, right), and below, conjectural pattern reconstruction by S.D. Walter based on sherds.

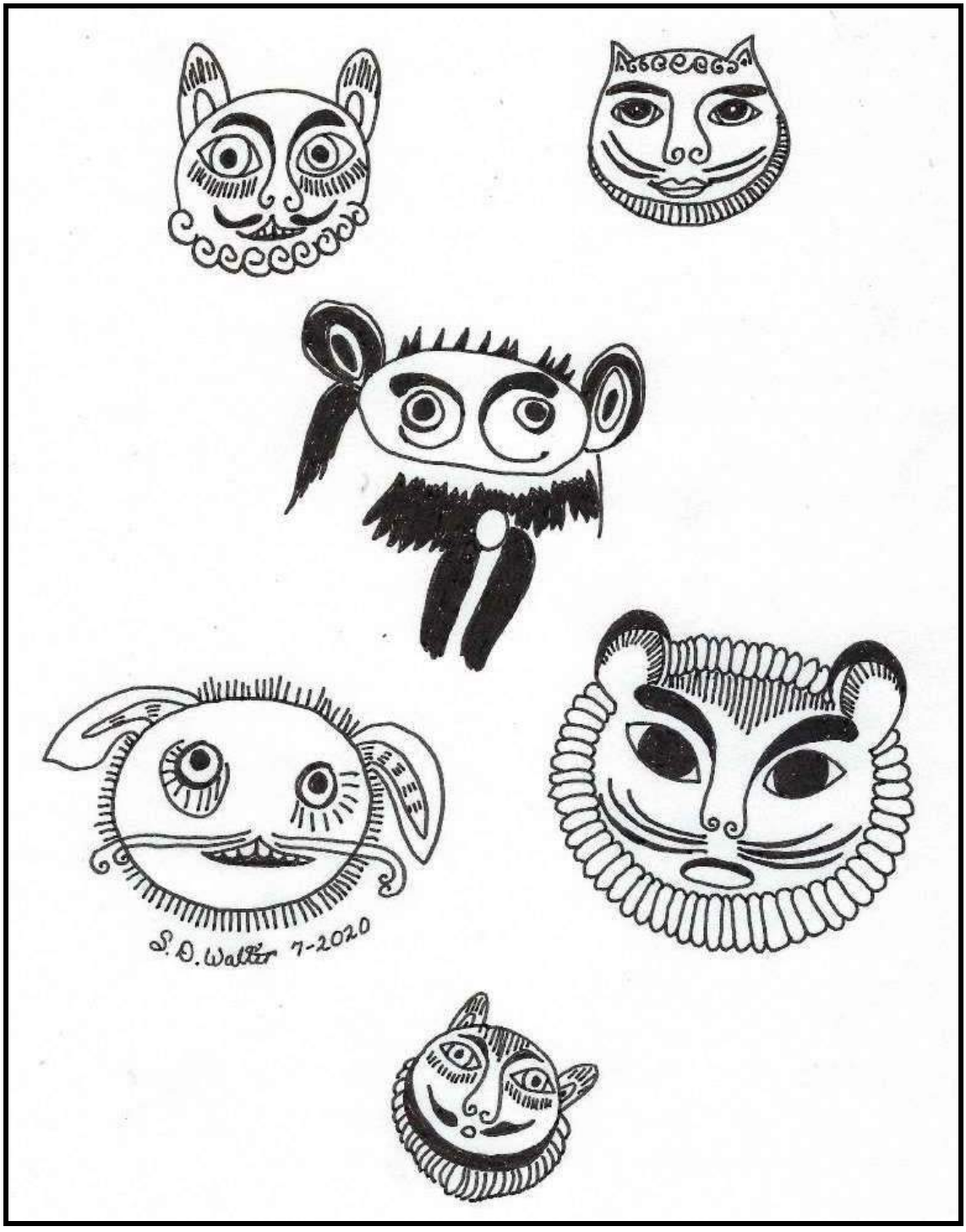

Figure 18: Faces of Cat Nahuals de Tonalá by S.D. Walter (After Lopez Cervantes 1990:52, and internet images).

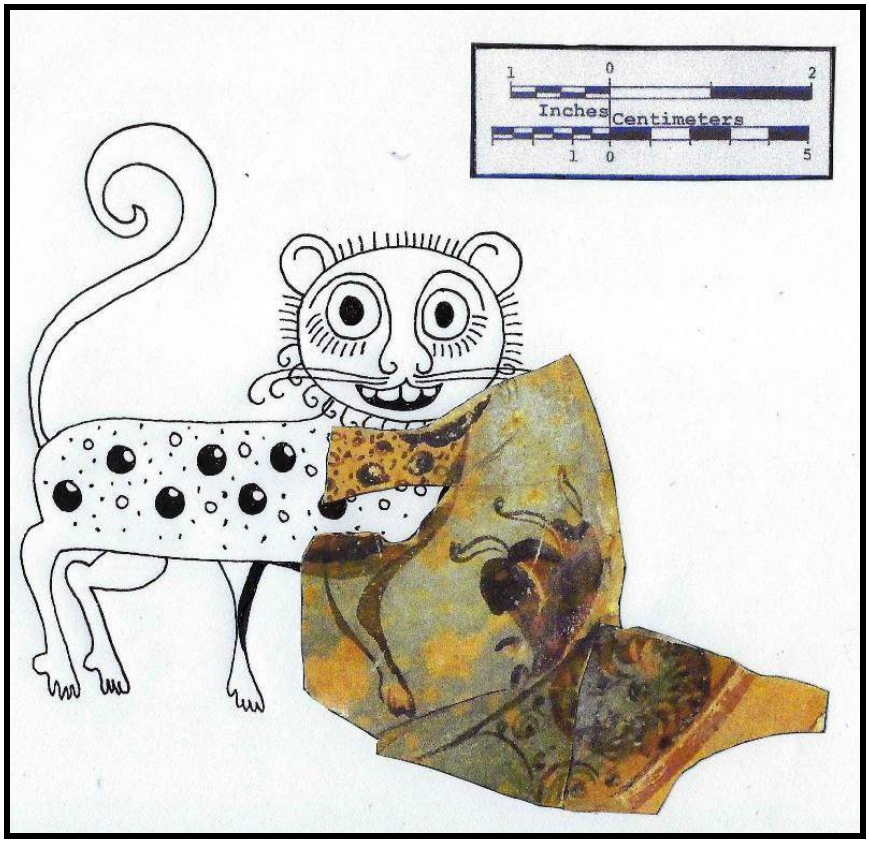

Figure 19: Above, Plato Sherds with Animal Motif Against Blue Background (MNV # G15A). Below are the Three Sherds Correctly Positioned with the Extrapolated Cat Nahual Sketch by S.D. Walter.

Figure 20: Conjectural Pattern of Polychrome Clear Glazed Tableware Plato with Cat Nahual by S.D. Walter (Based on internet images and images in Figure 18, and sherds in Figure 19).

Polychrome White and Green Slipped Ware

General Description

This category was described by Voss (2002:671) as Polychrome White and Green Slipware Soup Plates.[10] It is part of Gerald's Galera Polychrome (Gerald 1968:54). In Texas, ceramic sherds with these decorations have been classified as Fine Paste Lead-glazed Galera Ware (Fox and Ulrich 2008:50-51). Vessels have a clear glaze covering "the interior and rim margin on the vessel exterior…." Under glaze decorations consist of "lines and dots of white-cream colored" [11] slip accented by the addition of "small amounts of green colorant to the slip." Decorative elements include bands at the rim and inflection points of the vessel; these bands define decorative zones that are filled with clusters of dots and wavy lines" (Voss 2002:671).

Three (3.85 %) wheel thrown Polychrome White and Green Slipped Ware platos were identified from 14 (2.5 %) sherds. Rim diameters measured 11.5 inches (28 cm). Decorations included a narrow band along the outer rim edge, dots and undulating lines along the exterior flat plato rim, and a large fleur de lis medallion with small white dots in the center of one plate. All are executed in white-cream motifs with green accents (Figures 21 - 22).

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[10] Since vessel shapes other than soup plates (platos) have been recorded with this decorative green and white slip design, including chocolate pots, bean pots (cazuelas), serving plates, and platters and cups (tazas) (Fox and Ulrich 2008:50), the more inclusive description of Polychrome White and Green Slipped Ware has been used for this report.

[11] Voss (2002:671) describes this color as a "pale yellow slip."

Figure 21: Polychrome White and Green Slipped Ware Plato Rims (MNV #s G10C and G11A).

Figure 22: Above, Polychrome White and Green Slipped Ware Fleur De Lis Pattern Plato Sherds (MNV # G9). Below, Conjectural Pattern Reconstruction by S.D. Walter. (Based on above sherds and others illustrated in Voss 2002 Plate 14).

Black Glazed Ware

General Description

This distinct variety of Galera Ware ceramics occurs in California and the Southwest (Barnes 1989:99; Voss 2002:681). In Texas, ceramic sherds with this finish have been classified as Black Luster Glaze (Fox and Ulrich 2008:62-63). It also occurs in Florida and the Caribbean where it is known as Black Lead-glazed Coarse Earthenware (Deagan 1987:52). Sherds have an "intensely black and shiny" glaze that is "often stamp-decorated or embellished with molded high relief" (Fox and Ulrich 2008:62). Paste color ranges from a grey buff to pink, light pink and orange in color (Barnes 1980:99; Deagan 1987:52; Voss 2002:681; Fox and Ulrich 2008:62-63).

A minimum number of four (5.13 %) individual black glazed vessels were identified from 12 (2.44 %) sherds. Form, function and size of three vessels could not be determined. One had a mold manufactured body, one was wheel thrown and the method of manufacture of the third was not determined. The 2 inch (5 cm) diameter wheel thrown rim of the fourth vessel appeared to be a pocillo style cup (Figure 23).

Figure 23: Black Glazed Ware. Above, unidentified vessel (MNV #s left to right G94B, A, C & D). Below, pocillo-cup - left (MNV # G97A), unidentified wheel thrown vessel - right (MNV # G96B).

Lack of Local Production

Local Alta California Galera Ware production has been documented at Mexican Colonial period sites. Barbra Voss (2002:676) noted specimens with "body characteristics that precisely match the body of the locally-produced construction tiles … as well as the body of unglazed household ceramics that are presumed to be locally produced. . .. these colors are significantly redder than the paste colors for Mexican produced lead-glazed earthenwares." Instrumental neutron activation studies have provided direct evidence for production of lead-glazed Galera Wares the length of colonial Alta California, including the San Diego Presidio District (Skowronek et al. 2014:272). In spite of careful visual examination of lead-glazed sherds from the Chapel Complex none exhibited body colors "significantly redder" than those of other Galera Ware sherds. Consequently, no locally made lead-glazed ware vessels were identified.

Galera Ware Assemblage Characteristics

Galera Ware included both serving and cooking vessels. A minimum number of 78 individual items representing seven different forms were identified while three of the 78 vessels were assigned to the unidentified vessel category. Relative frequencies are shown on Table 1 and in Figure 24. Serving and Tableware in the form of 27 platos dominated the assemblage at 35 percent. Additional Serving and Tableware included 10 pocillo cups that made up 13 percent of the assemblage, and a serving olla, at 1 percent of the collection. When these are added to the platos, Serving and Tableware constitutes 49 percent of the Galera Ware vessel forms.

Thirty-seven cooking vessels constituted 47 percent of the assemblage. These included 19 large cazuelas at 24 percent, and nine cajete style bowls at 12 percent. Eight small cazuelas constituted 10 percent of the assemblage. The other vessel forms included a comal, and three unidentified objects, which made up 4 percent or less each of the Galera Ware vessels identified. Relative percentages by weight and sherd count generally follow the order of the MNV frequencies with some exceptions. Cajete bowls by sherd

count make up much less of the assemblage than these same vessel forms do by MNV or weight.

In order to get a better picture of the relative frequencies of vessels that make up the Galera Ware cooking vessel assemblage, platos and pocillo cup totals were taken out and the frequencies recalculated. Results are shown in Table 2 and Figure 25. Now by MNV large cazuelas are the most numerous form at 51 percent, followed by cajete style bowls at 24 percent, and small cazuelas at 22 percent. The comal constituted 3 percent of the assemblage.

Vessel quantities by descriptive category are shown on Table 3 and in Figure 26. Thirty-seven interior glazed forms were the most numerous at 47 percent and included large cazuelas (51%), hollowware cajete bowls (24%), small cazuelas (22 %), and the comal (3 %). Twenty-eight monochrome clear glaze decorated forms were the next numerous at 36 per cent. They consisted exclusively of Serving and Tableware and included 23 platos (82%) and five pocillo cups (18%). Four black glazed vessels made up 5 percent of the assemblage and included a pocillo cup (25 %) and three unidentified vessels (75 %). Three clear glazed orange bodied vessels constituted 4 percent of the assemblage and were represented by a two pocillo cups (66.66%) and the serving olla (33.33%). Three polychrome clear glazed and three polychrome white and green slip vessels also made up 4 percent each of the collection. Clear glazed forms included a plato (33%) and two pocillo cups (66%). Polychrome white and green slip examples consisted of three platos (100%).

Table 4 and Figure 27 provide relative frequencies of descriptive categories by vessel type. This analysis once again shows that Serving and Tableware (platos, serving olla, and pocillo cups) are predominately clear glazed orange bodied and monochrome clear glazed decorated forms, while cooking vessels (cajete bowls, cazuelas, and the comal) are interior glazed.

Table 1: Galera Ware Vessel Quantities Table

VESSEL	MNV	MNV PERCENT	WEIGHT	WEIGHT PERCENT	SHERDS	SHERDS PERCENT
Pocillo Cup	10	12.82	167	3.93	58	12.45
Plato	27	34.62	1049	24.71	163	34.98
Cajete Style Bowls	9	11.54	344	8.10	47	10.09
Large Cazuela	19	24.35	2206	51.97	135	28.97
Serving Olla	1	1.28	52	1.22	17	3.65
Small Cazuela	8	10.26	374	8.81	31	6.65
Comal	1	1.28	44	1.04	4	0.86
Unidentified	3	3.85	9	0.21	11	2.36
TOTALS	78	100.00	4245	100.00	466	100.00

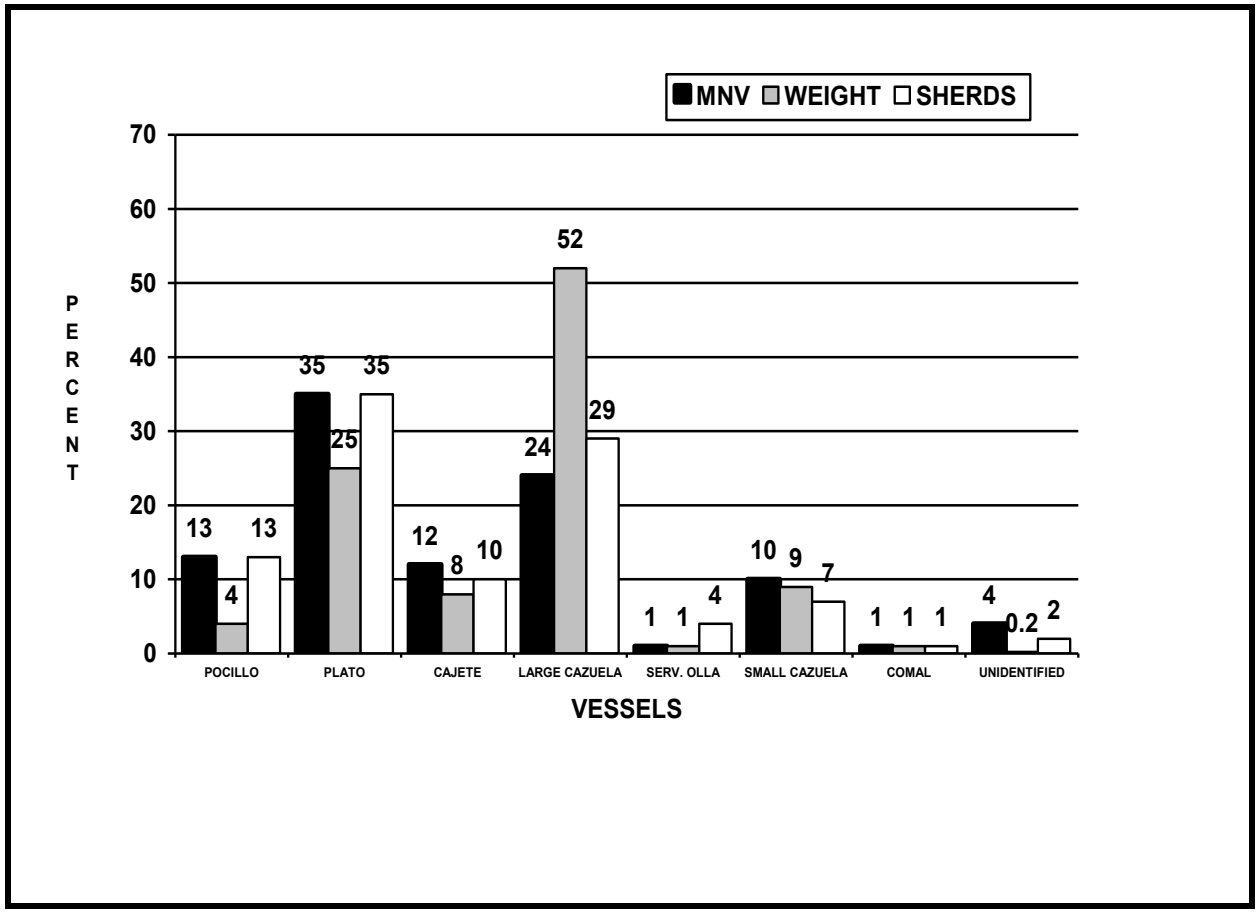

Figure 24: Galera Ware Vessel Relative Frequencies.

Table 2: Galera Ware Vessel Quantities Without Serving and Tableware and Unidentified

VESSEL	MNV	MNV PERCENT	WEIGHT	WEIGHT PERCENT	SHERDS	SHERDS PERCENT
Cajete Style Bowls	9	24.32	344	11.59	47	21.66
Large Cazuela	19	51.35	2206	74.33	135	62.21
Small Cazuela	8	21.62	374	12.60	31	14.29
Comal	1	2.70	44	1.48	4	1.84
TOTALS	37	100.00	2968	100.00	217	100.00

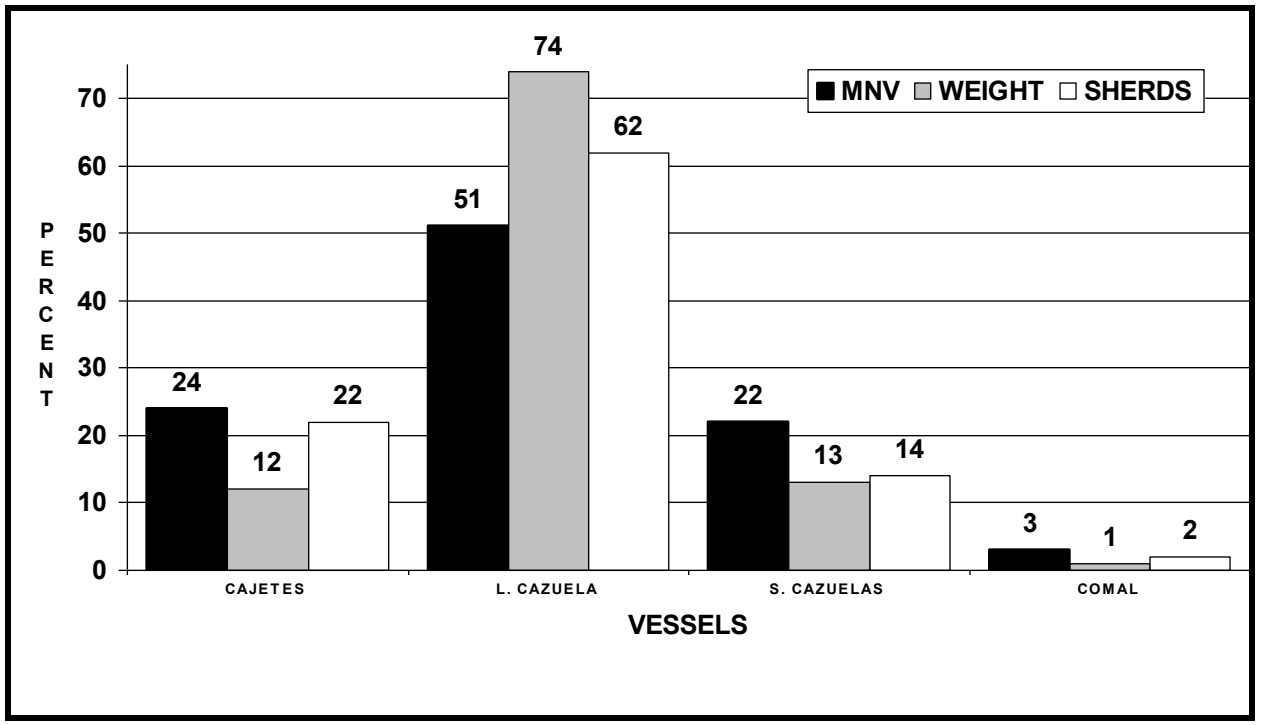

Figure 25: Galera Ware Vessel Quantities Without Serving and Tableware and Unidentified.

Table 3: Galera Ware Vessel Quantities by Descriptive Categories

DESCRIPTIVE CATEGORY	VESSEL	VESSEL MNV	VESSEL PERCENT	DESCRIPTIVE CATEGORY QUANTITY	DESCRIPTIVE CATEGORY PERCENT
Monochrome Clear Glazed				28	35.90
	Pocillo Cups	5	17.86		
	Platos	23	82.4		
Polychrome Clear Glazed				3	3.85
	Pocillo Cups	2	66.60		
	Plato	1	33.30		
Clear Glazed Orange Bodied				3	3.85
	Pocillo Cups	2	66.66		
	Olla	1	33.33		
Interior Glazed Cooking Vessel				37	47.44
	Cajete Style Bowls	9	24.32		
	Small Cazuela	8	21.62		
	Large Cazuela	19	51.35		
	Comal	1	2.70		
White and Green Slip					
	Plato	3	100.00	3	3.85
Black Glazed Ware				4	5.13
	Unidentified Vessels	3	75		
	Pocillo Cup	1	25		
Totals		**78**		**78**	**100.00**

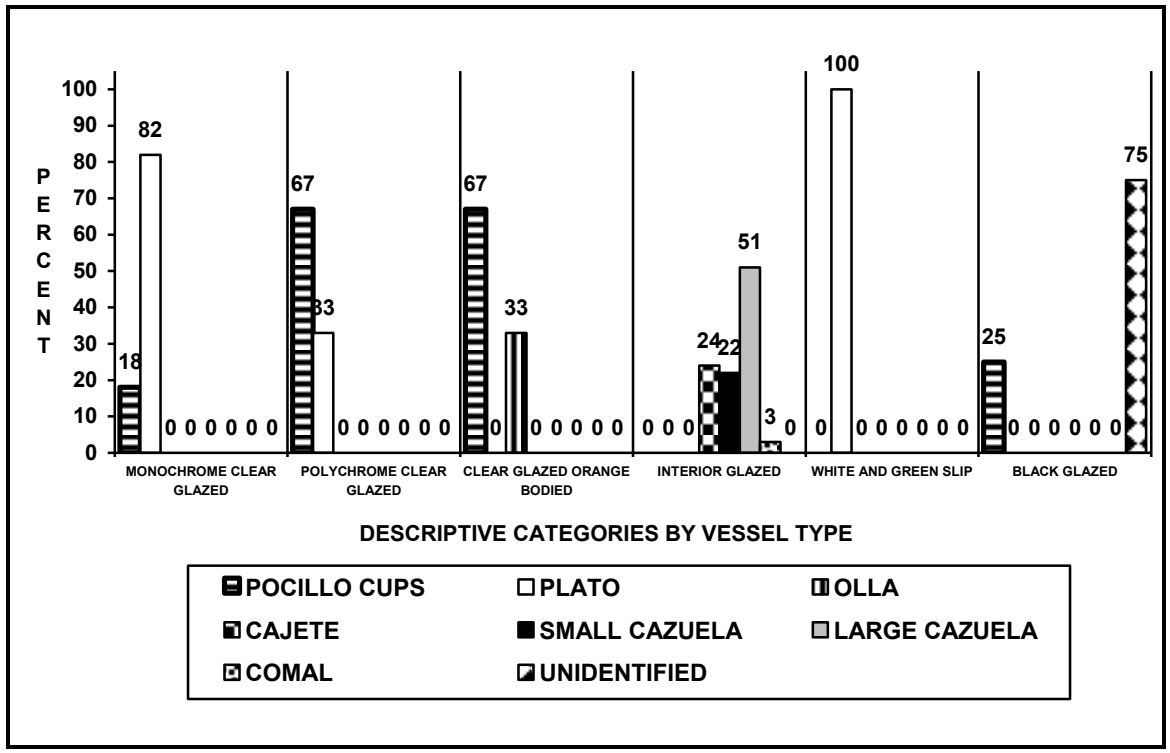

Figure 26: Galera Ware Vessel Quantities by Descriptive Categories

Table 4: Descriptive Categories by Vessel Type

VESSEL	DESCRIPTIVE CATEGORY	DESCRIPTIVE CATEGORY QUANTITY	DESCRIPTIVE CATEGORY PERCENT	MNV QUANTITY	MNV PERCENT
Pocillo Cup				10	12.82
	Monochrome Clear Glazed	5	50.00		
	Clear Glazed Orange Bodied	2	20.00		
	Polychrome Clear Glazed	2	20.00		
	Black Glazed Ware	1	10.00		
Platos				27	34.62
	Monochrome Clear Glazed	23	85.18		
	White Green Slipped	3	11.11		
	Polychrome Clear Glazed	1	3.71		
Cajete Style Bowls				9	11.54
	Interior Glazed Cooking Vessel	9	100.00		
Large Cazuela				19	24.35
	Interior Glazed Cooking Vessel	19	100.00		
Serving Olla				1	1.28
	Clear Glazed Orange Bodied	1	100.00		
Small Cazuela				8	10.26
	Interior Glazed Cooking Vessel	8	100.00		
Comal				1	1.28
	Interior Glazed Cooking Vessel	1	100.00		
Unidentified				3	3.85
	Black Glazed Ware	3	100.00		
TOTALS				78	100.00

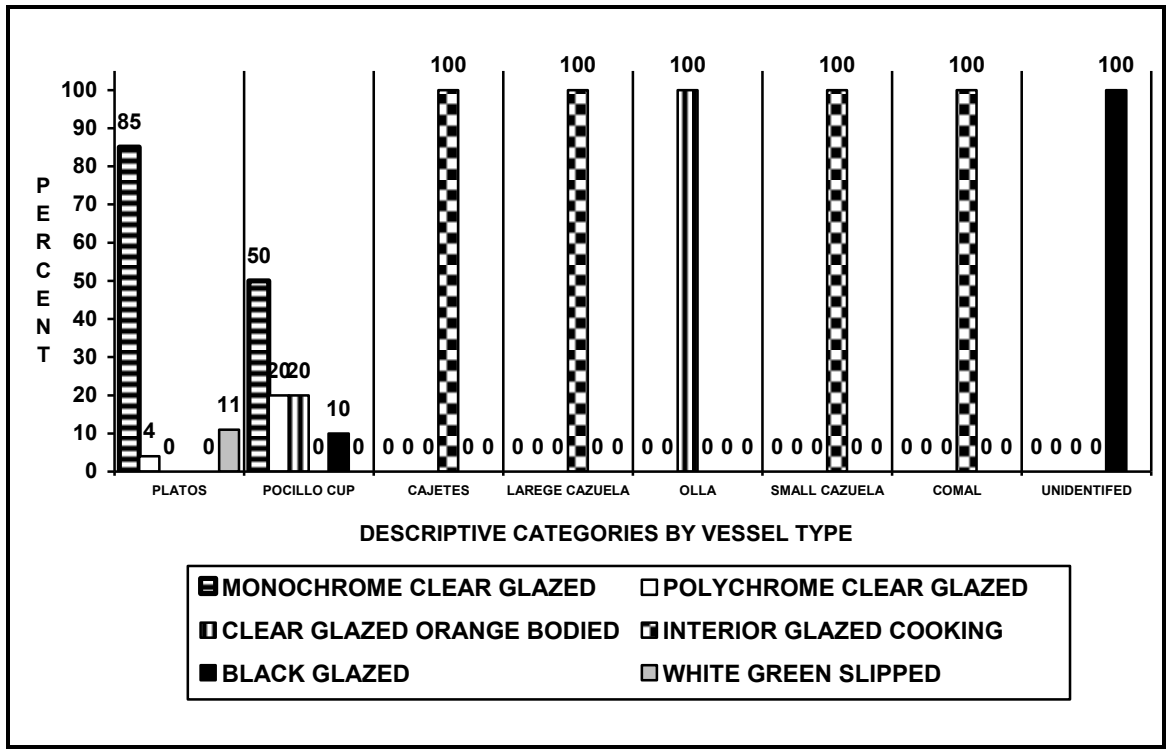

Figure 27: Galera Ware Descriptive Categories by Vessel Type.

Galera Ware Cross-Site Comparisons

In Table 5 and Figure 28 MNV quantities of Galera Ware Vessels from the San Diego Presidio Chapel Complex and the Building 13 Midden of the San Francisco Presidio (Voss 2002:731) are compared. Both are comparable in the numbers of cooking vessels. The combination of cajete bowls (hollowware cooking vessels), large and small cazuelas, and large ollas constitutes 48 percent of the San Diego and 43 percent of the San Francisco assemblages. The remaining serving and tableware vessels are dominated by platos[12] at 35 percent in the San Diego collection, and bowls, at 34 percent, for San Francisco. Functionally both assemblages are very similar.

In summary, then, the San Diego Chapel complex and San Francisco Building 13 Midden Galera Ware assemblages are functionally very alike. In each, cooking vessels make up over 40 percent of the collections, while the remaining serving and tableware vessels are dominated by platos or bowls, both of which serve very comparable functions. Both sites produced assemblages of lead-glazed Mexican Folk Pottery strongly associated with Mexican Folk Cultural foodways.

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12 . Voss (2002) used the tern soup plate rather than plato.

Table 5: Comparison of MNV Galera Ware Quantities from the San Diego Presidio Chapel complex and Building 13 Midden of the San Francisco Presidio

	SAN DIEGO CHAPEL		SAN FRANCISCO BUILDING 13 MIDDEN	
VESSEL	MNV	MNV PERCENT	MNV	MNV PERCENT
Jarro*****	0	0	8	5.97
Platos	27	34.62	4	2.99
Hollowware	0	0.00	1	0.75
Bowls	0	0.00	45	33.58
Pocillo Cup	10	12.82	2	1.49
Small Bowls	0	0.00	6	4.48
Cajete Style Bowls+	9	11.54	47	35.07
Large Cazuela**	19	24.35	5	3.73
Olla*	1	1.28	5	3.73
Small Cazuela	8	10.26	0	0.00
Unidentified	3	3.85	6	4.48
Comal	1	1.28	4	2.99
Cántaro****	0	0.00	1	0.75
TOTALS	78	100.00	134	100.00

Voss 2002:731, Table B-6: terminology

* = bowl shaped cooking pot with flared collar
** = bean pot
*** = polychrome brown and white jarro
**** = jar
***** = combined jarro and chocotero/jarro
\+ = hollowware cooking vessels

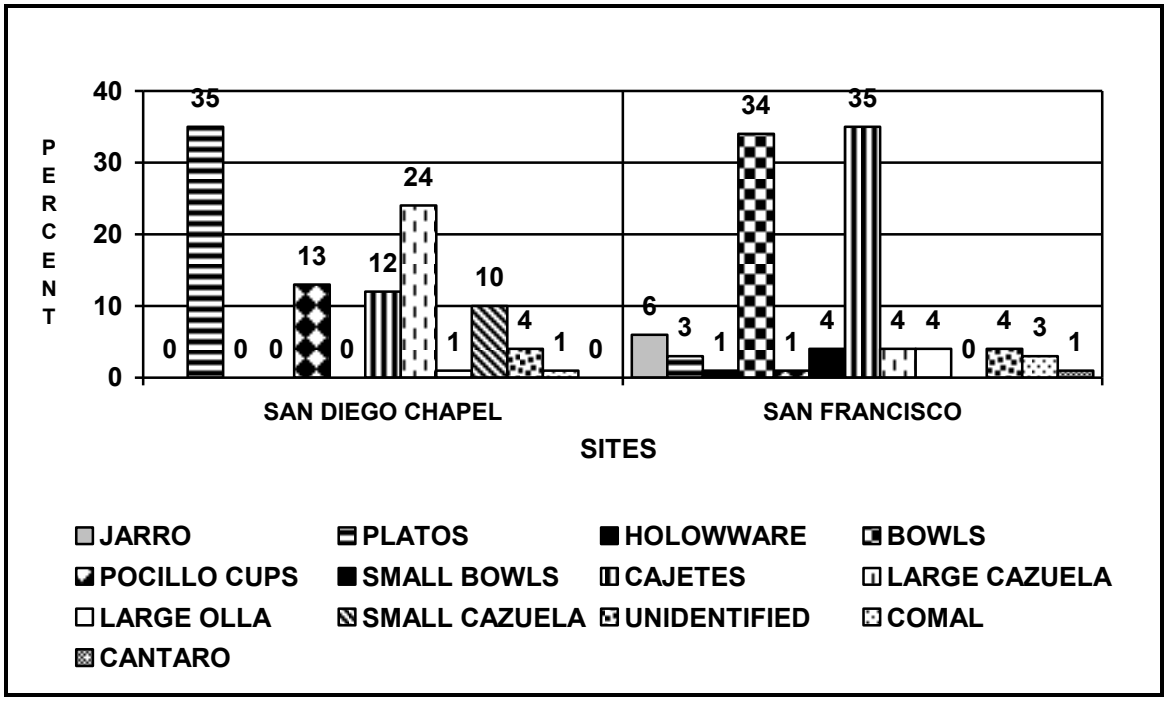

Figure 28: Comparison of MNV Galera Ware Frequencies from the San Diego Presidio Chapel Complex and Building 13 Midden of the San Francisco Presidio.

MAYOLICA

By Stephen R. Van Wormer and Susan D. Walter

Definition

Mayolica is an earthenware with a vitreous, opaque enamel surface made with tin and lead oxide (Fournier 1999). As with Galera Wares, since lead leaches through surfaces or substances at very low temperatures, hot meals prepared and served in these containers had levels of toxicity. Some modern Mayolicas are made with lead free glazes.

Mexican Mayolicas are part of a distinctively Hispanic category of glazed, wheel thrown ceramics, known by a variety of terms including majolica, Mayolica, maiolica, Talavera, and tin-enameled or tin-glazed earthenware.[13] In Mexico they are called Talavera*, Talavera Poblana, Talavera de Puebla, mayólica, loza estannífera,* and *loza blanca*. [14] They are distinguished by a soft earthenware paste covered by an opaque vitreous enamel or glaze. The addition of tin oxide to the lead glaze produces an opacity, which is also found on French Faience and English and Dutch delftware. The glaze is usually white, but yellow, blue, and other colors also occur. On decorated pieces, metal oxides painted onto the glazed surface between the first and second firing create a variety of distinct colorful designs[15] (Barber 1908:34; Peñafiel 1910:23; Goggin 1968:3; Lister and Lister 1974:17; Deagan 1987:53; Voss 2002:664; Fournier and Blackman 2007, 2008; Sanchez 2012:109; Yanes Rizo 2013, 2016). Although commonly identified as a wheel thrown

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[13] This study will use the term Mayolica.

[14] Loza blanca was the original trade name for Mexican tin-glazed ceramics (Cervantes 1939 Vol. I). By the middle of the eighteenth century the term "Talavera" had become common (Velázquez Thierry 2015:135-141). In spite of this, Loza Blanca or Loza de Puebla was still used on trade manifests throughout the eighteenth and early nineteenth centuries (Perissinotto 1998; Voss 2012).

[15] For a detailed description of the manufacturing process see Barber 1908, Cervantes 1939 I:1-16, Connors-McQuade 1999, 2005, and Yanes Rizo 2013:275-332.

ceramic, molds and the molding board (*terraja*) have always been used in some Mayolica production, usually on larger pieces and those with greater diameters or ornate edges (Barnes 1980:93; Connors McQuade 1999:20, 2005:75-78, 160-161; Yanes Rizo 2013:280-282; Valencia Cruz 2013:115; Castañeda Gómez del Campo 2018:27).

History

The Mayolica industry has thrived in Mexico for over four and a half centuries. Established by immigrants from Spain and the Italian peninsula in the mid 1500s, the tin-glazed earthenware industry in colonial Mexico included the production of architectural tiles, water pipes, and earthenware ceramics. The trade experienced major expansion from the middle of the seventeenth to the end of the eighteenth centuries. Manufacturing continued on a lesser scale during the nineteenth and early twentieth centuries. During the mid to late twentieth century a renewed peak in the industry occurred as the city of Puebla became renowned for the production of Talavera Poblana ceramics (Cervantes 1939 1:1-69; Yanes Rizo 2013:11-12, 2016). Other Mexican production centers such as Guanajuato, Oaxaca, Michoacán, and Aguascalientes have also continued to produce and export their own regional styles of Mayolica (Hoffman 1922; Fournier 2003; Giffords and Olivera 2003).

Mexican Mayolica evolved from a long ceramic manufacturing tradition. In the ninth century Arab potters in the Middle East discovered a technique for adding tin oxide to lead glaze to produce a white opaque finish. Following the Arab invasion of the Iberian Peninsula in 711, Islamic culture dominated Spain for the next 800 years. By the tenth century a tin-glazed ceramic industry had been established. It also spread through the rest of Europe, especially the Italian Peninsula, where Tuscany and Veneto became major producers (Fournier and Blackman 2007, 2008).

In Spain the trade thrived and survived the upheavals of the Spanish Reconquista including the expulsion of Jews in 1492, and Muslims in 1502. By the sixteenth century main centers of Iberian production included Toledo, the Triana district of Seville,

Talavera de La Reina, Manises, and Puente de Arzobispo (Fournier and Blackman 2007, 2008; Yanes Rizo 2018:46). With the founding of New World colonies in the early 1500s exports of Spanish Mayolica to the Americas began. After Cortez conquered the Aztecs in 1521, tin-glazed ceramics arrived in Mexico and establishment of local production soon followed (Lister and Lister 1974:17-37; Gámez Martínez 2003:5-8). Immigrants from major Spanish manufacturing centers established the original potteries (Gomez et al. 2001; Yanes Rizo 2013, 2016). Although the 1530s and 40s have been proposed for the first workshops (Lister and Lister 1978:22; Gámez Martínez 2003:227, 231-232; Sanchez 2012:109), the earliest documented production of tin-glazed wares for Mexico City is 1551 (Fournier et al. 2009). Potters produced Mayolica "in great quantities and in all its various types in Mexico City throughout the colonial period" (Gámez Martínez 2003:227). From its inception both ceramic vessels and decorative architectural tiles were major components of the industry (Peñafiel 1910; Hoffman 1922; Cervantes 1939 Vol. II; Connors McQuade 1999, 2003; Yanes Rizo 2013, 2016).

In 1530 the Mexican Colonial city of Puebla (Puebla de Los Angeles) was founded and soon became a major manufacturing and trade center. Manufacturing of tin-glazed earthenware has flourished in Puebla for over four and a half centuries. Its products were exported throughout Colonial Mexico, Florida, and the Caribbean (Barber 1908:14; 1911:4-5; Lister and Lister 1974:25-26, 37, 1984:87). Spanish control of Louisiana resulted in pieces traveling up the Mississippi and Ohio Rivers to settlements in the regions of modern day Arkansas and Illinois (Walthall 1991).

A community of ceramicists settled in Puebla during the last half of the sixteenth and first half of the seventeenth centuries. Pioneer potters included Spaniards from Toledo and Italians from Genoa who had migrated to Spain, established themselves in Seville, and later journeyed to Mexico in the late 1540s.[16] They were members of successful potter families of Spain and Genoa who hoped to expand their business to the new world

16. An example is Genoese Juan Pizón, registered in the city from 1646 to 1658 (Yanes Rizo 2018:46).

colonies (Connors McQuade 2005:56-59; Yanes Rizo 2013:66, 142-268, 425, 2016, 2018:46).

Ceramic manufacturing became well established in Puebla. By the late sixteenth century workshops that produced unglazed and lead-glazed (Galera) wares had become a major industry in the metropolis. In 1573 the city appointed aldermen and inspectors to oversee the profession (Connors McQuade 2005:66, 78). The 1570s through the 1580s have been proposed as the period of initial Mayolica manufacturing in Puebla, and the trade had become firmly established in the city by the early seventeenth century (Fournier 1999:158; Connors McQuade 2005:75; Fournier et al. 2009). A well-defined potter's quarter existed in the city by the 1580s (Lister and Lister 1984:87, 88). By 1590, 60 master potters had been registered (Yanes Rizo 2018:52). Establishment of a guild in 1653 signified that by that time the industry had reached a mature state (Barber 1908:18-31, 1911:5-6; Peñafiel 1910:35-38; Cervantes 1939 I: 20-21; Lister and Lister 1974:29; Connors McQuade 2005:80).[17] It continued to flourish. In 1793, 46 shops in Puebla manufactured Mayolica (Lister and Lister 1974:25-6, 1984:87, 89, 93; Fournier 1999:158).

The work force consisted of laborers of multiple ethnicities.[18] Shopmasters were almost always Spanish, Genoese, or Creole. Mestizo foremen oversaw Indian laborers and Asian ("Chinese" or "Chinos") and African slaves upon whom the heaviest work fell (Connors McQuade 2005:55-65; Yanes Rizo 2013:131-140, 2018:51-52). In spite of guild prohibitions, the fluidity of the Spanish Caste System allowed for exceptions to written ordinances and Native American, mulatto, and mestizo potters are documented, some of whom, in fact, were journeymen and master potters (Connors McQuade

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[17] The petition submitted to the Viceroy to form the Guild was dated August 5, 1652. Ten potters were named in the document (Cervantes 1939 I:20-21). The guild ordinances controlled "every aspect of the trade, including methods and materials; pottery types and decoration employed; sale and distribution; categories of workers and the examinations that determined proficiency; and the rights of widows and heirs" (Connors McQuade 2005:82).

[18] For a detailed description on the work structure in the pottery shops of Puebla see Connors McQuade 2005 and Yanes Rizo 2013 and 2018.

2005:55-65, 82, 86).[19] "There were slaves with official status, and indigenous people, mulattos, and Chinese slaves responsible for ornamentation, as well as Creole teachers with Spanish apprentices"[20] (Yanes Rizo 2018:51-52).

The first Mayolicas manufactured in both Mexico City and Puebla were copies of patterns popular in Spain (Fournier and Blackman 2007, 2008). By 1700 two regional Mexican styles had evolved and dominated the market: A Blue on White tradition, heavily influenced by Chinese Porcelain, and a polychrome, *Aranama* tradition influenced by Italian designs that used orange, yellow, green, and brown motifs (Goggin 1968:208-209; Lister and Lister 1974:29; Connors McQuade 2005:46; Castillo Cárdenas 2013:41-42; Yanes Rizo 2013: 268, 367, 409, 442, 2018:54-55; Reynoso Ramos and Allende Carrera 2016).

In addition to Puebla and Mexico City Mayolica production on a smaller scale also occurred in Oaxaca and Aguascalientes during the sixteenth through the eighteenth centuries. During the late eighteenth and early nineteenth century industries evolved in Guanajuato, Guadalajara, Atlixco, Pátzcuro and other places (Gámez Martínez 2003; Fournier and Blackman 2007, 2008; Fournier et al. 2009; Valencia Cruz 2013; Castañeda Gómez del Campo 2018).

Due to its favorable location that provided easy access to raw materials and transportation routes to distant markets Puebla became the major manufacturing center of Mayolica for export, with shipments traveling throughout the Caribbean and the northern frontiers of New Spain (Connors McQuade 2005:48-50). By the mid eighteenth century ceramics from Puebla were even shipped to nearby Mexico City (Velázquez Thierry 2015). The eighteenth century saw the climax of Mexican Mayolica production and distribution. In 1750 thirty workshops in Puebla produced tin enameled pottery (Barber 1908:32).

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[19] For a discussion on the fluidity of the Spanish Caste System see Katzew 2004:44-50.

[20] "Hubo esclavos con categoría de oficiales; e indígenas, mulatos y esclavos chinos responsables de la ornamentación, así como maestros criollos con aprendices españoles" (Yanes Rizo 2018:51-52).

Although its importance decreased in parts of the Caribbean, the ceramic was shipped to the northern Colonial Mexican frontier into present-day Sonora and southern Arizona, Baja and Alta California, Chihuahua, New Mexico, and central Texas (Lister and Lister 1974:30-38), even reaching as far north as French settlements on the Mississippi and Ohio Rivers (Walthall 1991). While a small part of these exports may have been produced in Mexico City (Lister and Lister 1974:37), neutron activation analysis studies have confirmed that Puebla produced by far the majority of the Mayolica sherds recovered from archaeological sites in these regions, including California (Fournier and Blackman 2007, 2008; Skowronek et al. 2014:256; Skowronik (sic) et al. 2015).

The second quarter of the nineteenth century saw a dramatic fall in Mayolica production. Disruptive economic conditions in Mexico during the late eighteenth and most of the nineteenth century led to a decline at Puebla in the number of successful potters. In 1814 a new constitution for the Spanish Empire eradicated pottery guilds and revoked the ordinances of the ceramic industry. The War for Mexican Independence from 1810 to 1821 also contributed to disturbances of commerce and trade (Connors McQuade 1999:52, 2005:51, 165; Fournier et al. 2009; Reynoso Ramos and Allende Carrera 2016). From 16 in 1806, the number of workshops at Puebla had fallen to 10 by 1852 [21] (Barber 1908:34; Lister and Lister 1974:38; Fournier 1999:159). In spite of the decline of ceramic manufacturing in Puebla, other industries continued operating elsewhere in Mexico (Lister and Lister 1974:38).

In this uncontrolled environment "Mexican ceramicists were free to create new styles of their own, but lack of regulation led to a decrease in technical quality of the pottery produced." Popularity of Chinese and Aranama patterns had declined resulting in the introduction of a variety of styles characterized by new colors and designs based on a mixture of Neoclassical and popular Mexican traditions (Connors McQuade 1999; 2005:163-166). Mayolica industries in the communities of Guanajuato, Dolores, Sayala, Venado, and Aguascalientes were integrated at the regional level, initiating a tradition

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[21]. From Lister and Lister 1974:38. Fournier (1999:159) says there were 16 Mayolica factories in Puebla in 1802. Barber (1908:34) states that "from about 1800 to 1860 the number had decreased to about twelve."

designated by Mexican scholars as the *Estilo mexicano* (Valencia Cruz 2013) and in the U.S. as Later Fine Line Mexican Polychrome Traditions (Cohen-Williams 1992; Cohen-Williams and Williams 2004:61). It was characterized "by simpler and more functional designs in a wide range of colors, including blue, orange, cherry, coffee, black, yellow and green on white and yellowish tin oxide backgrounds"[22] (Corcuera 1987 in Valencia Cruz 2013). During the same period manufacturers in Puebla adopted new colors and motifs that gave rise to distinct Late Poblano types such as the yellow backgrounded Esquitlan Black On Yellow and Mexico City Polychrome, or the powder blue background of *Azul Ponche* (Tumacacori Polychrome) (Cohen-Williams and Williams 2004; Reynoso Ramos and Allende Carrera 2016).

Competition from European, and specifically English, mold-made industrial ceramics also contributed to the decline of locally made servingware in Mexico (Gavin 2003:95).[23] During this economically and politically disruptive era of the early Mexican Republic (1810-1848), exports to all the northern outposts deteriorated until they came to an almost complete halt, as these regions increasingly came under the sphere of Yankee traders. Mexican Mayolica dating after 1830 to 1840 occurs in very small quantities in archaeological sites in the American Southwest, Texas, or California (Lister and Lister 1974:38; Allen et al. 2013:26). Mexican production in Puebla and other communities continued, albeit on a much reduced scale, through the rest of the nineteenth century.

A revival of the Mayolica industry in Puebla began in 1897 with the arrival of Enrique Luis Ventosa from Barcelona, Spain. Employed as a teacher for the *Academia de Bellas Artes* (Academy of Fine Arts) in Puebla, he undertook an extensive study and revival of the local tin-glazed ceramic industry. Working in local pottery shops and conducting extensive research, he championed the resumption of traditional designs and introduced

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[22] . "... diseños más simples y funcionales en una amplia gama de colores, entre los cuales utilizó el azul, naranja, guinda, café, negro, amarillo y verde sobre fondos de óxido de estaño blanco y amarillento" (Valencia Cruz 2013:116).

[23] "Although there was a downturn in the manufacture of majolica during the post-independence period due to the introduction on a massive scale of fine European white wares produced in industrial contexts . . ., tin- and lead-covered wares persisted and remained as relatively important objects of consumption" (Fournier and Blackman 2008).

and encouraged new ones (Mauldin 2003; Connors McQuade 2005:167-170; Yanes Rizo 2013: 26-27). Ventosa's efforts brought a gradual increase in production during the early 1900s and during the mid to late twentieth century a renewed peak in the industry occurred as the city of Puebla became once again renowned for the production of Talavera Poblana ceramics (Mauldin 2003; Connors McQuade 2005:172-173; Tolentino Martínez and Rosales 2011; Yanes Rizo 2013:11-12; Tolentino Martínez 2018).

Scholarship

Mexican Mayolica Studies began in the first decade of the twentieth century with Edwin Atlee Barber. A director of the Pennsylvania Museum and School of Industrial Art, Barber had become interested in tin enameled pottery brought back to the United States by tourists visiting Mexico. When a firm in Mexico City offered "some examples of what were described as native porcelain," for sale Barber began a serious study of these previously unrecognized Mexican tin enameled ware pieces and the industry that produced them (Barber 1908:9). He carried on correspondence with Mexican collectors, traveled in Mexico to find specimens, and researched the Archives of the City of Puebla. His efforts resulted in the first definitive work on the history and forms of Mexican Mayolica published in 1908 as *The Majolica of Mexico* (Barber 1908:9-10). Over the following decade Barber continued to publish on the subject and completed several more monographs (Barber 1911, 1915a, 1915b, 1922). During the same period in Mexico a number of works were also produced. In 1910, within two years of Barber's first monograph, Antonio Peñafiel published *Cerámica Mexicana y Loza de Talavera de Puebla Época Colonial y Moderna* (Peñafiel 1910). This was followed by Carlos C. Hoffman's *Verdades y Errores Acerca de la Talavera Poblana* in 1922 (Hoffman 1922). In 1939 Enrique Cervantes brought forth a comprehensive two volume study of the trade and manufacturing process: *Loza Blanca y Azulejo de Puebla* (Cervantes 1939).

Barber, Peñafiel, Hoffman, Cervantes and other early twentieth century scholars wrote of Mayolica from the perspective of art and trade history. Their work was based on analysis of whole examples in various collections and documents in archives. No attempt was

made to study Mexican Tin-glazed pottery as an archaeological artifact until the mid - twentieth century. Since that time works from an archaeological perspective have continued to increase with each decade (Caywood 1950; Plowden 1958; Snow 1965; Tunnel 1966; Gerald 1968; Goggin 1968; Barnes 1972; Barnes and May 1972; May 1972, 1975; Fairbanks 1973; Lister and Lister 1974; Seifert 1977; South 1977:238-271; Deagan 1987:53-96; Cohen-Williams 1992; Marken 1994:214-239; Voss 2002:657-732; Cohen -Williams and Williams 2004; Fox and Ulrich 2008; Jenks 2013; Williams 2014).

Barbara Voss (2002: 664-665) noted that "Majolica has received the most descriptive and typological attention of any Spanish-colonial ware type. Archaeological specimens of majolica throughout the New World have been variously classified by many researchers." Some of the earliest descriptions were presented by Louis Caywood (1950:77-97), David Snow (1965:25-35) and Rex E. Gerald (1968). In his pioneering comprehensive work John Goggin (1968) defined 24 Mayolica types grouped into four traditions including the Puebla (Mexican) tradition, which includes the specimen types discussed in this study. Florence and Robert Lister (1974) and Donna Seifert (1977) further modified and refined Goggin's definitions (Deagan 1987:53).

While working within the framework of Goggin's typologies Mark Barns (1971, 1972) and Ronald V. May (1972, 1975) were able to recognize additional types from specimens recovered from sites in Arizona and California. Their typologies have been refined by Cohen-Williams (1992) and Cohen-Williams and Williams (2004). Researchers in Texas and Florida have further defined certain types (Deagan 1987:71-92; Fox and Ulrich 2008:66-109; FLMNH 2014-2018). In Mexico typological studies have also been carried out (López Cervantes 1976; Allende Carrera 2016; Reynoso Ramos and Allende Carrerra 2016; Castañeda Gómez del Campo 2018). In addition to these archaeological works, the late twentieth and early twenty-first centuries have seen a number of studies by historians and museum specialists on the history of the Mexican Mayolica industry (Connors McQuade 1999, 2003, 2005; Lister and Lister 2001; Gaven et al. 2003; Yanes Rizo 2013, 2016, 2018).

The involvement of so many scholars working in various regions has resulted in some conflict and overlap in typologies. This study generally follows the typology developed by Ronald May (1972, 1975) and further refined by Cohen-Williams and Williams (2004).[24] The types are presented here under four major group headings: (1) Puebla Blue on White, and Blue on White Polychrome Traditions, (2) Aranama Polychrome Tradition, (3) Late Poblano/Fine Line Traditions, and (4) Other Traditions. Types described within each tradition are defined by the terminology currently used on archaeological sites in California (May 1972, 1975; Cohen-Williams 1992; Voss 2002:666; Cohen-Williams and Williams 2004; Williams 2014). Names for these same types used in other regions or in earlier reports will be listed below the type name in parenthesis.

Chapel Complex Mayolicas

A total of 2,035 sherds, weighing 6,749 grams, of Mexican Mayolica was recovered from the San Diego Presidio Chapel Excavation. Of this amount 410 sherds (20.14%) weighing 1,336 grams (24.68%) consisted of undecorated fragments that provided no evidence for identification of vessel type or decorative style. These were not used in the following analysis of vessel function and decorative types. The remaining 1,625 sherds weighing 5,413 grams represented a minimum number of 148 distinct vessels. Individual vessels were identified through an analysis of pattern designs, body shape, and rim diameter and paste color.[25]

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[24]. May distinguishes between two major Mayolica traditions. The Puebla tradition is characterized by monochrome and bi-tonal blue decorations and by polychrome decorations containing blue and black/brown elements (May 1975:60). The Aranama Tradition exhibits green, orange, yellow, and black/ brown elements. This Tradition emerged in the 1750s but became most widely distributed after about 1780 (May 1972:30). Cohen-Williams and Williams redefined the traditions as "categories" and the types as "varieties" within a category. In addition, they separate Puebla Blue on White and Puebla Blue on White Polychromes into two separate categories (traditions) (Cohen-Williams 1992; Cohen-Williams and Williams 2004; Williams 2014). Although using a number of their "varieties" to name types, this study is generally following May's original types within traditions hierarchy.

[25]. Three colors of paste were observed: cream (10YR 8/1 & 8/2), salmon (7.5YR 8/6, 7/6 & 7/8), and pink (5YR 7/6) (Munsell Soil Chart 1975).

Puebla Blue on White, and Blue on White Polychrome Traditions

The Puebla Blue on White, and Blue on White Polychrome traditions are characterized by blue design motifs on a white background. The Polychrome Traditions exhibit black/brown accent lines (May 1975:60).

Castillo Polychrome (Castillos Polychrome)

First defined by Goggin (1968:183-186), this is an early type and rare in California. It is found in the present-day southeastern United States, the Caribbean, and Central Mexico on sites that date before 1700 (Deagan 1987:81-82; Cohen-Williams and Williams 2004:8, 34-35). Only a small number of sherds have been found in eighteenth and nineteenth century sites located on the former northwestern frontiers of New Spain and Mexico (the current Southwestern United States, Northern Mexico, and California). This has led to the speculation that the few fragments that do occur on these sites represent items that were already quite old when they were brought into the region (Cohen-Williams and Williams 2004:34; Fox and Ulrich 2008:66).

Dates: 1680 – 1700 (Fox and Ulrich 2008:66).

General Description

Vessels of Castillo Polychrome exhibit dark blue or black accent lines over dark and light blue designs (Cohen-Williams and Williams 2004:34).

A single unidentified vessel of Castillo Polychrome, represented by nine sherds made up 0.68 percent of the Mayolica vessels identified (Figure 29). Rim diameter could not be determined.

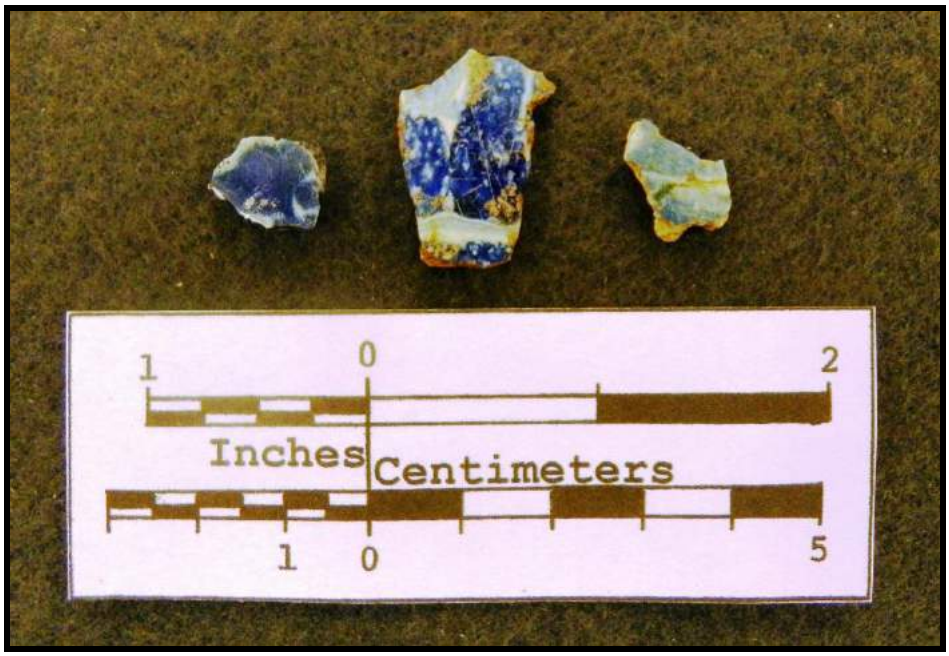

Figure 29: Castillo Polychrome Sherds (MNV #s M120B, M120D & M120H).

Puebla Blue on White
(Puebla Blue on White II, *Puebla Azul Sobre Blanco*)

First described by Goggin (1968:190–195), this is one of the most widespread of the Puebla Blue on White Tradition Mayolicas. It is commonly found at most Spanish Colonial sites in Texas, Florida, the Southwestern United States, Northern Mexico, and California (Deagan 1987:83-84; Cohen-Williams 1992; Gámez Martínez 2003:238; Cohen-Williams and Williams 2004:12-17; Fox and Ulrich 2008:80; FLMNH 2014, Specimen #S 1458, 1459, 1028, 1026, 2678, 1469, 1376). In Mexico, Castañeda Gómez del Campo (2018:127-129) has defined seven seperate subtypes.[26]

Dates: Although opinions differ the general consensus appears to put the manufacture of Puebla Blue on White from circa 1700 to 1850 (Cohen-Williams and Williams 2004:15; Fox and Ulrich 2008:80).

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[26] . The seven subtypes include 1. Diseños con lóbulos y puntos, 2. Flor, 3. Elementos lobulares que asemejan motivos vegetales, 4. Diseños vegetales que saturan las vasijas, 5. Paneles, 6. Flores (Castillo), and 7. Azul de cobalto sobre azul contrahecho. The last type is what is known in Califronia as San Agustín Blue on White (Castañeda Gómez del Campo 2018:127-129).

General Description

Puebla Blue on White vessels have designs in dark and light blue on the inside of platos and the outside of escudilla style bowls and taza cups. Platos exhibit two blue bands below the rim from which are suspended groups of single blue petals alternating with stylized single blue flowers. The central motifs include stylized birds, flowers, vines, humans, and horizontal bands. Additional elements include dots, lines, and lobes (Cohen-Williams and Williams 2004:12-17; Fox and Ulrich 2008: 80-81).

In collections from the region that was formerly northern New Spain the most common type of Puebla Blue on White vessels are escudilla style bowls, taza cups, and jars. These vessels are decorated with horizontal bands and rows of clustered blue dots. Seifert separated this design on the exterior of escudillas and tazas from Puebla Blue on White and identified it as Puebla Blue on White II. This identification is currently used in Texas (Seifert 1977:186; Cohen-Williams 1992; Cohen-Williams and Williams 2004:12-17; Fox and Ulrich 2008:98-99). In Mexico this pattern is part of the *lóbulos y puntos* subtype, although plate fragments as well tazas and escudillas are included (Castañeda Gómez del Campo 2018:144-145).

Twenty-eight (18.91 %) Puebla Blue on White items were identified from 425 sherds (Figures 30 - 33). Nineteen escudilla style bowls (67.85 %) with rim diameter of approximately 4.5 inches (11.4 cm) dominated the assemblage. Other vessels included three (10.71%) platos with 6 and 8-inch rim diameters, four taza cups (14.28%), and one jícara cup (3.57 %) with base diameters of approximately 1 5/8 inch (4 cm), and one (3.57 %) unidentified vessel.

Figure 30: Puebla Blue on White Escudilla Bowl (MNV # M142).

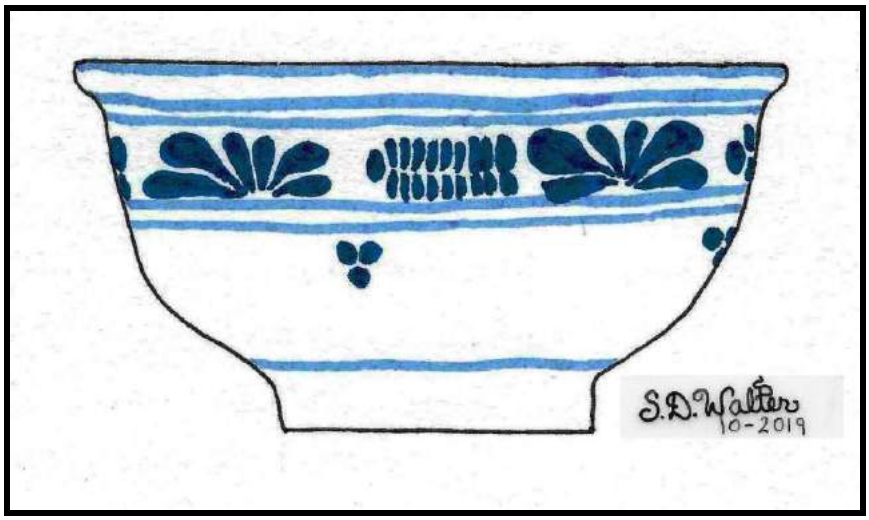

Figure 31: Puebla Blue on White Escudilla Style Bowl Sherds and Facsimile Design. Sherds: top row MNV # M51 (three sherds); bottom row MNV #s M52, M46, M53. Facsimile by S.D. Walter, after Gámez Martínez 2003:238; Cohen-Williams and Williams 2004:14; Fox and Ulrich 2008:99; Castañeda Gómez del Campo 2018:235.

Figure 32: Puebla Blue on White Plato Sherds and Facsimile Design. Sherds: Top MNV #S M45A, C, D, & B; bottom: blue on white central medallion fragments Cat # M117 not assigned to a particular vessel. Facsimile by S.D. Walter, after Goggin 1968: Plate 16; Lister and Lister 1974: 31,33; Walthall 1991:108; Cohen-Williams and Williams 2004:13; Fox and Ulrich 2008:81; Skowronek et al. 2015:39; FLMNH 2018 Specimen #s 1458-1459.

Figure 33: Puebla Blue on White Taza and Jícara Cup Sherds and Facsimile Jícara Design. Sherds: top row (left to right) MNV # M108 (four sherds); bottom row MNV #s M111, M112, and M113. Jícara facsimile by S.D. Walter after Castañeda Gómez del Campo 2018:145. Taza designs were similar to those shown for escudilla bowls in Figure 31.

San Agustín-Molded Blue on White
(Saint Augustine Blue on White, Puebla Blue on White Late, Molded Blue on White, Puebla Azul Sobre Blanco - Variedad Azul de Cobalto Sobre Azul Contrahecho)

What has been identified as San Agustín Blue on White in California and Arizona is not the same ceramic design as that recognized as San Agustín Blue on White in other areas. That is why the hyphenated designation San Agustín-Molded Blue on White has been used for this study. In Florida typologies this Mayolica design type is known as "Puebla Blue on White Late" (FLMNH 2018 Specimen #s 1026, 1028, 1376, 1469, and 2678). In Texas it is called Molded Blue on White (Fox and Ulrich 2008:84-85). In Mexico it is a subtype of Puebla Azul Sobre Blanco defined as *Variedad Azul de Cobalto Sobre Azul Contrahecho* (Castañeda Gómez del Campo 2018:144-145). When comparing this type to sherds identified as San Agustín Blue on White from Texas and Florida Fox and Ulrich have noted:

> Molded Blue on White mayolicas resembles San Agustín Blue on White at first glance, but three major characteristics differentiate it from the previously discussed types. First, Molded Blue on White does not exhibit black accents. Second, San Agustín exhibits much less white background. Third, the rims of Molded Blue on White are molded into scalloped shapes rather than the uniform rim seen in San Agustín wares (Fox and Ulrich 2008:84-85).

The traditional San Agustín Blue on White type exhibits large dark blue petal and floral motifs that almost cover the entire vessel surface (Fox and Ulrich 2008:84-85). "Open spaces are frequently filled with dots or cross hatching …" so, unlike the California and Arizona sherds, there are no large open white areas (Deagan 1987:83; FLMNH 2018 Specimen #s 923, 927, 928, 3070, 3071).

The California and Arizona sherds were originally identified as San Agustín Blue on White based on their "dark blue on light blue dots" (May 1972:31). The researchers were dealing with small sherds and based their identification on "descriptions by Goggin

(1968:188) and Curtis Tunnel (1967:30)"[27] (Barnes 1972:7). Current researchers in California and the Southwest have continued to lump this ceramic ware into the San Agustín Blue on White type category even though it has been separated into its own distinctive type by colleges in Texas and Florida (Arthur et al. 1975; Barbolla-Roland 1983; Barbolla 1992; Cohen-Williams 1992; Voss 2002:666; Cohen-Williams and Williams 2004:23-25; Williams 2014).

Dates: 1775-1830 (Cohen-Williams and Williams 2004:13-25; Fox and Ulrich 2008:84-85).

General Description

This type is distinctly different from other blue on white Mayolicas. As noted above, rather than a deep rim, the larger platos have more of an English soup plate profile and exhibit a broad molded scalloped rim. These can be decorated with up to three thin light blue bands along the circumference of the plate just below the molded rim. In a few cases, some plates have no bands below the rims, while others exhibit a dark blue band. The variety of design motifs below the rim or rim bands include but are not limited to combinations of clusters of dark blue dots or petals on vine-like light blue backgrounds, blue triangular to oval shaped medallions evenly spaced around the rim, dark blue squiggles, and other geometric and scroll like shapes. Stylized flowers, along with clusters of blue dots characterize central base medallions. Most of the darker blue elements are surrounded by light blue backgrounds. Especially characteristic of this type is the blurred nature of the light blue background giving a "flow blue" effect similar to that found on flow blue styles of transfer wares. This, along with large open white spaces, distinguishes these California-Arizona San Agustín Blue on White sherds from the ceramic type identified with the same name in Texas, Florida, Mexico, and other regions (Fox and Ulrich 2008:84-85; FLMNH 2018 Specimen #s 1026, 1028, 1376, 1469, 2678,). Whole vessel examples can be seen on web pages of the Museum of

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[27] . "Curtis Tunnel (1967:30)" refers to Tunnell, Curtis, and J. Richard Ambler 1967, Archaeological Excavations at Presidio San Augustín de Ahumada. Texas State Building Commission Archaeological Program Report No. 6, 1776-1771, Austin.

International Folk Art in Santa Fe, New Mexico (MOIFA 2018 Specimen #s A.1969.45.49, A.1969.45.51, A.1969.45.52, , A.1969.45.53, A.1969.45.61, and A.1969.45.73A.), and the Metropolitan Museum of Art (MET 2019 Specimen #s 11.87.25, 11.87.26, and 17.108.25).

Seven (4.72 %) San Agustín-Molded Blue on White vessels were identified from 42 sherds (Figure 34). Rim diameters could not be determined for two (28.57%) escudilla style bowls and three (42.86%) platos. Two (28.57%) jícara cups had rim diameters of 3 inches (7.6 cm).

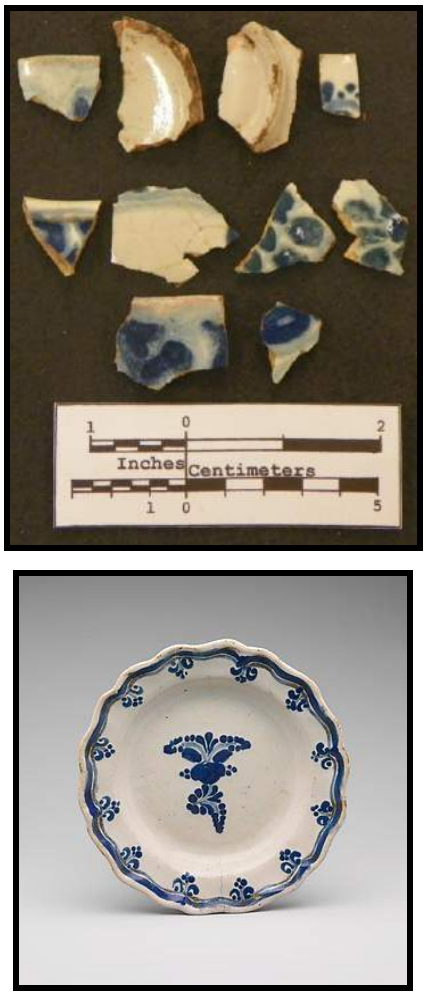

Figure 34: San Agustín-Molded Blue on White Sherds and Whole Plato. Sherds: Top row taza cups MNV #s M93 and M94 (base and rim); center row escudilla bowl MNV # M91; bottom plato MNV # M87. The whole plato is from the Metropolitan Museum of Art Open Access Collections # 17.108.25. https://www.metmuseum.org/art/collection/search/5979

San Elizario Polychrome
(Puebla Polychrome II)

San Elizario Polychrome was first defined as a separate type by Gerald (1968:45). It had initially been called Puebla Polychrome II by David Snow (1965:28–29). Goggin includes it as part of Puebla Blue on White (Goggin 1968:45-49). It is common in the American Southwest, Texas, Mexico, and California (Cohen-Williams 1992; Gámez Martínez 2003:237; Cohen-Williams and Williams 2004:8, 30-33; Fox and Ulrich 2008:96-97; FLMNH 2014, Specimen #S 2668, 1579, 1578, 1584). It is not commonly found in Florida (Deagan 1987:86), but has been identified in Cuba (Hernández De Lara and Rodríguez Tá Panes 2009).

General Description

San Elizario Polychrome is similar to Puebla Blue on White except that "brownish-black emphasis lines have been added on top of or beside the blue" (Gerald 1968:45). Platos have broad blue rim bands with the brown/black accent lines. A row of blue petals runs along the bottom of the band. Stylized floral motifs are interspersed along the row of petals. The central medallion often exhibits a blue crane-like bird. Brown/black accents are used for the legs and beak on the bird motif and/or on blue petals and flowers (Lister and Lister 1974:29; Deagan 1987:85-86; Cohen-Williams and Williams 2004 31-32; Fox and Ulrich 2008:96).

Through an analysis of 432 (25.28%) sherds, 25 (16.89%) San Elizario Polychrome decorated vessels were identified, including 23 (92.0 %) platos and two escudilla style bowls (8.0%). Fifteen of the Platos had 10-inch (25.4 cm) diameter rims. One each measured 6.5, 7, 8, 9, and 9.5 inches (16.5 – 24 cm) in diameter. Sizes of three platos and the escudillas could not be determined (Figure 35).

Figure 35: San Elizario Polychrome Sherds and Facsimile Plato. Sherds: top row plato rims MNV #s M27D, M29D, and M41L; center row plato medallions # M16, unattributed to a specific vessel; bottom row escudilla bowl MNV # M40. Facsimile by S.D. Walter, after Goggin 1968: Plate 16; Lister and Lister 1974: 31, 33; May 1975:64, 68; Walthall 1991:108; Gámez Martínez 2003:237; Cohen-Williams and Williams 2004:31; Hernández De Lara & Rodríguez Tápanes 2009:70; Skowronek et al. 2015:26.

Zuñiga Polychrome

This is an uncommon type of Mayolica that has been defined only from the collections of the San Diego Presidio (Cohen-Williams and Williams 2004:35-37).[28] It has not been recorded from sites in Texas or Florida (Fox and Ulrich 2008; FLMNH 2014). In the Florida Museum of Natural History (FLMNH) collection a sherd exhibiting blue petals and green floral motifs like Zuñiga Polychrome is cataloged as a specimen of *Nopaltepec* Polychrome. That specimen is from the México City Metro excavations (FLMNH 2018 Specimen #1422).

Dates: Circa 1750 -1830 (Cohen-Williams and Williams and 2004:36; Williams 2014).

General Description

As defined by Cohen-Williams and Williams (2004:36):

> This variety . . . can be separated from other specimens on the basis of the presence of dark green elements used in place of cobalt blue in medallion decorations, dots (in escudilla bowls and jars), blossoms, or petals (in plates and soup plates) ….

Escudilla style bowls and taza cups have the same design as Puebla Blue on White escudillas "except that "the dark blue dots have been replaced with dark green dots." Platos "are similar to San Elizario Polychrome except that pendant blossom and petal decorations and central medallions are executed in green" (Cohen-Williams and

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28. May (1975:71) pictures a sherd described as San Elizario Polychrome Green, which is undoubtedly what later was defined as Zuñiga Polychrome. Barbolla-Roland (1983) reported the presence of seven unknown types of "The green varieties of Puebla Blue-on-White."

Figure 36: Zuñiga Polychrome Sherds and Facsimile Plato. Plato fragment MNV # M132, facsimile by S.D. Walter, based on plato fragment.

Williams 2004:36). Three (2.03 %) Zuñiga Polychrome decorated vessels were identified from five (0.34%) sherds. These included one (33.3 %) plato with an 8 inch (20 cm) rim, and two escudilla style bowls (66.6 %) identified from body sherds with undetermined rim diameters (Figure 36).

Aranama (Abo/Aranama) Polychrome Tradition

Vessels of the Aranama Polychrome Tradition exhibit an orange rim band that is often, but not always, accented with black or dark brown lines. Design decorations are in green, yellow, and orange, with an occasional use of blue. Cohen-Williams and Williams have designated this tradition as the Abo/Aranama Polychrome Category (May 1972:30; Cohen-Williams and Williams 2004:38; Williams 2014).

Monterey Polychrome
(Nopaltepec Polychrome, Aranama Polychrome)

This colorful Mayolica occurs throughout California, the American Southwest, Mexico and Florida (Cohen-Williams and Williams 2004:46-48; Fox and Ulrich 2008:90). Ronald V. May defined this type in 1972 (May 1972:36). Other scholars in Florida and Mexico have assigned it to the Nopaltepec Polychromes as described by Seifert (Deagan 1987:88; Gámez Martínez 2003:236; FLMNH 2014, Specimen #S 1018, 1370, 1421, 1436, 1437, 2716,). Her definitions of Nopaltepec, however, include many more design and color combinations than those described by May for Monterey Polychrome[29] (Seifert 1977:237-240; Deagan 1987:88). Barnes (1972:8, 12) identified this design as Aranama Polychrome. This term is no longer used by contemporary scholars for this particular type.

Dates: The general consensus is that Monterey Polychrome was manufactured circa 1750 to 1830 (Cohen-Williams and Williams 2004:12; Fox and Ulrich 2008: 90).

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29. Other variants grouped under Seifert's Nopaltepec Polychrome type have been identified by Barnes (1972), May (1972), and Cohen-Williams and Williams (2004) as Orange Band and Tucson Polychrome. See Deagan 1987:88.

General Description

This type is recognized by its stylized corn stalk motifs used along the sides and as the central medallion. These consist of "large yellow ovals" (Fox and Ulrich 2008:90). On the platos, three are evenly spaced along the inside of the vessel below the orange rim band. Each is flanked by "baroque flourishes and elongated, light green floral sprays" (Cohen-Williams and Williams 2004:41). Each set of cornstalks and floral sprays is separated by a green diamond. Another orange band surrounds the stylized cornstalk central base medallion, which is enclosed with a ring of green blobby dots.

Analysis of 72 (4.43%) sherds resulted in identification of 8 (5.40 %) Monterey Polychrome decorated vessels. These included one (12.5%) escudilla style bowl and seven (87.5%) platos. Rim diameters could not be determined (Figures 37 - 38).

Figure 37: Monterey Polychrome Escudilla Bowl Sherds. MNV # M26.

Figure 38: Monterey Polychrome Plato Sherds and Facsimile Plato. Sherds MNV #s: top M23, center two left M25, bottom right two M21, bottom left 3 and left center M25. Facsimile by S.D. Walter, from sherds pictured above and Gámez Martínez 2003:236; Cohen-Williams and Williams 2004:42; FLMNH 2018 Specimen # 1018.

Orange Band Polychrome
(Orangeline Polychrome, Orange Band Polychrome II, Nopaltepec Polychrome)

This type was called Orangeline Polychrome by Gerald (1968:52)[30] and May (1972:36). Barnes (1972:12-13, Plate I-p) named it Orange Band Polychrome, Variant II. It was defined as Orangeline Polychrome by Cohen-Williams (1992) and as Orange Band Polychrome by Cohen-Williams and Williams (2004:44-46). It has been found throughout California and Arizona (Cohen-Williams and Williams 2004:45). In the Florida typology it is currently known as Orangeline Polychrome (Deagan 1987:88). However, the Florida Museum of Natural History (FLMNH) Type Collection does not list it. Several sherds identified in that collection as Nopaltepec Polychrome exhibit an orange border and green petals and flowers so they could be classified as Orange Band sherds. All of those specimens are from the Mexico City Metro excavations (FLMNH 2018 specimen #s 1416, 1419, 1423, and 1437).

Dates: Circa 1750 – 1850 (Cohen-Williams and Williams 2004:44; Fox and Ulrich 2008:94; Deagan 1987:88).

General Description

This type uses the same pattern design as San Elizario Polychrome except that the colors used are orange and green. Plato interiors have a broad orange rim band with exterior black/brown accents. Below this runs a row of single green petals interspersed with amorphic green flowers. The green central medallion is usually a crane with black/brown accent lines. Floral elements occur also but are not as common. Other design elements include dots, lines, and lobes (Cohen-Williams and Williams 2004:44-45; Fox and Ulrich 2008:94-95). Eight (0.49 %) sherds represented three (2.02 %) Orange Band Polychrome decorated platos. Two exhibited diameters of 8.5 inches (21.5 cm). For one the diameter could not be determined (Figure 39).

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[30]. In his 1968 publication Spanish Presidios of the Late Eighteenth Century in Northern New Spain, Gerald (1968) cites his 1957 thesis A Historic House Excavation Near Janos, Northwest Chihuahua, Mexico M.A. thesis, University of Pennsylvania, as the source for the definition of Orangeline Polychrome.

Figure 39: Orange Band Polychrome Plato Sherds, and Facsimile Plato. Sherds MNV #s: top rims M6A (two sherds on right) M6B, M5A; bottom M6D and M6C (medallions). Facsimile by S. D. Walter, from sherds pictured above and Cohen-Williams and Williams 2004:45.

San Diego Polychrome
(Aranama Polychrome)

First defined by Ronald May (1972:36, 1975:72), San Diego Polychrome sherds have been recovered from California, Arizona, Texas, and Mexico. It shares the same color scheme as other wares of the Aranama Polychrome Tradition, but stands out for its distinctive floral motif. Confusion arises from the fact that in Florida and Mexico, San Diego Polychrome is not identified as a separate type; rather it is part of the Aranama Polychrome type that also includes what others have defined as Santa Cruz Polychrome. Needless to say, having several design types classified under an Aranama Tradition, and a separate Aranama type from the southeast and Mexico creates some puzzlement in terminology (May 1972:36; Cohen-Williams 1992; Gámez Martínez 2003:226-27, 236; Cohen-Williams and Williams 2004:46-48; FLMNH 2014, Specimen #S 1352, 1360, 1365; 3078, 3079, 3080).

Dates: 1750-1835 (Cohen-Williams and Williams 2004:47).

General Description

Ronald May first defined San Diego Polychrome with the following description: "It is characterized by a lavish use of black accent lines which encircle and connect dots and floral elements with graceful scroll-like black lines. The dots are usually bright green and yellow with, on rare occasions, a smaller dot of blue." At this time no central motif for this design had been discovered (May 1972:35-36). Three years later in 1975 he noted "the central motif is an anthropomorph with yellow hair and outlined in brown…, large green dots appear outlined in black …. Scroll-like branches of brown and black accent lines link the dots" (May 1975:72).

Some 32 years later Cohen-Williams and Williams provided the subsequent definition for San Diego Polychrome:

> Orange rim band with black accent lines. In contrast with many other Aranama tradition wares, this type has free floating elements consisting of leaf like, or flower petal-like decorations executed in orange, yellow, green, and blue. The elements are often outlined in black accents and connected by free flowing scrolls in black and green. Cobalt blue dots are sometimes used as accent dots or filters. Central medallion elements include geometric patterns, elaborate stylized plants, and anthropomorphic figures. Human figures are drawn in a style similar to Santa Cruz Polychrome (Cohen-Williams and Williams 2004:46-48).

These authors also provide two illustrations of reconstructed patterns that help clarify the design (Cohen-Williams and Williams 2004:46-48). Other examples are shown in Gámez Martinez (2003:226-27, 236) where they are defined as Aranama Polychrome. Many of the design motifs for San Diego Polychrome overlap those also defined as Santa Cruz Polychrome. See the discussion of Santa Cruz Polychrome below for further details.

Eight (5.40 %) San Diego Polychrome decorated vessels were identified from 53 (3.26%) sherds. These included three (37.50%) six inch (15 cm) rim diameter escudilla bowls, and five (62.50%) platos with diameters ranging between 7 (17.8 cm) and 8.5 inches (21.5 cm) (Figures 40 - 41).

Santa Cruz Polychrome (Quiburi Polychrome, Abo Polychrome, Abo Polychrome Type B, Aranama Polychrome)

First described by May (1972:35) as Quiburi Polychrome, Cohen-Williams and Williams (2004:50-51) renamed this type Santa Cruz Polychrome. Sherds have been recovered in Arizona, Texas, Florida, Mexico, and California. The pattern closely resembles and is often lumped with Abo Polychrome. In Florida and Texas, it is classified as Abo Polychrome Type B (Deagan 1987:79-80; Hindes et al. 1999:90; Gámez Martínez 2003:35; Gavin 2003:9; Cohen-Williams and Williams 2004:52; Fox and Ulrich 2008:76). Goggin (1968:197) included examples with these design elements as part of

Figure 40: Geometric Patterned San Diego Polychrome Sherds and Facsimile Plato. Sherd MNV #s M8G (top) M8Q, I, B, & O (bottom). Facsimile by S.D. Walter, from Lister and Lister 1974:31; Gámez Martínez 2003:236; Cohen-Williams and Williams 2004:47.

Figure 41: San Diego Polychrome Floral Pattern Sherds and Facsimile Plato. Sherd MNV #s M14G (top) M14E, B, & D (bottom left to right). Facsimile by S.D. Walter, after Cervantes 1939 II:129; Cohen-Williams and Williams 2004:46; Skowronek et al. 2015:26, 41.

Aranama Polychrome. Evidently based on his original classification, examples in the Florida Museum of Natural History collections are grouped under Aranama Polychrome (FLMNH Specimen #s 1361, 2949).

Dates: 1750-1800 (Cohen-Williams and Williams 2004:50).

General Description

Platos have an orange rim band with black/brown accent lines. Below the rim are orange, green, blue and yellow "balloon-like round elements" hanging from clusters of black/brown curved lines. Series of blue dots are also used. Central medallions exhibit floral designs or a human figure known as the "Portly Eunuch"[31] (Gámez Martínez 2003:35; Cohen-Williams and Williams 2004:51-52; Fox and Ulrich 2008:76).

Design motifs identified as part of the Santa Cruz Polychrome type include "a confusing group of patterns" (Hindes et al. 1999:90). As noted above, the distinction between this type and the earlier sixteenth and seventeenth century Abo Polychrome is not clear. Both include "balloon or lollipop elements" and a "Portly Eunuch" (Deagan 1987:79-80). In addition, the distinction between Santa Cruz and San Diego Polychromes is not clear. Many of the "floral" designs of San Diego Polychrome resemble balloons or lollipops, and central medallions of both Santa Cruz and San Diego Polychromes can exhibit humanoid or floral motifs (Cohen-Williams and Williams 2004: 46-48, 50-52). The only critical distinction between the two appears to be the "Portly Eunuch" on Santa Cruz sherds.[32]

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31. In his identification Goggin was the first to describe "a portly eunuch-like figure wearing a turban and Zouave trousers" (Goggin 1968:197).

32. It is beyond the scope of this study to propose typology revisions. However, future studies might consider combining San Diego, Santa Cruz, and Abo Polychrome sherds into a single Abo Polychrome type.

No Santa Cruz/Quiburi Polychrome sherds were identified in the analysis for this project.[33] However, three (0.18%) sherds from this collection were pictured and described by Ronald May in 1972 (Figure 42) and represents a single item (0.68%). One exhibits the face of a "Portly Eunuch" (May 1972:35). A single plato (100%) is represented (Figure 43). Rim diameter could not be determined.

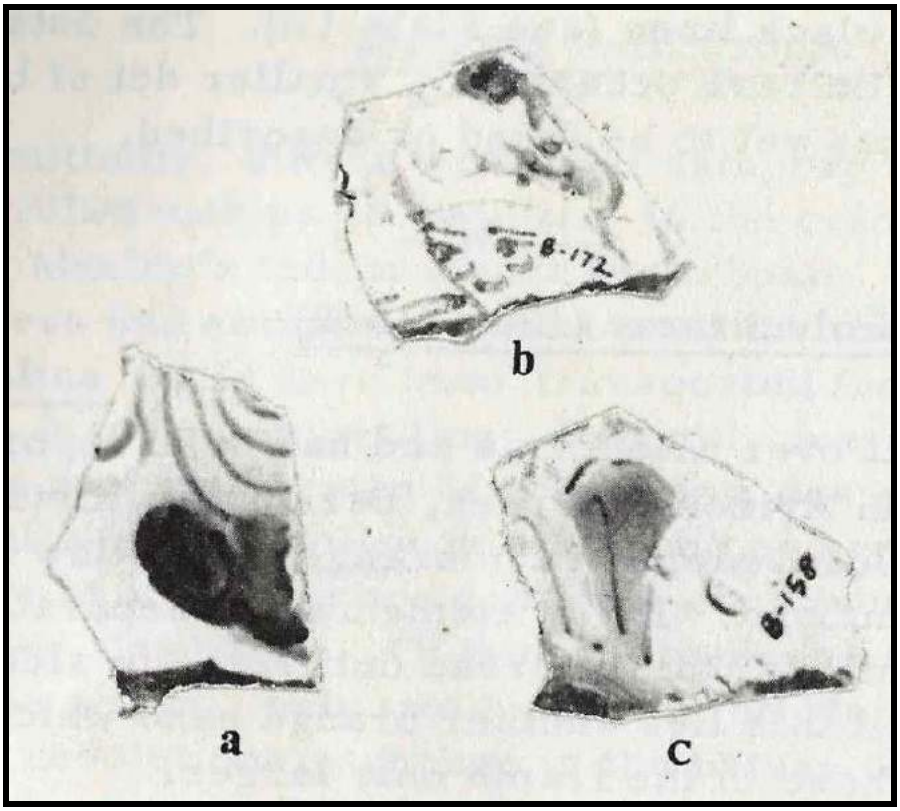

Figure 42: "Quiburi" Polychrome Sherds Pictured in May 1972:35, Plate 1. These pieces are no longer part of the Chapel Excavation collections.

[33] . A visual inspection of all decorated sherds presently in the San Diego Presidio Chapel Complex collection at San Diego State University was made in order to identify Mayolica types for this analysis. No sherds of Santa Cruz/Quiburi Polychrome were identified. In May's original 1972 discussion of Mayolica from the San Diego Presidio Chapel Complex three sherds identified as Quiburi Polychrome are illustrated in a photograph (May 1972:35, Plate 1). Two of these sherds (b and c) have catalog numbers on their surfaces that can be read from the photograph. A search for these numbers (B-158 & B-172) in the current SDSU catalog confirmed that they were no longer part of the collection. During the years prior to the time that the collection came under the control of San Diego State University Anthropology Department's Collection Management, artifacts were "loaned" out for display and other purposes to various parties. It was probably as a result of this process that the sherds were lost.

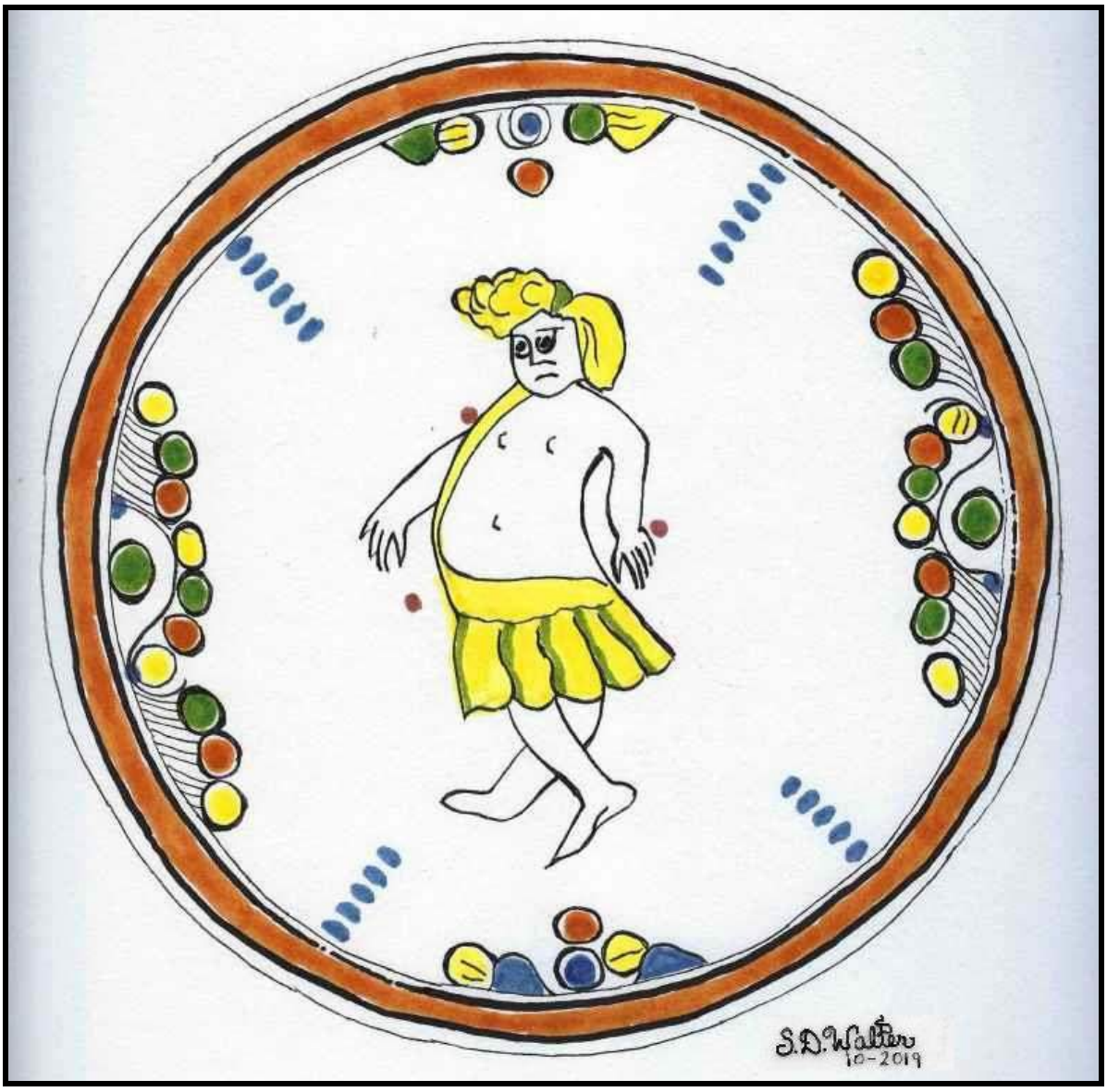

Figure 43: Facsimile Quiburi/Santa Cruz (Abo) Polychrome Plato by S.D. Walter. After Gámez Martínez 2003:235; Cohen-Williams and Williams 2004:51; Metropolitan Museum of Art Open Access Collections # 11.87.60 https://www.metmuseum.org/art/collection/search/5952.

San Ignacio Polychrome

This type, first defined by Cohen-Williams (1992:125), has an identical design to San Elizario Polychrome. The only difference is that the blue rim band is replaced by an orange band. It has been reported from sites in California and Arizona (Cohen-Williams 1992:125; Cohen-Williams and Williams 2004:48-49).

Dates: 1750-1800 (Cohen-Williams 1992; Cohen-Williams and Williams 2004:49).

General Description

This type uses the same pattern design as San Elizario Polychrome except an orange band with black accents has been substituted for the traditional blue rim band. Plato interiors have a broad orange band with exterior black/brown accents around the top rim. Below this are suspended groups of single blue petals alternating with single blue flowers. The blue central medallion is usually a crane. Other design elements include dots, lines, and lobes (Cohen-Williams and Williams 2004:48-50).

Two (1.36 %) San Ignacio Polychrome decorated platos with a rim diameter of 8.5 inches (21.5 cm.) were represented by three (0.21%) sherds (Figure 44).

Figure 44: San Ignacio Polychrome Plato Sherds and Whole Example From the Metropolitan Museum of Art. Open Access Collections # 11.87.63. https://www.metmuseum.org/art/collection/search/5953?. **Sherds MNV # M1.**

Tubac Polychrome

First defined by Anita Cohen-Williams (1992), Tubac Polychrome sherds have been recovered from sites in Arizona and California (Cohen-Williams 1992:126; Cohen-Williams and Williams 2004:48-53; Williams 2014).

Dates: 1750-1850 (Cohen-Williams and Williams 2004:53).

General Description

In the words of Anita Cohen-Williams who defined this type:

> Tubac Polychrome vessels have a style of decoration that is similar to that found on some Puebla Blue on White escudillas and jars dating to the eighteenth century. Tubac Polychrome's design elements consist of a series of yellow bands that alternate with rows of green dots. When compared to similar, earlier, Puebla Blue on White vessels, Tubac Polychrome differs in having green dots instead of dark blue, and bright yellow encircling bands instead of light blue (Cohen-Williams 1992:126).

A single (0.68 %) 5 inch (12.5 cm) rim diameter escudilla style bowl, represented by 25 (1.72%) sherds constituted the only Tubac Polychrome decorated vessel identified (Figure 45).

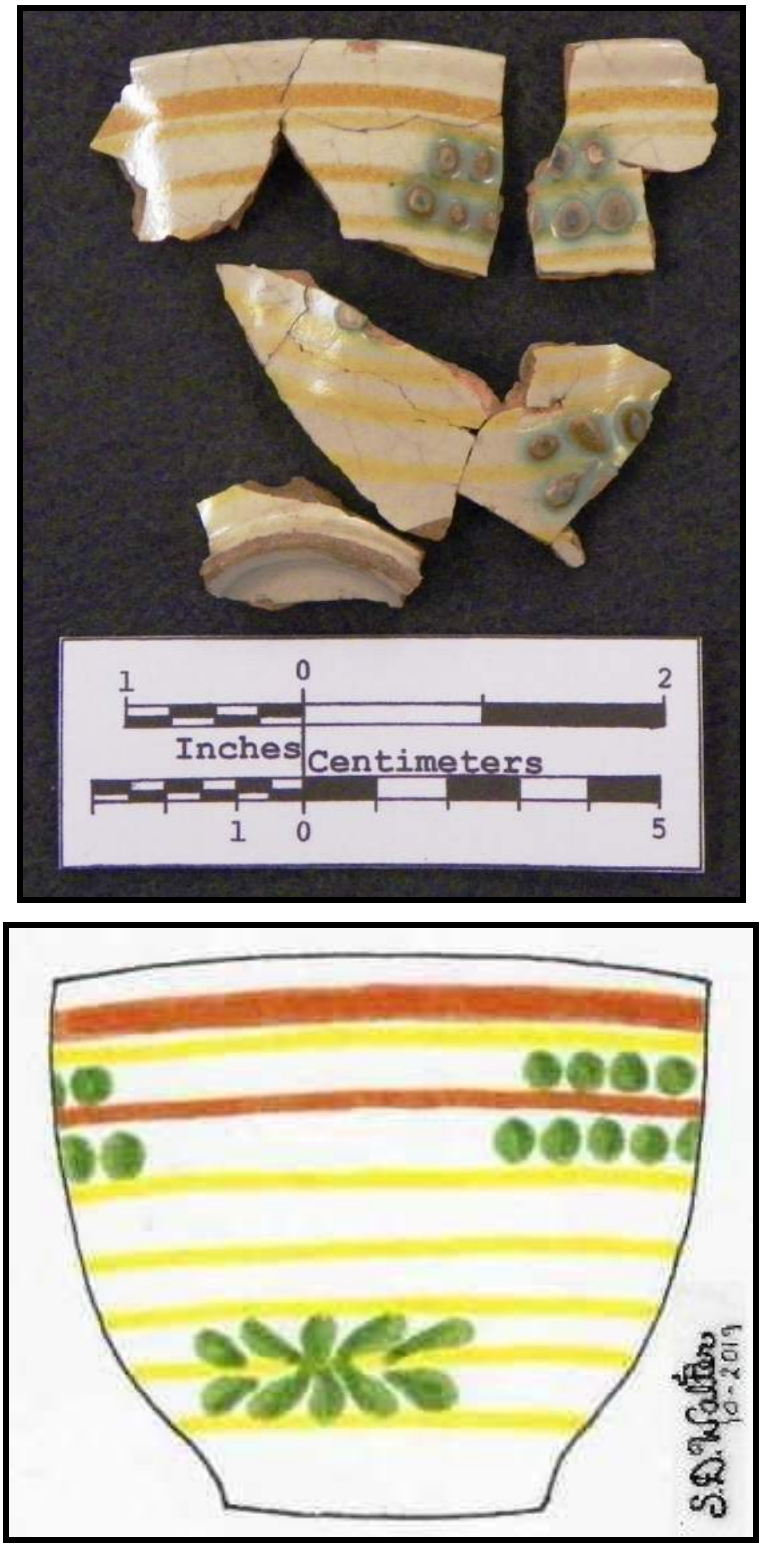

Figure 45: Tubac Polychrome Taza Cup Sherds and Facsimile Escudilla Bowl. Sherd MNV #s M14G (top) M14E, B, & D (bottom left to right). Facsimile by S.D. Walter, after above sherds and Cohen-Williams and Williams 2004:53.

Tucson Polychrome
(Orange Band Polychrome I, Nopaltepec Polychrome, Orangeline Polychrome)

First described by May in 1972, examples of Tucson Polychrome have been recovered from sites in Arizona, California, and Cuba (May 1972:36; Cohen-Williams 1992:126; Cohen-Williams and Williams 2004:48-53; Hernández De Lara and Rodríguez Tá Panes 2009). Barnes identified this type as Orange Band Polychrome Variant I (Barnes 1972:12, Plate I – O). Deagan (1987:88) stated that a variant of Nopaltepec Polychrome has been called "Orange Band Polychrome I" by Mark Barnes (1972:12), and "Tucson Polychrome" by May (1972:36). A photograph of a complete vessel of this design in Gámez Martínez (2003:239) is identified as Orangeline Polychrome.

Dates: 1750-1850 (Cohen-Williams 1992:126; Cohen-Williams and Williams 2004:48-53).

General Description

Platos of Tucson Polychrome exhibit unique green floral motifs composed of a "green stalk with stylized flowers and small yellow buds and yellow and brown flowers." These elements are off set with anamorphic leaf clusters. These are placed below and perpendicular to the orange band with exterior black accent lines around the outside rim. Central medallions decorated with floral and zoomorphic motifs occur on some vessels (Gámez Martínez 2003:239; Cohen-Williams and Williams 2004:55- 57).

The only Tucson Polychrome decorated vessel identified was one (0.68 %) 8 inch (20 cm) rim diameter plato represented by 13 (0.80%) sherds (Figure 46).

Figure 46: Tucson Polychrome Plato Sherds and Facsimile Design Reproduction. Sherds MNV #s: M7. Facsimile by S.D. Walter from sherds pictured above and Gámez Martínez 2003:239; Cohen-Williams and Williams 2004:55; Hernández De Lara y Rodríguez Tápanes 2009:70.

Unidentified Varieties of Aranama Polychrome

Unidentified varieties of the Aranama Polychrome tradition have been recovered from various sites in Texas, Florida, and California (Deagan 1987:86-87; Cohen-Williams and Williams 2004:8, 38-41; Fox and Ulrich 2008:86).

Dates: 1759-1800 (Cohen-Williams and Williams 2004:39).

General Description

These sherds exhibit an orange rim band and additional decorations in green, yellow, or orange, but lack any additional identifiable attributes that would allow them to be included in any of the types listed above (Goggin 1968:198-198; Cohen-Williams and Williams 2004: 38; Fox and Ulrich 2008:86).

From four sherds (0.24%) three (2.02 %) vessels: a 5 inch (12.5 cm) diameter escudilla bowl exhibiting large orange petals, small green sprigs, and black accent lines, an escudilla with an orange band and black accent lines, and a plato of undetermined rim diameter exhibiting a thin orange band with black highlights above a green field, were identified (Figure 47).

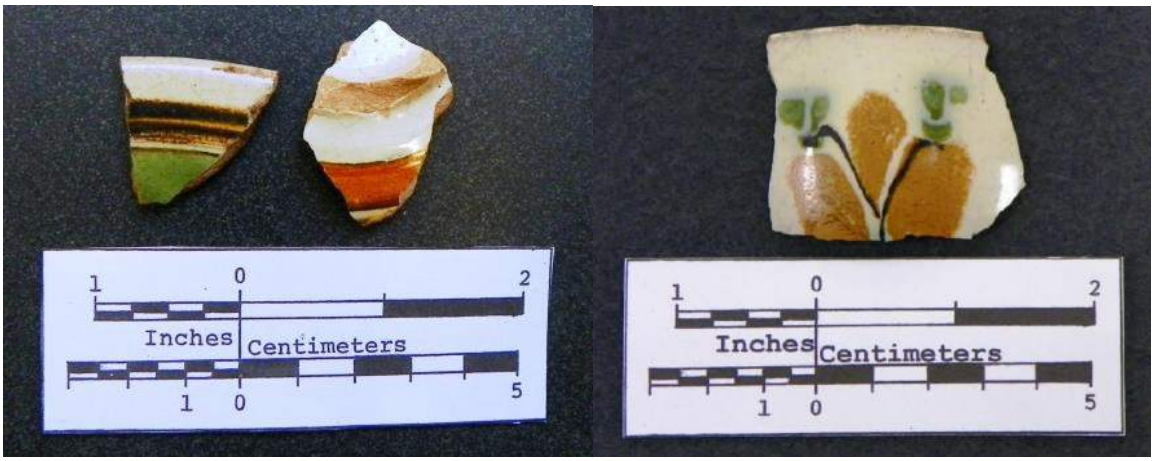

Figure 47: Unidentified Aranama Polychrome Sherds. Left plato (MNV # M133), escudilla bowl MNV # M126, right escudilla (MNV # M137).

Late Poblano / Later Fine Line Mexican Polychrome Traditions

Mayolica patterns introduced during the early nineteenth century include solid color backgrounded designs of the Late Poblano Tradition with distinct types such as the yellow-based Esquitlan Black On Yellow and Mexico City Polychrome, or the powder blue of Tumacacori Polychrome (*Azul Ponche*) (Cohen-Williams 1992; Cohen-Williams and Williams 2004; Reynoso Ramos and Allende Carrera 2016). Later Fine Line Mexican Polychrome Traditions (Estilo mexicano) produced in other Mayolica manufacturing areas than Puebla during the period are characterized by simpler and more functional designs in a wide range of colors, including blue, orange, cherry, coffee, black, yellow, and green on white (Corcuera 1987 in Valencia Cruz 2013).

Esquitlan Black-Brown on Yellow (Esquitlan Black on Yellow)

Defined by Seifert (1977:249-251) this Majolica type is apparently uncommon in California and the Southwest. It is not recorded in studies by May (1972, 1975), Arthur et al. (1975), Barbolla-Roland (1983), Barbolla (1992),[34] Cohen-Williams (1992), Voss (2002:666), or Cohen-Williams and Williams (2004). Specimens in the Florida Museum of Natural History Collection were recovered in Mexico in either Mexico City or Puebla (FLMNH 2018).

Production Date Range: 1800-1900 (FLMNH 2018).

General Description

As described by Seifert and pictured in the Florida Museum of Natural History Collections, Esquitlan Black-Brown on Yellow's most unique characteristic is its bright

[34] Barbolla (1992:201) does include an "unknown … yellow/black" among the Mayolica types on her "Maiolica Dictionary and Coding Sheet" used at the San Diego Presidio Gateway Project. No discussion is provided of this type in her 1992 dissertation or earlier publication (Barbolla-Roland 1983) on Gateway Project Mayolicas.

yellow opaque glaze covering the interior and exterior vessel surfaces. Decorations include dark brown to black bands, wavy lines, dots, floral element and vine/scroll designs (Seifert 1977:249-251; FLMNH 2018 Specimen #s 1427, 1428, 1429, 1430, 2801, 2809, 3049, 3050, 3051). Whole examples are curated at the Museum of International Folk Art in New Mexico (MOIFA Specimen #s FA.1971.15.88, A.1967.55.1, A.1967.55.2). This type should not be confused with Mexico City Polychrome which also has a bright yellow opaque surface glaze, but exhibits a green border and black and green decorative elements (Cohen-Williams and Williams 2004:69). Although Cohen-Williams and Williams have defined sherds of Mexico City Polychrome from other collections recovered from the San Diego Presidio site, the lack of any green on the specimens described in this study justified their identification as Esquitlan Black-Brown on Yellow rather than Mexico City Polychrome.

Six sherds (0.37%) constituted remains of two (1.36%) vessels: an 8 inch (20 cm.) rim diameter plato and a 1 5/8-inch base diameter (4 cm.) pocillo chocolate cup. The latter was represented by a base and small loop handle (Figure 48).

Figure 48: Esquitlan Black-Brown on Yellow Sherds. Plato (MNV # M12) on left, pocillo cup (MNV # M13) on right.

Esquitlan Polychrome

Defined by Seifert (1977:232-233), this type is also apparently rare in California and the Southwest. Like Esquitlan Black-Brown on Yellow, described above, this type is not recorded in studies by May (1972, 1975), Arthur et al. (1975), Barbolla-Roland (1983), Barbolla (1992:201), Cohen-Williams (1992), Voss (2002:666); or Cohen-Williams and Williams (2004). Specimens in the Florida Museum of Natural History Collection were recovered in Mexico (FLMNH 2014 #S1404, 1411, 1414, and 1415).

Production Date Range: 1800-1900 (FLMNH 2018).

General Description

Designs are painted in black, dark brown, blue, rust, orange, and yellow, against an opaque white surface. Motifs on both rim and body sherds include banded lines, typically in orange or yellow, bordered by black and crude floral designs. The sherds from the Chapel Excavation most closely resemble Seifert's description of Variant C with "Floral decoration in black-brown, rust, and blue – with yellow" (Seifert 1977:232).

A single (0.68 %) molded rimmed plato, exhibiting yellow-orange flowers with black and rust colored highlights, blue dots, and thin dark brown lines along the, rim was identified though the analysis of 19 (1.17%) sherds. The rim diameter was undetermined (Figure 49).

Figure 49: Esquitlan Polychrome Plato Sherds: MNV # M131.

Guanajuato/Fine Line Polychrome
(Guanajuato Polychrome, Later Mexican Polychromes, Nineteenth Century Mayolicas, Tradición Mexicana)

This is an ambiguously defined type. It occurs in California, the Southwest, and in Central Mexico. Cohen-Williams proposed nine separate varieties (Cohen-Williams 1992; Cohen-Williams and Williams 2004:61-62). Continued research has not determined "whether they should be considered separate types or just variation within the overall identification as Guanajuato Polychrome" (FLMNH 2014).

Dates: 1800-1850 (Deagan 1987:89; Cohen-Williams and Williams 2004:61).

General Description

The pottery guilds of Puebla lost their close control of Mayolica production during the first half of the nineteenth century. In this unregulated environment Mexican ceramicists created new styles; however the absence of standards resulted in a decrease in the technical quality of some the pottery produced (Connors McQuade 1999, 2005:163-166). Mayolica industries in the communities of Guanajuato, Dolores, Sayala, Venado, and Aguascalientes were integrated at the regional level, initiating a tradition designated by Mexican scholars as the Estilo mexicano (Mexican style) (Valencia Cruz 2013) and known in the U.S. as the Later Fine Line Mexican Polychrome Traditions (Cohen-Williams 1992; Cohen-Williams and Williams 2004:61).

Popularity of Blue-on-White and Aranama patterns had declined by this time, resulting in the introduction of a variety of styles characterized by new colors and designs based on a mixture of Neoclassical and popular Mexican traditions painted in fine lines or crude bands and motifs of orange, green, purple, blue, brown, black, red, cherry and yellow. The designs included floral motifs, bands, leaf and stem, or random splotches (Cohen-Williams 1992; Connors McQuade 1999, 2005:163-166; Cohen-Williams and Williams 2004:61-62; Newman 2013; Valencia Cruz 2013; FLMNH 2018 Specimen #s 1646, 1647, 1649, 1650, 1651, 1652, 1653, 1654, 1655, 1656, 2863). What these wares do share is the "characteristic use of black and brown accent lines" (Cohen-Williams and Williams 2004:62).

Fifteen (0.92%) sherds from the Chapel Complex collection that did not have attributes that would assign them to any other type and exhibited dark-brown to black accent lines were identified as Guanajuato/Fine Line Polychromes. They represented nine vessels (6.08%). Six platos (66.66%) of undetermined rim diameters were identified. They exhibited the following designs: thin milk chocolate lines with light orange and green bands (1),[35] a light blue band with brown accent lines and a rusty yellow flower with an

35. A sherd almost identical to this specimen, but with a darker orange band, is cataloged in the FLMNH collection as Nopaltepec Polychrome (FLMNH 2018 specimen # 1421).

orange center (1), a pale yellow rim with a pale orange band with a rusty brown accent line (1), fine brown lines with orange (1), and pale yellow, orange, and brown bands with darker brown bands (2). Three taza cups (33.33%) included fragments of a single 3 inch (7.5 cm), rim diameter vessel that had rusty brown flower petals; another of undetermined diameter decorated with a light rusty yellow band and dark brown and blue flower petals; and a pocillo cup of undetermined diameter that exhibited blue and dark brown petals with black accent lines (Figure 50).

Figure 50: Guanajuato/Fine Line Polychrome Sherds. Top row let to right taza cups MNV #S M135, M130A & B, M139A. Bottom row platos #s M128, M134, M138B.

Tumacacori Polychrome (Azul Punche)

Defined by Goggin (1968:163-165), examples of Tumacacori Polychrome have been identified in Florida, Texas, the Southwest, and California. It is also found in Mexico where it is known as Azul Punche (Barnes 1972:11; May 1972:37; Deagan 1987:90; Cohen-Williams and Williams 2004:66; Fox And Ulrich 2008:106). It is part of the late Poblano tradition. Cohen-Williams and Williams consider the type to be its own "Tumacaori (Azul Punche) Polychrome Tradition" (Cohen-Williams and Williams 2004:66).

Dates: 1780-1860 (Cohen-Williams and Williams 2004:66; Fox And Ulrich 2008:106).

General Description

Characterized by its a pale "robin egg" blue colored surface (Fox and Ulrich 2008:106), Tumacacori Polychrome is decorated with small, yellow-orange, green, and dark blue floral elements (Deagan 1987:90; Cohen-Williams and Williams 2004:66). Whole examples are curated at the Museum of International Folk Art in New Mexico (MOIFA Specimen #s A.1955.86.115, A.1969.45.62, A.1969.45.63, A.1970.42.1), and the Metropolitan Museum of Art (MET 2019 Specimen #s 11.87.68, 11.87.72, 11.87.74, 11.87.75, 17.108.18, 17.108.19, 18.36).

Three (2.03 %) vessels were identified from the analysis of nine (0.72%) sherds. One was an escudilla style bowl of undetermined diameter with a powder blue exterior, dark blue bands, and molded cross hatching. The rim diameter could not be determined. Two platos of undetermined rim size exhibited dark blue floral petals on a powder blue background (Figure 51).

Figure 51: Tumacacori Polychrome Sherds and Plato Example. Top plato MNV # M10A, B, & D; bottom escudilla bowl MNV # M11. Whole plato example from the Metropolitan Museum of Art Open Access Collections # 18.36.
https://www.metmuseum.org/art/collection/search/5985?

Other Traditions

Huejotzingo Straight Rim Band
(Huejotzingo Blue on White, Huejotzingo Green on White, Straight Rim Blue on White, Straight Rim Green on White, Hospital Ware)

Depending on the color used, the Huejotzingo Straight Rim Band group of Mayolicas has been classified as part of the Puebla Blue on White, Puebla Green on White, or Puebla Orange on White traditions. Rather than discuss each individual color variation separately, they are considered here as a single type, since all exhibit essentially the same single design element. Defined by Goggin (1968:195-196), specimens have been recovered throughout the American Southwest, Texas, Mexico, and, California (Cohen-Williams 1992; Gámez Martínez 2003:238; Cohen-Williams and Williams 2004:18-19, 58-59; Fox and Ulrich 2008:82; FLMNH 2014, Specimen #s 1457).

Dates: 1700-1850 (Deagan 1987:83; Fox and Ulrich 2008:82).

General Description

This Mayolica type is characterized by a single blue, green, or orange band encircling and slightly over the rim. It is located on the inside rim of plates and the outside rim of taza cups. There are no other decorations (Deagan 1987:83; Cohen-Williams and Williams 2004:58-59; Fox and Ulrich 2008:82). Only blue and green band decorated vessels were identified for the Chapel Complex collection.

Fifty-one sherds (3.13%) represented seven (4.73 %) platos. Five with blue edge decoration had 11 inch (28 cm) rim diameters. Two green edge decorated specimens exhibited a 9.5 inch (24 cm) rim diameter (Figure 52).

Figure 52: Huejotzingo Straight Rim Band. Upper photograph: Huejotzingo Straight Rim Band Blue on White (MNV # M66A top, MNV #s 67B, A, & D bottom). Lower photograph: Huejotzingo Green on White Strait and Wavy Band Rims (MNV #s M70 B & A left, MNV # M85A right).

Huejotzingo Wavy Rim Band
(Huejotzingo Blue on White Wavy Rim; Huejotzingo Green on White Wavy Rim, Wavy Rim Blue on White, Wavy Rim Green on White, Huejotzingo Variant)

Like the Huejotzingo Straight Rim Band described above, the Huejotzingo Wavy Rim Band group of Mayolicas have been classified as part of the Puebla Blue on White, Puebla Green on White, or Puebla Orange on White Traditions, depending on which color was used. Rather than discuss each individual color variation separately, they are considered here as a single type, since all exhibit essentially the same single design element. Defined by Goggin (1968:192), Barnes (1972:7-10), May (1972:32), and Seifert (1977:188), specimens have been recovered in Texas and the Southwest, Mexico, and California (Cohen-Williams 1992; Cohen-Williams & Williams 2004: 21-22, 60-61; FLMNH 2014, Specimen #s 1271, 1272). It has not been found in Florida or the Caribbean (Deagan 1987:85), but has been recovered in Cuba (Hernández De Lara and Rodríguez Tá Panes 2009).

Dates: 1775-1825 (Seifert 1977:71).

General Description

This Mayolica type is characterized by a single blue, green, or, orange band around the rim. The lower edge of the band is wavy or undulating. It is located on the inside rim of platos and the outside rim of taza cups. Although many authorities state that there are no other decorations (Deagan 1987:85; Cohen-Williams and Williams 2004:21; Fox and Ulrich 2008:100-101), Lister and Lister (1974:31) illustrate a wavy rim decorated plato with a central floral medallion. Seifert (1977:188) describes five different wavy band color combinations. Only blue and green wavy band decorated vessels were identified for the Chapel Complex collection.

Fourteen (9.46 %) vessels were identified from 83 (5.10%) sherds. Blue wavy rim decorated items included an escudilla bowl with a five to 6 inch (12.5 – 15 cm) rim diameter, a 4 inch (10 cm) diameter taza cup, and 10 platos with 9.5 inch (24 cm) rim

diameters. Two green wavy rim decorated platos also had a rim diameter of 9.5 inches (24 cm) (Figure 53).

Figure 53: Huejotzingo Wavy Rim Band Blue on White Sherds and Facsimile Escudilla Bowl. Top row: escudilla (MNV # M79 left), escudilla/taza (MNV # M80). Bottom row: platos (MNV #S 71A left two M72A right). Reproduction escudilla by Mari Carmen Olimón (S.R. Van Wormer Collection).

Puebla White
(Puebla White Majolica, Puebla Plain, Plain White)

Puebla White designates white tin-glazed vessels that had no additional decoration. It is commonly found at all Mexican Colonial sites in California, Texas, the Southwest, Florida, and Mexico (Deagan 1987:77-78; Cohen-Williams & Williams 2004:13-25; Fox and Ulrich 2008:74; FLMNH 2014 Specimen #S 1141, 1143, 1144, 2946). According to Lister and Lister (1974:30) "plain white Mayolica appears to have been made throughout the Mexican continuum."

Dates: 1700 – 1850 (Fox and Ulrich 2008:74).

General Description

As noted above, Puebla White identifies white tin-glazed vessels that had no additional decoration (Cohen-Williams and Williams 2004:11; Fox and Ulrich 2008:74). "The color of the glaze is commonly a creamy white" (Fox and Ulrich 2008:74). Some Puebla White sherds have "a notable yellow, green, or reddish discoloration," which may be the result of increasing amounts of lead introduced into the glazes following the outbreak of the Mexican War for Independence in 1810 (Deagan 1987:78; Cohen-Williams and Williams 2004:11) This category does not include pieces that are so small that they may have been undecorated sections of a larger decorated piece.

Fourteen (9.45%) vessels were identified from 59 (3.63%) sherds. These included eight 4.5 inch (11.5 cm) rim diameter escudilla style bowls, two 3.5 inch (9 cm) diameter jícara cups, three 9 inch (23 cm) diameter platos, and the rim from a 6 inch (15 cm) diameter escudilla or jar (FLMNH Specimen # 2946) (Figure 54).

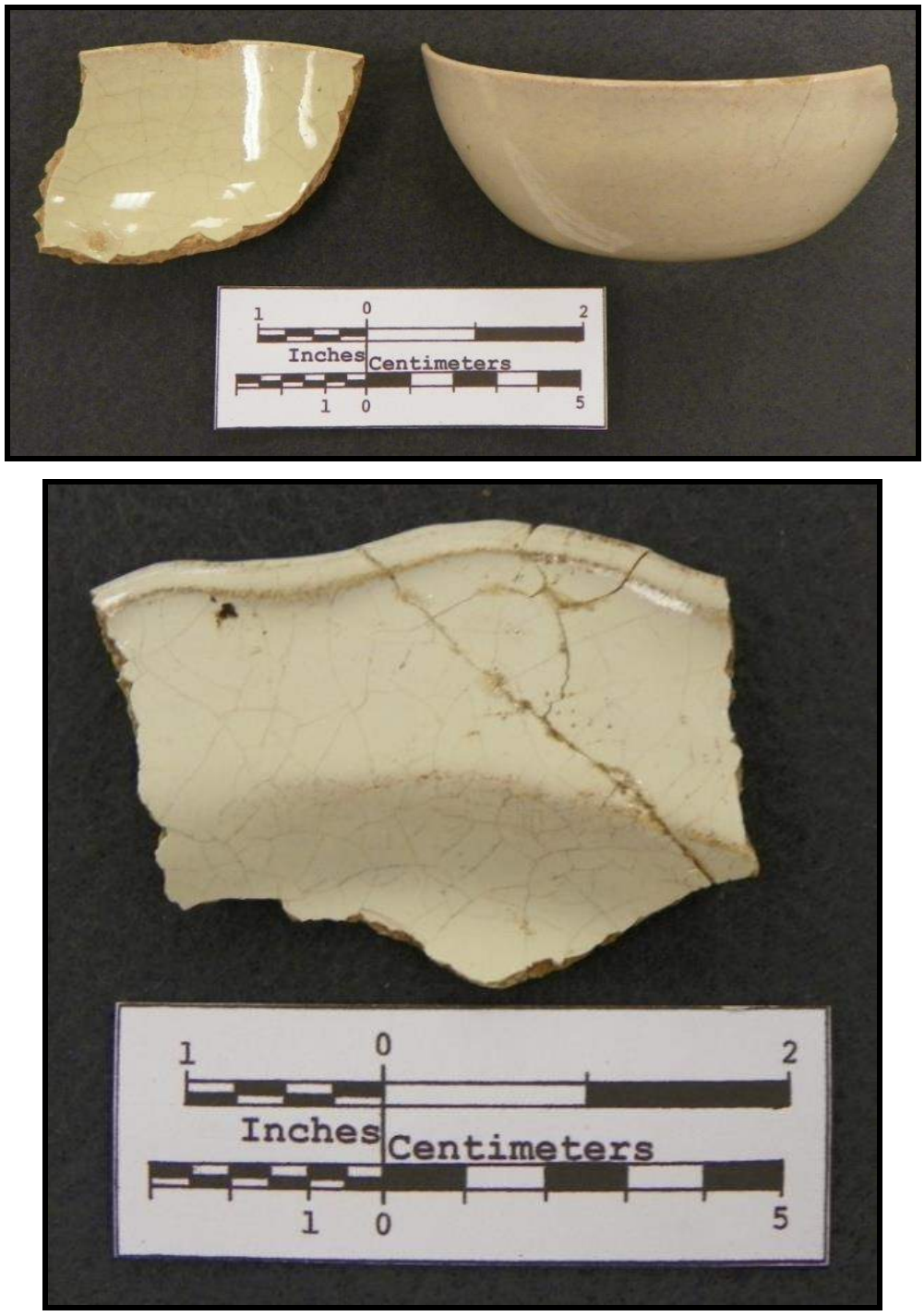

Figure 54: Puebla White Sherds. Top: escudilla bowl (MNV # M96 B & A, left to right). Bottom: plato (MNV # M140A).

Unidentified Types

Fifteen (0.92%) sherds, representing seven (4.72%) vessels, did not exhibit attributes that allowed them to be assigned to any other known types of Mayolica. Six were taza cups of undetermined rim diameters identified from base fragments that had no decoration. One was a plato recognized from a base fragment exhibiting an unidentified polychrome pattern of green leaves outlined with black on a black branch (Figure 55). This is very similar to an unidentified pattern specimen in the Florida Museum of Natural History Collection (Specimen # 1965). Found in Mexico City, that sherd has a pink flower centered on one of the branches.

Dates: Undetermined.

Figure 55: Unidentified Polychrome Pattern of Green Leaves Outlined With Black on a Black Branch (MNV # M3).

Mayolica Assemblage Characteristics

A minimum number of 148 individual vessels were identified. Relative frequencies are shown on Table 6 and in Figure 56. Eighty-three platos dominate, making up 56 percent of the vessel assemblage. Nineteen taza cups represented 12.84 percent, 43 escudilla bowls constituted 29 percent, a single escudilla/jar 0.68 percent, and two unidentified vessels 1.35 percent. Tazas and escudillas combined represented 62 vessels and 41.89 percent of the assemblage. Quantification of vessel types by weight and sherd count roughly followed this same order.

Vessel quantities by traditions are shown on Table 7 and in Figure 57. Puebla Blue on White dominates with 64 vessels and 43 percent. Other Traditions constitute 42 vessels at 28 percent. The 27 Aranama Polychrome dishes follow at 18 percent. Finally, Late Poblano/Fine Line traditions make up 15 items and 10 percent of the collection. Here also quantification by weight and sherd count roughly followed this same order although Aranama and the Other Traditions category are closer in values.

Patterns within the Puebla Blue on White Tradition are shown on Table 8 and Figure 58. Puebla Blue on White dominates with 28 vessels at 43.75 percent, followed by San Elizario Polychrome with 25 items at 39 percent. Seven San Agustín-Molded Blue on White dishes made up 10.94 percent, three Zuñiga Polychrome vessels constituted 4.69 percent and a single Castillo Polychrome vessel made up 1.56 percent.

By weight San Elizario Polychrome dominated the assemblage at 42 percent followed by Puebla Blue on White at 33 percent. By sherd count Puebla Blue on White and San Elizario Polychrome are more evenly divided with Puebla Blue on White pieces making up 42 and San Elizario Polychrome almost 43 percent of the collection. There are also inconsistencies between relative MNV and sherd weights and counts for San Agustín-Molded Blue on White and Zuñiga Polychrome. By weight Zuñiga dominates at 7.73 percent as opposed to two percent for San Agustín-Molded Blue on White.

Aranama Polychrome Tradition vessel counts by type are shown in Table 9 and Figure 59. Monterey and San Diego Polychromes dominate with 8 vessels and 29.63 percent each of the assemblage. The remaining types are represented by significantly smaller amounts. Orange Band Polychrome and unidentified Aranama types are each represented by three dishes at 11 percent, and two San Ignacio Polychrome items constitute seven percent. The remaining types consist of one vessel each or 3.70 percent of the Aranama vessels.

By weight and sherd count Monterey Polychrome dominates the assemblage at 36 and 33 percent respectively. San Diego Polychrome follows at 28.61 percent by weight and 24.42 percent by sherd count. Frequencies of other types differ quite a bit from the MNV counts. By weight and sherd count unattributed Aranama sherds that could not be assigned to a specific minimum vessel made up five and 16.59 percent respectively, while Tubac Polychrome constituted 11.08 and 11.52 percent, and Tucson Polychrome 10.38 and 5.99 percent.

Other Mayolica Tradition vessel counts by type are shown in Table 10 and Figure 60. Of the 42 vessels represented, Huejotzingo Wavy Rim and Puebla White vessels dominate the assemblage with a MNV of 14 items each, constituting 33.33 percent each of the assemblage. Unidentified types and Huejotzingo Straight Rim vessels follow with seven items each at 16.67 percent. By weight and sherd count quantities do not closely follow the order represented by vessel numbers.

Late Poblano/Fine Line Tradition vessel quantities by type are shown in Table 11 and Figure 61. Guanajuato/Fine Line Polychromes are the most numerous with nine vessels at 60 percent. Three Tumacacori dishes constituted 20 percent of the collection, Esquitlan Black-Brown on Yellow is represented by two vessels at 13.33 percent and a single Esquitlan Polychrome vessel makes up 6.67 percent of the collection.

Table 12 and Figure 62 show MNV quantities of different Mayolica patterns by vessel type. Among the 43 escudilla bowls, 19 Puebla Blue on White decorated examples made

up 45 percent, or almost half of the assemblage. The next most numerous were eight Puebla White vessels at 19 percent. The remaining nine patterns each made up a small portion constituting three items (7 %) or less of the escudilla assemblage. However, the combined Aranama patterns represented seven dishes or 17 percent of the escudillas.

Of the 19 taza cups, six unidentified types dominated at 31.58 percent, followed by Puebla Blue on White with five items at 26 percent. Four Late Poblano/Fine Line Polychromes made up 21 percent. Two Puebla White and two San Agustín-Molded Blue on White vessels each constituted 10.53 percent of the assemblage.

Eighty-three platos represented 19 different patterns. Twenty-three San Elizario Polychrome decorated vessels dominate at 27 percent. These are followed by 20 Huejotzingo Straight (7) and Wavy Rim Band (13) items at 24 percent. Next in frequency are 10 Late Poblano/Fine Line at 12 percent, seven Monterey Polychrome at 8 percent, and five San Diego Polychrome decorated items, which made up 6 percent of the assemblage. The remaining 27 vessels or 32.50 percent, represent 14 different patterns constituting three vessels (3.61%) or less each of the collection. As with the escudilla bowls, if all Aranama items are combined they constitute a major decorative category for the platos and represent 20 items and 24.09 percent of the collection.

Finally, a single Puebla White jar (100%) and two unidentified vessels represented by Castillo Polychrome (50%) and Puebla Blue on White (50%) made up the reminder of the collection.

Chapel Assemblage Characteristics Summary

To summarize characteristics of the Mayolica assemblage, a minimum number of 148 individual vessels were identified. Puebla Blue on White Tradition decorated vessels dominated with 64 items and 43 percent of the collection. The Other Traditions category constituted 42 dishes at 28 percent. Twenty-seven Aranama Polychrome dishes follow at

18 percent. Finally, Poblano/Fine Line traditions make up 15 items and 10 percent of the collection.

The Mayolica assemblage from the Chapel Complex consists almost exclusively of table ware. Of the vessel forms eighty-three platos dominate making up 56 percent of the vessel assemblage. Forty-three escudilla style bowls constituted 29 percent, while 19 cups (tazas, jícaras, pocillos) represented 12.84 percent. The only non Table ware items are a single escudilla/jar at 0.68 percent, and two unidentified vessels that constitute 1 percent of the Mayolica collection. Tazas and escudillas combined represented 62 vessels and 41.89 percent of the assemblage.

There is some association with vessel form and specific pattern types. Puebla Blue on White shows a strong a relationship to escudilla bowls and taza and jícara cups. Among the 43 escudillas, 19 Puebla Blue on White decorated examples made up 45 percent, or almost half, of the assemblage. Among the 19 tazas and jícaras Puebla Blue on White decorated vessels were the highest ranking type at 26 percent. Additional significant associations for escudillas include eight Puebla White and seven combined Aranama patterned vessels that represented 19 and 17 percent respectively, while for cups (tazas, jícaras, and pocillos), a strong relationship with Late Poblano Mexican Fine Line patterns can be seen at 21 percent of the assemblage.

Of the 83 platos, 23 San Elizario Polychrome decorated vessels dominate at 27 percent. These are followed by 20 Huejotzingo Straight (7) and Wavy Rim Band (13) items at 24 percent. As with the escudilla bowls, if all Aranama items are combined they constitute a major decorative category for the platos and represent 20 items and 24 percent of the collection (See Table 12).

To summarize, Puebla Blue on White and Puebla White are mainly linked with escudilla bowls and taza and jícara cups. San Elizario Polychrome, and Huejotzingo edge decorated patterns, are largely associated with platos. Aranama Polychrome patterns show strong associations with platos and to a lesser extent with escudillas. There are no

Aranama decorated cups (tazas, jícaras, or pocillos). Combined Late Poblano/Mexican Fine Line traditions are largely represented by platos and taza, jícara, and pocillo cups.

Table 6: Mayolica Vessel Quantities

ITEM	MNV	MNV PERCENT	WEIGHT	WEIGHT PERCENT	SHERDS	SHERDS PERCENT
PLATOS	83	56.08	4199	77.57	1048	64.49
CUPS*	19	12.84	168	3.10	53	3.26
ESCUDILLA BOWLS	43	29.05	862	15.92	428	26.34
LARGE BOWL/JAR	1	0.68	15	0.28	2	0.12
UNIDENTIFIED	2	1.35	169	3.12	94	5.78
TOTALS	148	100.00	5413	100.00	1625	100.00
CUPS* and ESCUDILLAS COMBINED	62	41.89	1030	29.50	481	29.60

* includes tazas, jícaras, and pocillos

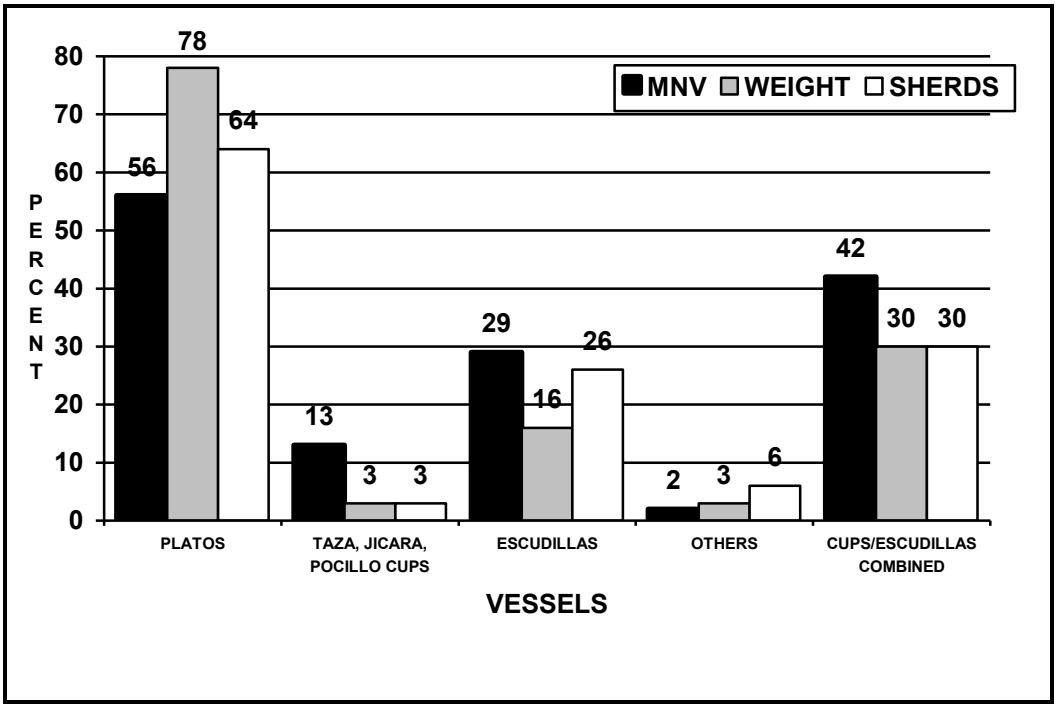

Figure 56: Mayolica Vessel Quantities Graph.

Table 7: Mayolica Tradition Quantities

ITEM	MNV	MNV PERCENT	WEIGHT	PERCENT	SHERDS	SHERDS PERCENT
PUEBLA BLUE ON WHITE	64	43.24	2755	50.90	1011	62.22
ARANAMA	27	18.24	713	13.17	217	13.35
LATE POBLANO / FINE LINE	15	10.14	182	3.36	49	3.02
OTHERS	42	28.38	721	13.32	208	12.80
UNATTRIBUTED	0	0.00	1042	19.25	140	8.62
TOTALS	148	100.00	5413	100.00	1625	100.00

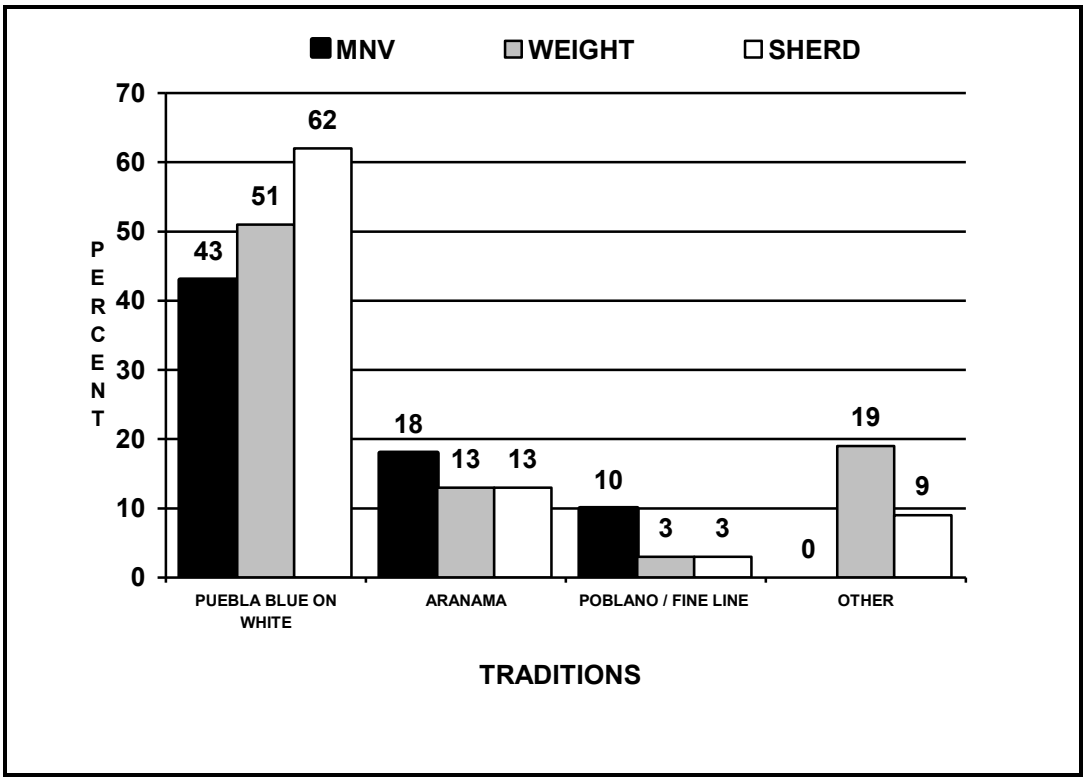

Figure 57: Mayolica Tradition Quantities Graph.

Table 8: Puebla Blue on White Tradition Pattern Quantities

TYPE	MNV COUNT	MNV PERCENT	WEIGHT COUNT	WEIGHT PERCENT	SHERD COUNT	SHERD PERCENT
Castillo Polychrome	1	1.56	4	0.15	9	0.89
Puebla Blue on White	28	43.75	918	33.32	425	42.04
San Agustín-Molded Blue on White	7	10.94	57	2.07	42	4.15
San Elizario Polychrome	25	39.06	1161	42.14	432	42.73
Zuñiga Polychrome	3	4.69	213	7.73	5	0.49
Unidentified Blue on White Sherds	0	0	402	14.59	98	9.69
TOTALS	64	100	2755	100.00	1011	100.00

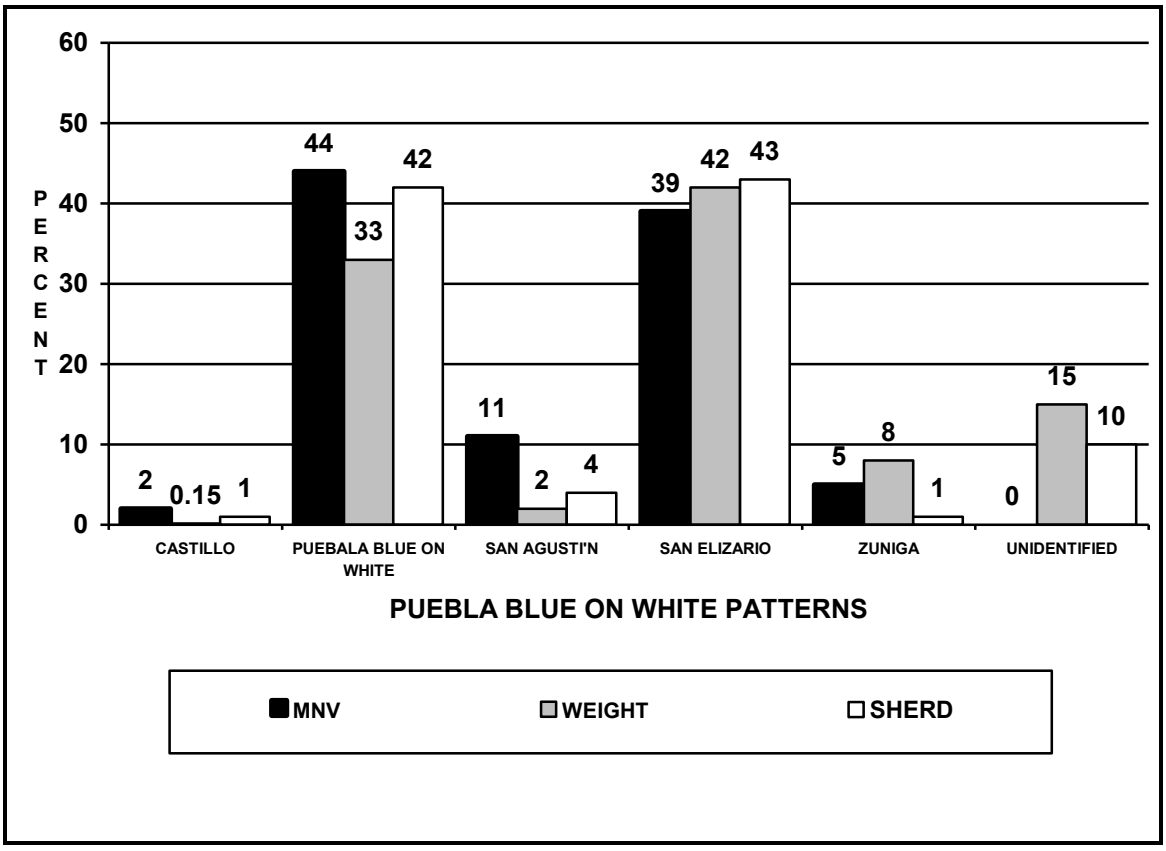

Figure 58: Puebla Blue on White Pattern Quantities Graph.

Table 9: Aranama Polychrome Pattern Quantities

TYPE	MNV COUNT	MNV PERCENT	WEIGHT COUNT	WEIGHT PERCENT	SHERD COUNT	SHERD PERCENT
Monterey Polychrome	8	29.63	257	36.04	72	33.18
Orange Band Polychrome	3	11.11	26	3.65	8	3.69
San Diego Polychrome	8	29.63	204	28.61	53	24.42
Santa Cruz Polychrome	1	3.70	3	0.42	3	1.38
San Ignacio Polychrome	2	7.41	12	1.68	3	1.38
Tubac Polychrome	1	3.70	79	11.08	25	11.52
Tucson Polychrome	1	3.70	74	10.38	13	5.99
Unidentified Aranama Polychrome	3	11.11	21	2.95	4	1.84
Unattributed Aranama Sherds	0	0.00	37	5.19	36	16.59
TOTALS	27	100.00	713	100.00	217	100.00

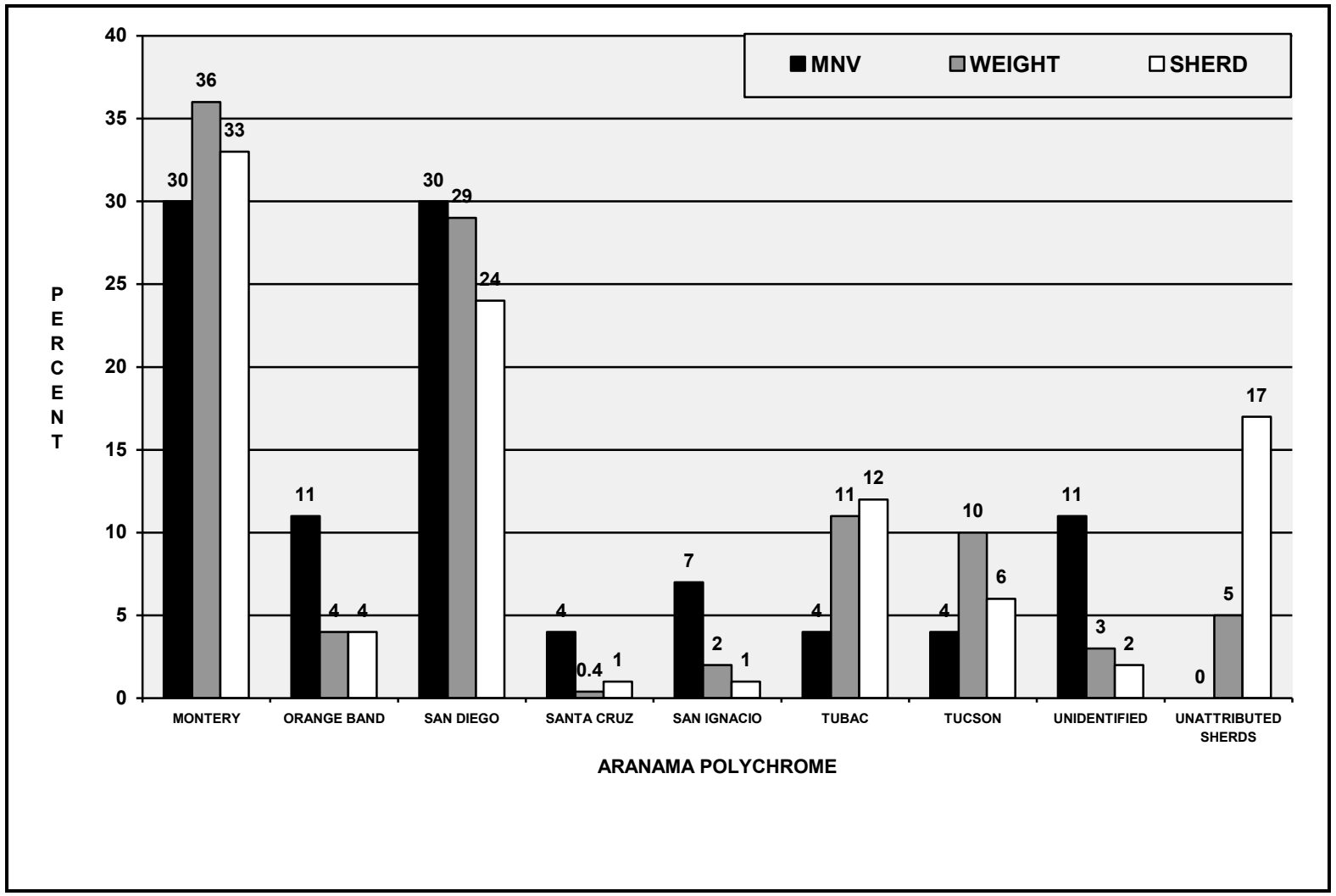

Figure 59: Aranama Polychrome Pattern Quantities Graph.

Table 10: Other Mayolica Traditions Quantities

TYPE	MNV COUNT	MNV PERCENT	WEIGHT COUNT	WEIGHT PERCENT	SHERD COUNT	SHERD PERCENT
Huejotzingo Straight Rim Band	7	16.67	101	14.01	51	24.52
Huejotzingo Wavy Rim Band	14	33.33	225	13.21	83	39.90
Puebla White	14	33.33	328	45.49	59	28.37
Unidentified Types	7	16.67	67	9.29	15	7.21
TOTALS	42	100.00	721	100.00	208	100.00

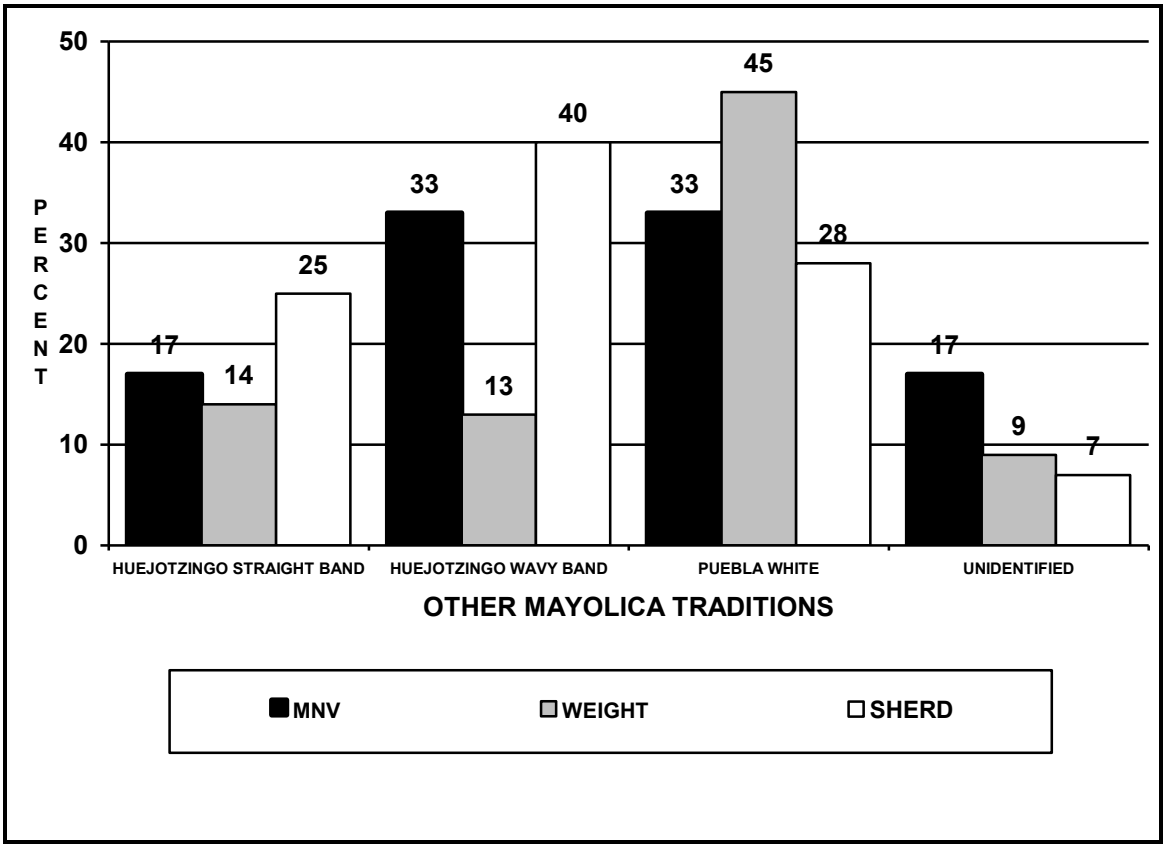

Figure 60: Other Mayolica Traditions Quantities Graph.

Table 11: Late Poblano/Fine Line Traditions Quantities

TYPE	MNV COUNT	MNV PERCENT	WEIGHT COUNT	WEIGHT PERCENT	SHERD COUNT	SHERD PERCENT
Esquitlan Black-Brown on Yellow	2	13.33	57	31.32	6	12.24
Esquitlan Polychrome	1	6.67	35	19.23	19	38.78
Guanajuato/Fine Line Polychrome	9	60.00	51	28.02	15	30.61
Tumacacori Polychrome	3	20.00	39	21.43	9	18.37
TOTALS	15	100.00	182	100	49	100.00

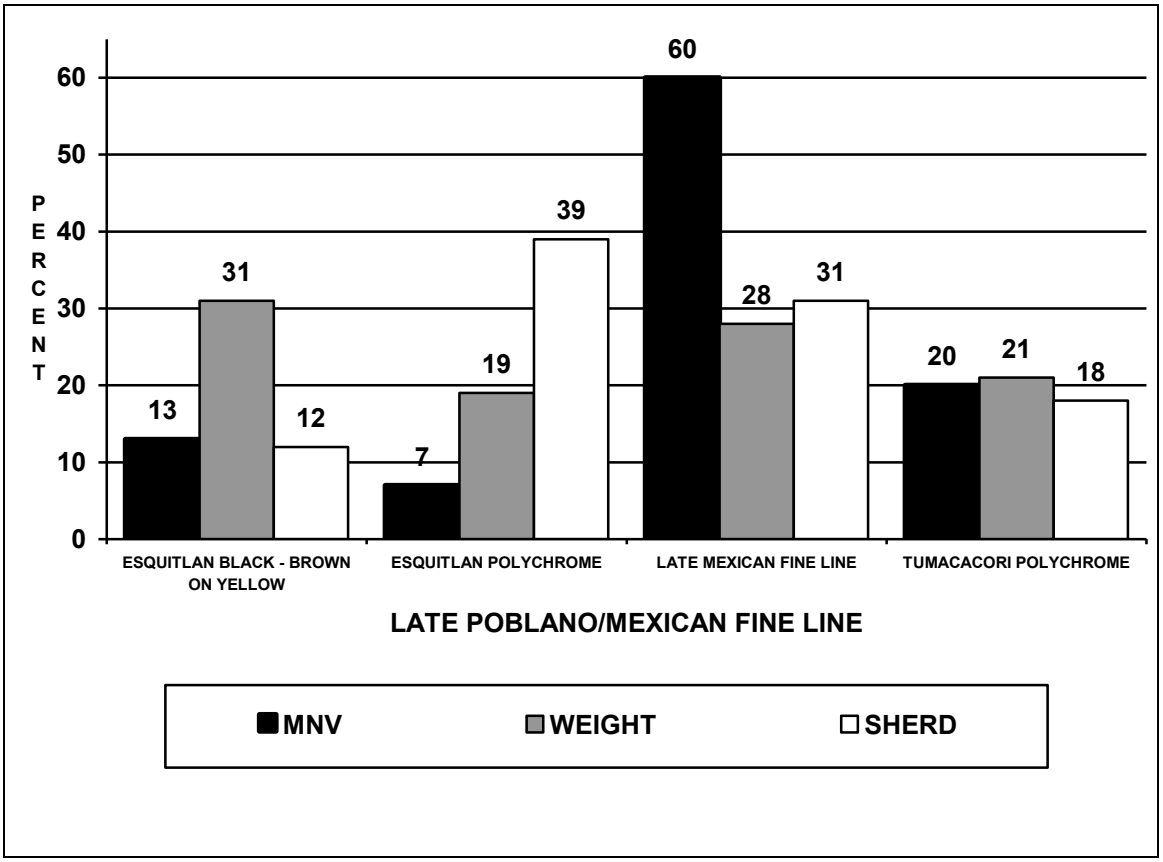

Figure 61: Late Poblano/Mexican Fine Line Tradition Quantities Graph.

Table 12: Mayolica Patterns by Vessel

VESSEL	TRADITION	PATTERN	PATTERN QUANTITY	PATTERN PERCENT	VESSEL QUANTITY	VESSEL PERCENT
Escudilla Style Bowls					43	29.05
	Aranama Polychromes	Monterey Polychrome	1	2.38		
	Aranama Polychromes	San Diego Polychrome	3	7.14		
	Aranama Polychromes	Tubac Polychrome	1	2.38		
	Aranama Polychromes	Unidentified Aranama Polychrome	2	4.76		
	Other Traditions	Huejotzingo Wavy Rim Band	2	4.76		
	Other Traditions	Puebla White	8	19.05		
	Poblano/Fine Lines	Tumacacori Polychrome	1	2.38		
	Puebla Blue on White	Zuñiga Polychrome	2	4.76		
	Puebla Blue on White	Puebla Blue on White	19	45.24		
	Puebla Blue on White	San Agustín-Molded Blue on White	2	4.76		
	Puebla Blue on White	San Elizario Polychrome	2	4.76		
		TOTAL ESCUDILLAS	43	100.00		
Cups (tazas, jícaras, and pocillos)					19	12.93
	Poblano/Fine Lines	Esquitlan Black-Brown on Yellow	1	5.26		
	Poblano/Fine Lines	Guanajuato/Fine Line Polychrome	3	15.78		
	Other Traditions	Puebla White	2	10.53		
	Other Traditions	Unidentified Types	6	31.58		
	Puebla Blue on White	Puebla Blue on White	5	26.32		
	Puebla Blue on White	San Agustín-Molded Blue on White	2	10.53		
		TOTAL CUPS	19	100.00		

Continued next page

Table 12: Mayolica Patterns by Vessel

(Continued)

VESSEL	TRADITION	PATTERN	PATTERN QUANTITY	PATTERN PERCENT	VESSEL QUANTITY	VESSEL PERCENT
Platos					83	56.08
	Aranama Polychromes	Monterey Polychrome	7	8.43		
	Aranama Polychromes	Orange Band Polychrome	3	3.61		
	Aranama Polychromes	San Diego Polychrome	5	6.02		
	Aranama Polychromes	San Ignacio Polychrome	2	2.41		
	Aranama Polychromes	Santa Cruz Polychrome	1	1.20		
	Aranama Polychromes	Tucson Polychrome	1	1.20		
	Aranama Polychromes	Unidentified Aranama Polychrome	1	1.20		
	Poblano/Fine Lines	Esquitlan Black-Brown on Yellow	1	1.20		
	Poblano/Fine Lines	Guanajuato/Fine Line Polychrome	6	7.23		
	Poblano/Fine Lines	Esquitlan Polychrome	1	1.20		
	Poblano/Fine Lines	Tumacacori Polychrome	2	2.41		
	Other Traditions	Huejotzingo Straight Rim Band	7	8.43		
	Other Traditions	Huejotzingo Wavy Rim Band	13	15.66		
	Other Traditions	Puebla White	2	2.41		
	Other Traditions	Unidentified Types	1	1.20		
	Puebla Blue on White	Puebla Blue on White	3	3.61		
	Puebla Blue on White	San Agustín-Molded Blue on White	3	3.61		
	Puebla Blue on White	San Elizario Polychrome	23	27.71		
	Puebla Blue on White	Zuñiga Polychrome	1	1.20		
		TOTAL PLATOS	83	100.00		
Jars					1	0.68
	Other Traditions	Puebla White	1	100.00		
		TOTAL JARS	1	100.00		
Unidentified Vessels					2	1.36
	Puebla Blue on White	Castillo Polychrome	1	50.00		
	Puebla Blue on White	Puebla Blue on White (late)	1	50.00		
		TOTAL UNIDENTIFIED	2	100.00		
		TOTALS			148	100.00

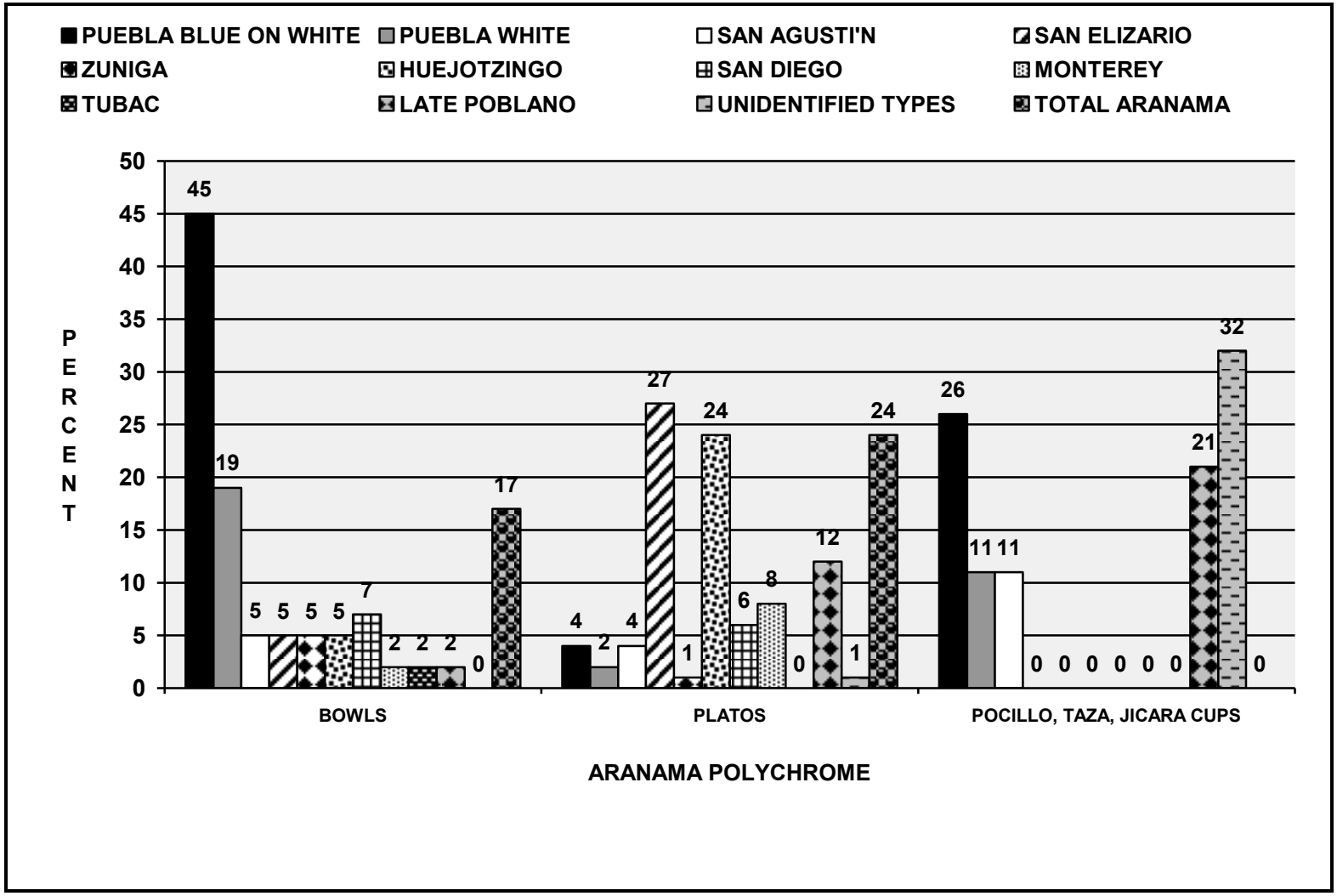

Figure 62: Patterns by Vessel Type Graph.

Cross Site Comparisons

Cross site comparisons included evaluation of similarities and differences between relationships of the San Diego Presidio Chapel Complex assemblage to Mayolica assemblages from other San Diego Presidio archaeological projects and the San Francisco California and Tubac Arizona presidios.

Table 13 and Figure 63 compare tradition quantities by sherd count between the Chapel, Gateway (Barbolla 1992:123), and North Wing (Williams 2014:308) excavations at the San Diego Presidio. All are dominated by Puebla Blue on White Tradition patterns. The Chapel is the lowest at 62 percent, followed by the Gateway at 78.97 and North Wing at 86.68 percent. For all projects combined Blue on White Traditions made up 80 percent of the Mayolica. At 13 percent each, frequencies of Aranama and the Other Tradition category sherds for the Chapel excavation are comparable to the other projects. Aranama Tradition patterns made up 10 percent of the Gateway assemblage, 11.84 percent of North Wing Mayolicas, and 11 percent of all projects combined. Other Traditions constituted 10 percent of the Gateway, less than 1 percent of the North Wing, and 6 percent of combined projects sherds. Late Pobalno/Fine Line vessels made op 3 percent of the Chapel Assemblage. This was significantly higher than the other collections where this tradition constituted around 1 percent or less of the totals.

On Table 14 and in Figure 64 traditions of the San Francisco Presidio Building 13 Midden and the Tubac Arizona Presidio excavations are compared to those of the San Diego Chapel Complex (Voss 2002:667; Jenks 2013). Again Puebla Blue on White Tradition patterns are by far the highest in all assemblages. San Francisco and San Diego are comparable to each other at 43 and 47.5 percent by MNV values, as are San Diego and Tubac at 62 and 61 percent by sherd count calculations. Values for Aranama and Other Traditions also very only slightly. Aranama (Abo/Aranama) for both San Diego and San Francisco are 18 percent, and 13 and 14.11 percent respectively for San Diego and Tubac. The Other Traditions category made up 28 and 35 percent of the San Diego and San Francisco assemblages and 13 and 23 percent of the San Diego and Tubac collections. Late Poblano/Fine Line vessels are also comparable in quantities between

assemblages constituting 10 and eight percent respectively by MNV of the Chapel and San Francisco collections, and 3 and 4 percent by sherd count of the San Diego Chapel and Tubac assemblages.

In Table 15 and Figure 65 vessel quantities from the San Diego Chapel, San Francisco Building 13 Midden, and Tubac are compared. The Mayolica assemblages from all three sites are almost exclusively tableware. Three vessel types, plato/soup plates, escudilla bowls, and taza cups, together make up almost 90 percent or more of the San Diego, San Francisco and Tubac assemblages. Plato/soup plates are the most numerous, constituting over half of San Diego's and 70 percent of San Francisco's and Tubac's assemblages. Combined taza cups and escudilla bowls follow. San Diego stands out in its larger ratio of 42 percent by MNV. By sherd count San Diego and Tubac are almost an exact match at 29.6 and 28.9 percent respectively. San Francisco at 17.5 percent MNV is significantly lower.

Overall, Mayolica decoration and vessel quantities from the San Diego Presidio Chapel Complex reflect a general pattern also apparent in the San Francisco and Tubac collections that is characterized by domination of Puebla Blue on White Tradition decorated vessels. Platos make the majority of identifiable vessel types in the assemblages followed by escudilla bowls and taza cups. Together these three vessel types make up almost 90 percent or more of the collections. These are typical of Mayolica assemblages from presidio sites throughout northern New Spain (the current Southwestern United States and Northern Mexico) and fit "within a broader regional pattern of late-eighteenth- and early-nineteenth-century colonial settlements" (Jenks 2013:17), where Puebla Blue on White tradition vessels predominate and plato vessel forms make up the majority of the assemblages followed by escudillas and tazas (Cohen-Williams 1992; Calhoun 1999:340; Cohen-Williams and Williams 2004; Williams 2014). Mayolica assemblages from northern frontier sites are almost exclusively tableware and consistently lack other vessel types such as "shaving dishes, inkstands, sand shakers, salt cellars, square bottles, flower pots, chamber pots (*bacines)*, jugs, tiles, chocolate jars, and

candlesticks" that are common in what were the more developed central regions of Colonial Mexico (Williams 2014).

It has been suggested by various authors that Aranama Tradition patterns became more popular during the late eighteenth and early nineteenth century and should, consequently, have higher representation in later period sites (Jenks 2013; Williams 2014). The cross site comparison analysis does not show a correlation between frequencies of Aranama decorated Mayolicas and temporal association. As noted above, values for Aranama traditions vary only slightly. For the San Diego Presidio excavations, Aranama frequencies for the later Chapel deposit (1820-1837) at 13 percent are comparable to the 10 and 12 percent for the earlier Gateway (pre-1810), and the North Wing (1769-1800). Likewise differences between the Chapel Complex Aranama quantities of 18 and 13 percent by MNV and sherd count and the two earlier assemblages at San Francisco (eighteenth century)[36] with 18 percent MNV and Tubac (1752-1783) with 14 percent sherd count are almost nonexistent in spite of the earlier deposit dates from the later two presidios.

Finally a brief statement on the economic status of presidio populations reflected in the quality of Mayolica sherds recovered from archaeological sites is offered here. (A more in depth discussion of economic and social status reflected in the entire ceramic assemblage is presented in the Synthesis and Conclusions section of Volume 5). It has been pointed out that requisitions for presidio supplies from San Blas had only minimal descriptions of ceramics (Voss 2012). Consequently, presidio families may have had little choice in decorative styles when acquiring Mayolica tableware from their local presidio warehouses. In spite of this, the overall grade of sherds recovered from California presidios makes a general statement on the economic and social position of presidio populations.

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36. "In summary, the ceramic data suggest that the deposit was accumulated primarily during the early years of the settlement's history; however, materials continued to be added to the deposit in the late 1700s and early 1800s and the deposit was not sealed until after 1810" (Voss 2002:695).

The original ceramic guild ordinances adopted in Puebla in 1653 specified two grades of Mayolica: common ware, designated común, and fine ware designated loza fina. The first had a poorer quality and the latter a higher quality glaze (Cervantes 1939 1:23; Connors McQuade 2005:136). Modifications in the regulations occurred over the decades and in 1682 three grades were established: "común" "fina" and "refina." Común was still the lowest grade, followed by fina. Refina was an even higher grade ware finished with blue on white Chinese style decorations. [37] It was used for vessels other than common table ware such as shaving dishes, inkstands, sand shakers, salt cellars, square bottles, flower pots, chamber pots (*bacines)*, jugs, chocolate jars, and candlesticks (Cervantes 1939 1:29; Fournier 1997, 1999; Reynoso Ramos 2004:128; Connors McQuade 2005:148; Castillo Cardenes 2013:45-47; Williams 2014).

Differences in sherds of loza común and fina can be detected through observations of paste and glazes. The paste of loza común varies in color from cream to white and is crumbly. The low content of tin in the glaze allows the paste to show through. The paste of loza fina is cream colored and firm. [38] The glaze is opaque and the paste does not show through (Zetlin and Thomas 1997:11-12; Charlton et al. 2007; Castañeda Gómez del Campo 2018:144-156).

Archaeological occurrences of loza común and fina have been associated with communities of different social and economic status. Higher grades of loza fina occur in sites representing urban centers, presidios, and mining districts (reales de minas). Excavations in rural areas produce higher quantities of loza común, indicating that

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37. Terminology used for the three grades varied. In 1751 the Puebla guild used "fina" and "entrefina" for the intermediate and highest grades (Cervantes 1939 Vol. 1:37). In Mexico City the intermediate grade was designated "loza entrefina," while "loza fina" referred to the highest grade (Fournier and Blackman 2007, 2008).

38. Three colors of paste were observed on the Chapel Collection Mayolicas: cream (10YR 8/1 & 8/2), salmon (7.5YR 8/6, 7/6 & 7/8), and pink (5YR 7/6) (Munsell Soil Chart 1975). Pink to rose colored pastes are associated with loza refina (Charlton et al. 2007). Although a few mayolica sherds in the San Diego Presidio Chapel Complex assemblage exhibited salmon to dark pink shades of paste, they were classified as intermediate grade loza fina. The fragments represented table wares rather than more elaborate vessel forms produced as loza refina.

consumers with less income purchased this grade of Mayolica (Fournier 1997:55, 1999:161; Reynoso Ramos 2004:128; Fournier and Zavala Moynahan 2014).

Mayolicas from the San Diego Presidio Chapel Complex exhibit attributes of loza fina or fine grade Mayolica. The sherds have a solid textured cream colored paste with occasional instances of rose to pink color, and solid opaque glazed surfaces that completely cover the underlying vessel body paste. Mayolica sherds from other areas of the San Diego Presidio and from the Presidio of San Francisco have the same loza fina attributes (Voss 2012; Williams 2014). So although individual presidio soldiers and their families may not have had a wide choice in the ceramics that arrived from San Blas, in the case of Mayolica it was almost all fine grade ware that is associated with metropolitan centers, other northern frontier presidios, and mining district sites, as opposed to rural sites where inhabitants had less disposable income. The fact that shipments of presidio Mayolicas consisted of fine grade wares suggests that as a whole the presidio population represented a middling rather than economically depressed class on the frontier.

Table 13: San Diego Presidio Chapel, Gateway, and, North Wing Mayolica, and Combined Projects Tradition Quantities by Sherd Count

Tradition	Chapel		Gateway*		North Wing**		All Projects	
Puebla Blue On White	1011	62.22	5146	78.97	5499	86.68	11656	80.47
Aranama	217	13.35	659	10.11	751	11.84	1627	11.23
Late Poblano/Fine Line	49	3.02	***36	0.55	73	1.15	****151	1.04
Other Traditions	208	12.80	675	10.36	21	0.33	911	6.29
Unattributed	140	8.62	0	0		0	140	0.97
Totals	1625	100.00	6516	100.00	6344	100.00	14485	100.00

*From Barbolla 1992:123. The "White Tin-glazed" category has been removed and the totals recalculated.

** Williams 2014:308 The "White Mayolica" general category has been removed and the totals recalculated.

*** Ventura & Tumacacori Polychromes.

**** Mexico City Yellow, Tumacacori Polychrome, Ventura Polychrome, Later Mexican Polychromes.

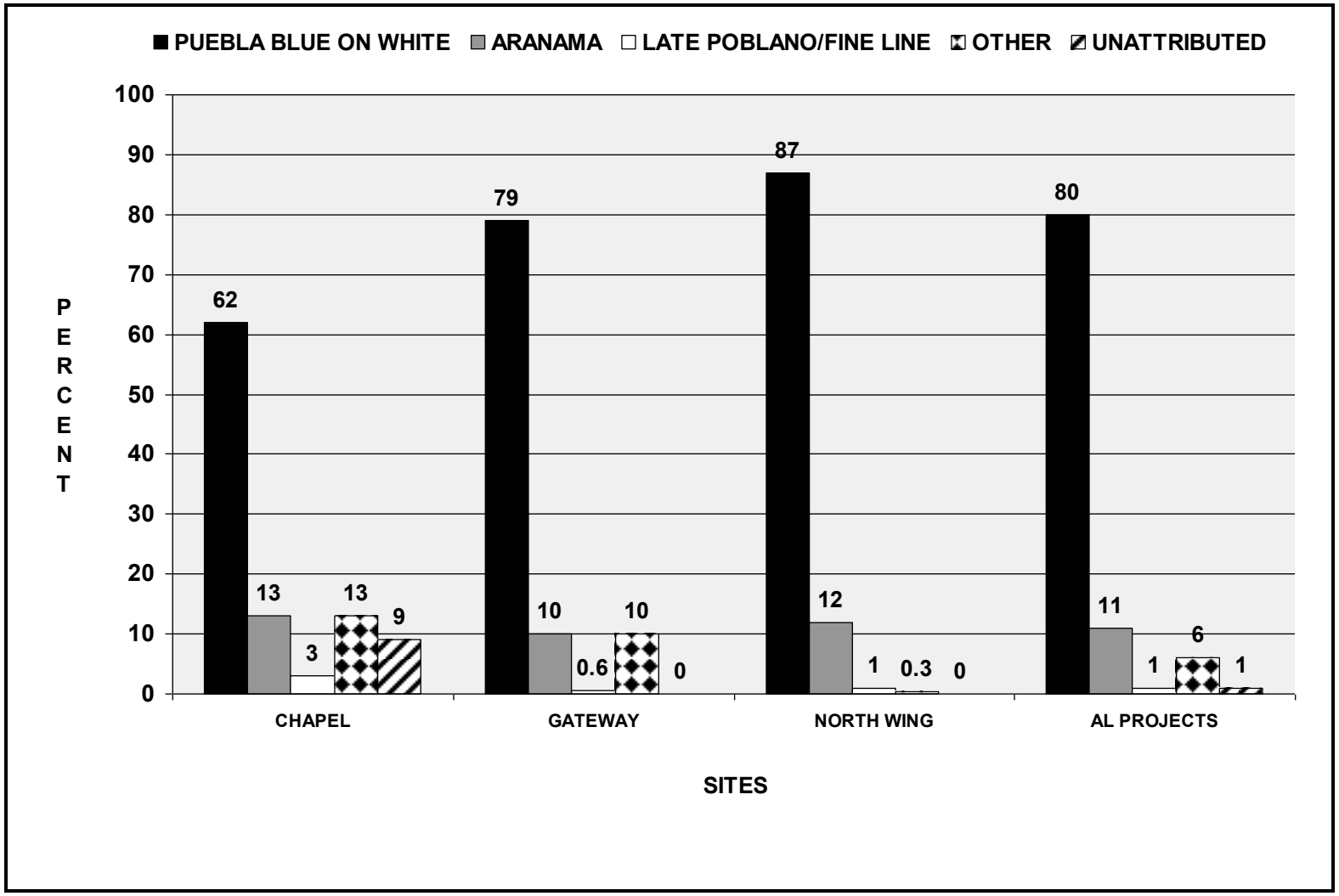


Figure 63: Graph of San Diego Presidio Chapel, Gateway, North Wing, and Combined Projects Mayolica Tradition Quantities by Sherd Count.

Table 14: San Diego Presidio Chapel, San Francisco (MNV) and Tubac (sherd count) Tradition Quantities

	SAN DIEGO CHAPEL		SAN FRANCISCO BUILDING 13 MIDDEN*		SAN DIEGO CHAPEL		TUBAC**	
TRADITION	MNV	MNV PERCENT	MNV	MNV PERCENT	SHERDS	SHERDS PERCENT	SHERDS	SHERDS PERCENT
Puebla Blue On White	64	43.24	19	47.50	1011	62.22	1341	68.76
Aranama	27	18.24	7	17.50	217	13.35	322	14.11
Late Poblano/Fine Line***	15	10.14	3	7.50	49	3.02	82	4.16
Others	42	28.38	14	35.00	208	12.80	524	22.96
Unattributed	0	0	0	0	140	8.62	0	0
TOTALS	148	100.00	40	100.00	1625	100.00	2187	100.00

*Voss 2002:667.

** Jenks 2013. To achieve consistency with methods used in this study, which does not use undecorated fragments that provided no evidence for identification of vessel type or decorative style, the "Pseudomajolica, indeterminate, and undecorated white sherds" category in Jenks' original tables were removed and the numbers recalculated.

*** From the Voss and Jenks studies; includes Fine Line Polychromes, Tumacacori Polychromes, and Yellow Polychromes.

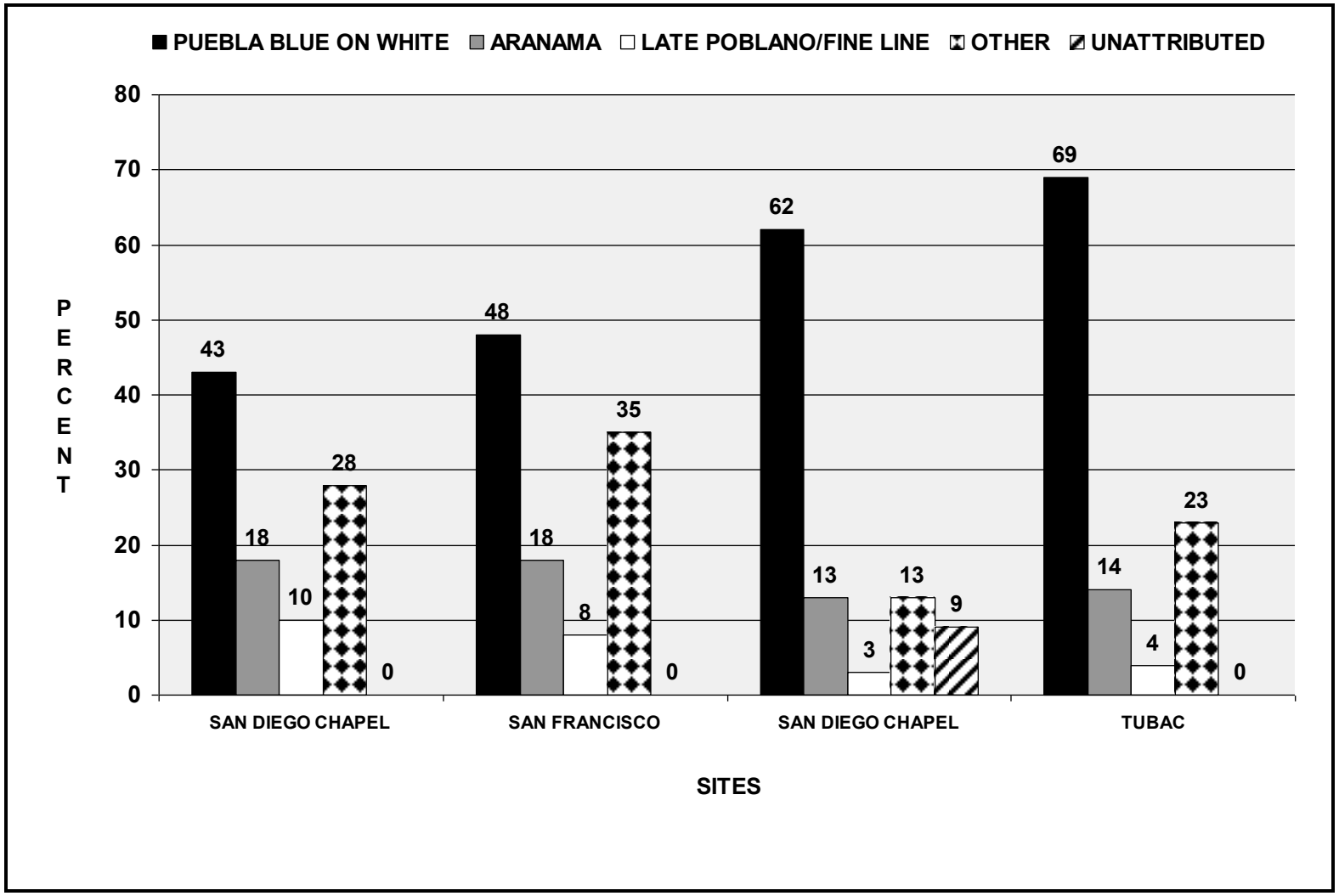


Figure 64: Graph of San Diego Presidio Chapel, San Francisco (MINV) and Tubac (Sherd Count) Tradition Quantities.

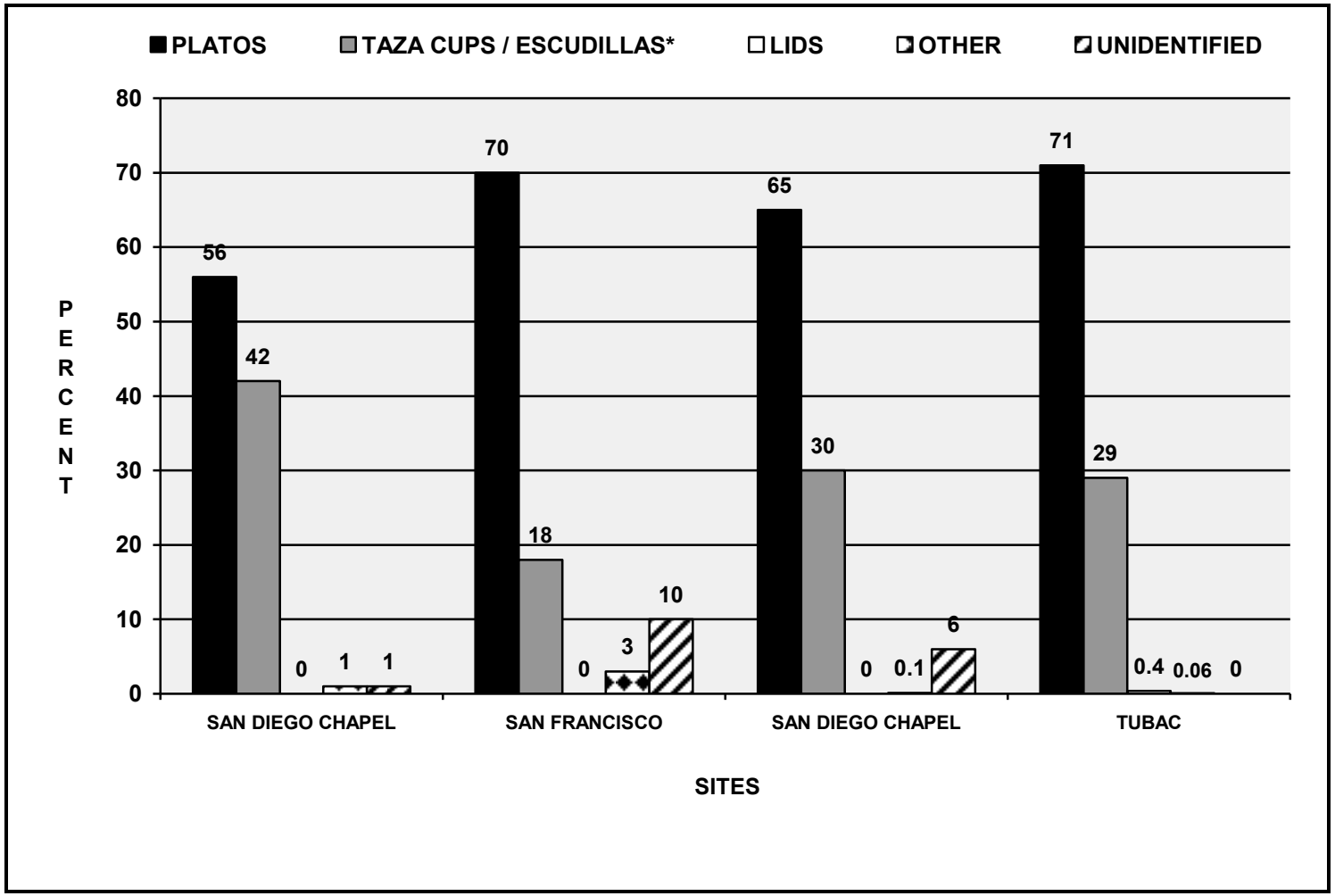
Table 15: San Diego Presidio Chapel Complex, San Francisco Presidio (MNV) and Tubac Presidio (sherd count) Vessel Quantities

	SAN DIEGO CHAPEL		SAN FRANCISCO BUILDING 13 MIDDEN*		SAN DIEGO CHAPEL		TUBAC**	
ITEM	MNV	MNV PERCENT	MNV	MNV PERCENT	SHERD COUNTS	SHERDS PERCENT	SHERD COUNTS	SHERDS PERCENT
Platos	83	56.08	28	70.00	1048	64.69	1213	70.60
Taza Cups*** Escudilla Bowls Combined	62	41.89	7	17.50	481	29.60	497	28.93
Lids	0	0	0	0	0	0	7	0.41
Other	1	0.68	1	2.50	2	0.12	1	0.06
Unidentified Vessels	2	1.35	4	10.00	94	5.78	0	0
TOTALS	148	100.00	40	100.00	1625	100.00	1718	100.00

*Voss 2002:667.

** Jenks 2013. To achieve consistency with methods used in this study, which does not use undecorated fragments that provided no evidence for identification of vessel type or decorative style, the "undecorated white" category in Jenks' original tables was removed and the numbers recalculated.

*** Includes tazas, jícaras, and pocillos.



* Includes tazas, jícaras, and pocillos.

Figure 65: Graph of Vessel Counts. San Diego Presidio Chapel MNV counts compared to San Francisco MNV counts, and San Diego Presidio Chapel sherd counts compared to Tubac sherd counts.

TONALÁ BRUÑIDA WARE

By Stephen R. Van Wormer

Definition

Tonalá Bruñida is an unglazed, slip decorated, highly burnished earthenware. It is found in relatively small frequencies on many Mexican Colonial and early Republic period sites in California, the Southwestern United States, Texas, Florida, Mexico, and the Caribbean. The ware is known by a variety of terms including Guadalajara Polychrome, Tonalá Ware, Tonalá Polychrome, Aztec IV Polychrome, Tonalá Bruñida Ware, Bruñida de Tonalá Ware, and Tonalá Burnished Ware. In Mexico it is called Bruñida, Barro Bruñido, and occasionally Loza de Olor.[39] In the eighteenth and nineteenth centuries it was called Loza de Guadalajara, Loza de Olor, Bucaro de Guadalajara, and Bucaro. The latter term was used in Spain. The porous fine cream, tan, or gray colored paste shows no obvious tempering. Vessel exteriors are covered with a fine white, tan, or pink clay slip, which serves as a background for colored slip applied decorations in a variety of colors including blue-gray, black and various shades of red and orange. Designs consist of thin delicate rectilinear, floral, and curvilinear elements, geometric forms, and animal motifs, with exterior bands on most of the rims and around the bases. The surfaces of some sherds are entirely red or black on one surface. This exterior was burnished or polished with a stone giving the vessels a subdued sheen.[40] Interior treatments varied. Some exhibit simple smoothed surfaces, while others were slipped and burnished. Archaeological and ethnographic evidence indicate that vessels were formed on mushroom molds (Diaz 1966:143; Goggin 1968:226-227; Fairbanks 1973; Katz 1977:55;

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[39] *Loza de Olor* (fragrant pottery or clay) was an eighteenth century term that was still used in Tonalá in the 1970s (Katz 1977:54). Another ware currently produced in Tonalá known as *Barro Canelo* (cinnamon clay) is related to Barro Bruñido but uses a palette of orange, yellow and brown colors rather than the gray-blue, red, black, and orange of Bruñida Ware.

[40] Charlton and Katz (1989) describe the finish as a "brilliant gloss." However, the Bruñida Ware finish does not shine like a glazed vessel. It is much more subdued and satin like. For detailed descriptions of decoration see Katz 1977:105 and Charlton and Katz 1979.

Charlton and Katz 1979; Deagan 1987:44-46; Voss 2002:679-680; Fox and Ulrich 2008:42).[41] A distinctive attribute of Bruñida Ware is the pleasant odor it gives off when wet. This is the basis of the term Loza de Olor (fragrant or aromatic pottery) (Katz 1977:57).

History

Ceramic manufacturing has flourished in Tonalá, a city near Guadalajara in the Mexican State of Jalisco, for over 400 years. Tonalá Bruñida Ware is one of eight types of pottery currently produced there. The genesis of Bruñida is not known. Although burnished pottery was manufactured on mushroom molds in the regions of western central Mexico prior to European conquest, the forms and decorative motifs of Tonalá Bruñida are Spanish in origin, suggesting that the ware was developed under the direction of Spanish priests in the mid to late sixteenth century (Charlton and Katz 1979; Lombardi González 2008:96; Freitag 2012:68). Its manufacture dates back to at least the mid 1600s (Diaz 1966:139-140; Katz 1977:54; Charlton and Katz 1979; Voss 2002:679-680).

Renowned for its rich decoration and pleasing aroma when moist, a high quality red slipped Bruñida Ware, known as Bucaro, evolved into an exotic luxury item exported to elite and aristocratic households across New Spain, other Spanish Colonies, and Europe (Figure 67) (Katz 1977:52; Charlton and Katz 1979; Lopez Cervantes 1990). Other more common Tonalá Bruñida polychrome decorated styles were also distributed throughout the Spanish Colonies and Europe (Figure 160). Unlike the exotic Bucaro, these are some of the least expensive ceramics listed in eighteenth and nineteenth century probate inventories for households on the northern frontier, ranking below Mayolicas and above lead-glazed wares (Fournier 1997:54).[42] It is these wares that are largely represented by the Tonalá Bruñida sherds on archaeological sites.

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[41] For a detailed description of Bruñida Ware production see Diaz 1966:143-147, Katz 1977:137-139, and Charlton and Katz 1979.

42 La Mayólica Poblana tiene un precio menor al de la porcelana china y mayor en terminus generales al loza bruñida de Tonalá (producida en Jalisco), mientras que las lozas vidridas y de tradición indigina tienden a ser las de mas bajo costo. (Puebla Mayolica has a price less than Chinese porcelains but greater generally than loza bruñida from Tonalá made in

Figure 66: Two Red Slipped Bucaro Vessels. Top: taza, courtesy Victoria and Albert Museum, #303-1872; bottom: jar, Metropolitan Museum of Art Open Access Collections # 2015.45.2 a.

Jalisco), while the lead-glazed wares and those of native Indian tradition tend to be the lowest in cost.) (Fournier 1997: 54).

Figure 67: Common Tonalá Bruñida Ware. Top: taza cup, courtesy Victoria and Albert Museum accession # 314-1872, https://collections.vam.ac.uk/item/O160216/bowl-unknown/; bottom: escudilla bowl, courtesy Victoria and Albert Museum accession # 313-1872 https://collections.vam.ac.uk/item/O128999/bowl/ (© Victoria and Albert Museum, London).

Because the porous clay enhanced evaporation and kept contents cool Bruñida Ware was used principally for storing or holding unheated liquids. The permeable body and heat sensitive slip also made this pottery unsuitable for hot foods and cooking (Katz 1977:77). Vessels included water jars, glasses, escudilla- style bowls, pitchers, vases, tankards, taza cups and pots. Small platos, boxes, and animal figurines were also produced. Women carried the small polished figurines as amulets. It is reported that the aroma of water in Bruñida jars during the summer was so enticing women would eat the clay, which was sold along with broken sherds in Jalapa, Veracruz, and Acapulco (Diaz 1966:139-140; Katz 1977:77; Logan 1977:90; Charlton and Katz 1979; Deagan 1987:46; Voss 2002:679-689).

During the twentieth century Bruñida evolved into more of a tourist collector's item than a utilitarian ware. Wider varieties of shapes are currently produced than in the past. Escudilla bowls are now rarely manufactured. In the 1950s potters started to adopt two piece molds. Although employing traditional designs, products from the mid-twentieth century and later can be distinguished from their eighteenth and nineteenth century predecessors by the use of white highlights, fine feathery strokes, and an elaboration of detail (Diaz 1966:146; Katz 1977:56; Charlton and Katz 1979).

Scholarship

As noted above, this ceramic has been known by a variety of terms resulting in a confusing state when describing its research history and nomenclature (Deagan 1987:44-46). Hale Smith first described Tonalá Bruñida in 1949, designating it "Mexican Type A" (Smith 1949:12-13). In the southeast it was dubbed "Aztec IV" ware (Deagan 1987:44-46). In 1968 Goggin described the ware, calling it "Guadalajara Polychrome" (Goggin 1968:210). In 1972 Charles Fairbanks suggested that it should be named Tonalá Polychrome due to its origin in that pueblo (Fairbanks 1973:170). Following his lead others began to use the term Tonalá Ware along with Tonalá Polychrome (Deagan 1987:46). Patricia Login, using the term Aztec IV, wrote an extensive description of Tonalá Bruñida vessels recovered from the *San Jose y Animas* shipwreck off the coast of

Florida in 1977 (Logan 1977:90). Two years later Thomas Charlton and Roberta Katz published a history and detailed description using the term Tonalá Bruñida Ware (Charlton and Katz 1979). In 2002, in her description of ceramics recovered from the San Francisco Presidio, Barbara Voss adopted the completely Spanish name Bruñida de Tonalá as her nomenclature of choice (Voss 2002:679-680), and six years later Fox and Ulrich (2008:42) reversed this short lived precedent and used the anglicized designation Tonalá Burnished Ware. In addition to archaeological studies a large number of folk art and ethnographic works on the potters of Tonalá and their products have been produced, with detailed accounts of Bruñida Ware's manufacture and history (Marin de Paalen 1960; Diaz 1966; Katz 1977; Lopez Cervantes 1990; Romero Tores 1990; Hernández Casillas 1996; Olveda 1999; Freitag 2012).[43]

Chapel Complex Tonalá Bruñida Ware

A total of 58 sherds, weighing 204 grams, of Tonalá Bruñida Ware was recovered from the San Diego Presidio Chapel Excavation. From 45 of these sherds a minimum number of 22 distinct vessels and other objects were identified through analysis of pattern designs, body shape, rim diameter, and paste color. They are discussed here by descriptive categories based on decoration.

Black Band on Rim with Bands and Other Decorative Motifs

These sherds are characterized by black bands around and just below the vessel rims. Some are combined with pink, orange and blue stripes. Body sherds exhibit delicate rectilinear, floral, and curvilinear elements, and geometric forms.

Through an analysis of 19 (32.76%) sherds, nine (40.91%) vessels with black rim bands and other decorative motifs were identified including three (33%) small escudilla style bowls with rim diameters between 8 and 10 inches (20-25.4 cm), a small shallow escudilla (11%) with a 5 inch (13 cm) rim diameter, a taza (11%) with a 2.5 inch (6.3 cm)

[43] For a more comprehensive discussion of Mexican works on the potters of Tonalá see Freitag 2012:27-31.

rim diameter, two platos (22%) with 10 and 11 inch (25.4-28 cm) diameters, and two (22%) 1.5 inch (4 cm) rim diameter small mouthed botellón-like vessels (Figures 68).

Red Slipped

An analysis of 8 (13.79%) sherds, resulted in identification of two (9.09%) items covered entirely in red clay slip, including unidentified vessel body sherds with a curvature like that on a large basin, and the leg of an animal figurine 1 and 1/8 inch (3.5 cm) in length, which had black dots representing toes at the end (Figures 69-70).

Figure 68: Tonalá Bruñida Sherds. Top: Black Banded plato MNV # G75, and Black Banded on pink plato, G87B and A; middle: Black Banded escudilla bowls, MNV #s G76, G12, G71, G73; bottom: Black Banded taza cup; MNV # G74, and Red, Orange and Black Banded taza G82A & B.

Figure 69: Tonalá Sherds. Black banded narrow mouth botellón like vessel MNV #s G79A, B, & C; and unidentified red slipped vessel MNV # G80A.

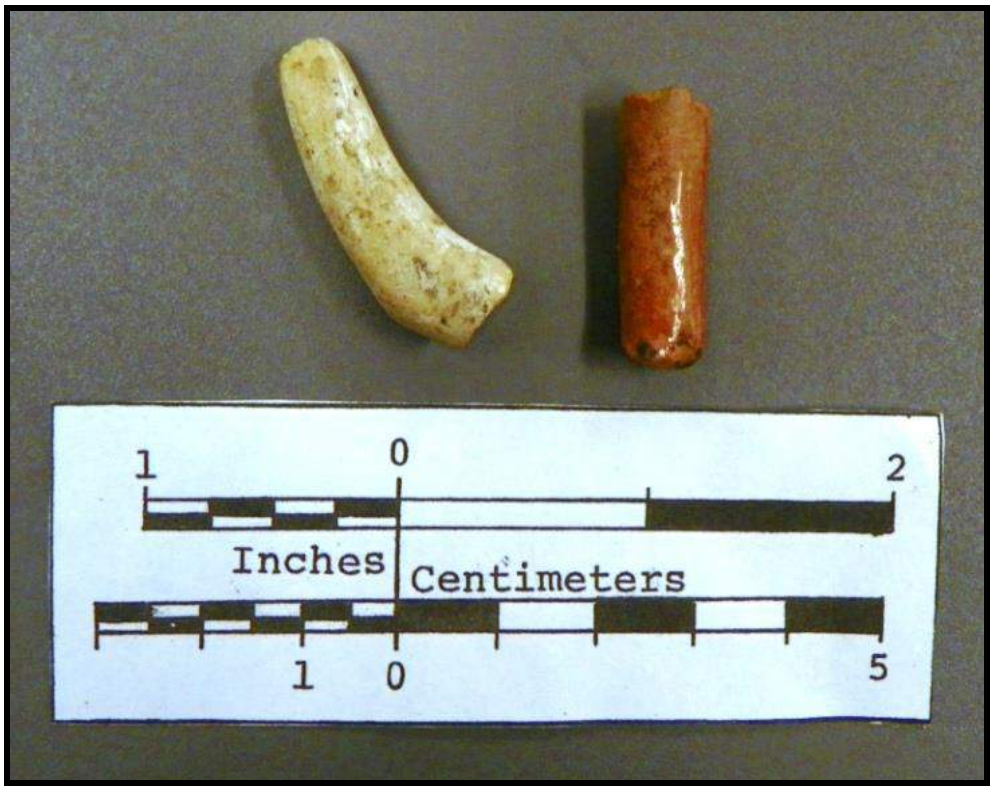

Figure 70: Tonalá Animal Figurine Pieces. Left, undecorated figurine limb or horn MNV # G98; right, red slipped leg MNV # G88.

Red Orange and Black Bands

These sherds are characterized by black and orange bands around and just below the vessel rims. An analysis of 3 (5.17%) sherds resulted in identification of 3 (13.64%) items exhibiting red, orange, and black bands including two (37%) unidentified vessels of undetermined diameter, and a two inch (5 cm) diameter taza (33%) (See Figure 68).

Red-Pink Slip on Light Grey to Cream Body

These sherds are characterized by red to pink slips. Some are combined with black and orange stripes. Body sherds exhibit delicate floral and curvilinear elements.

An analysis of 11 (18.97%) sherds, resulted in identification of 5 (22.73 %) vessels decorated with a red-pink slip including two (40%) unidentified vessels of undetermined diameter, a 1.75 inch (4.5 cm) diameter taza (20%), an escudilla bowl of undetermined diameter (20%), and a plato (20%) of undetermined diameter represented by two body sherds (Figure 71). The plato had thin black lines applied to the underlying pink base slip to form black and pink stripes (See Figure 68).

Undecorated

These sherds consist of items formed of Tonalá Bruñida body paste that have no surface decoration. An analysis of 4 (6.90%) sherds resulted in identification of 3 (13.64%) items without surface decoration, an animal figurine limb or horn 1.25 inches (3 cm) in length (33%), (See Figure 70), a small shallow saucer 2 inches (5 cm) in diameter (33%), and a candleholder socket 2.25 inches (6 cm) in diameter (33%) (Figure 72). Surfaces of the saucer and figurine had been burnished yet exhibit no additional surface embellishments. The candle holder is crudely formed, apparently by hand, and not burnished. The top rim has been darkened from burning.

Figure 71: Red Pink Slip Sherds Unidentified Vessels. Top MNV #s G84 A & B (left), G86A & B (right); bottom G85A through D.

Figure 72: Undecorated Tonalá Pieces. Left, saucer MNV # G99; right, candle holder MNV # G100. The top rim of the candle holder appears to have been darkened from burning. See Figure 70 for figurine limb.

Tonalá Bruñida Ware Assemblage Characteristics

Tonalá Bruñida Ware items included hollowwares, platos, figurines, and a candle holder. A minimum number of 22 individual items representing eight different forms were identified. Relative frequencies are shown on Tables 16 and 17 and in Figure 73. Hollowwares dominated and consisted of five escudilla style bowls (22.73%), a saucer (4.55%), and two small mouthed vessels (9.09%). Three flatware platos (13.64%) and five unidentified vessels (22.73%) made up the remainder of the table and serving ware assemblages. Remaining items included the candle holder (4.55%) and limbs of two figurines (9.09%).

The collection is similar to the Tonalá Bruñida Ware assemblage from the Building 13 Midden of the San Francisco Presidio. All ten vessels from that site were hollowware items including taza cups, escudilla bowls, "and other tablewares," as well as "restricted-mouthed hollowares that were used for storing and pouring liquids" (Voss 2002:680).

Table 16: Tonalá Bruñida Ware Descriptive Category Quantities

DESCRIPTIVE CATEGORY	MNV	MNV PERCENT	WEIGHT	WEIGHT PERCENT	SHERDS	SHERDS PERCENT
Black Band Rim	9	40.91	37	18.14	19	32.76
Red Slip	2	9.09	33	16.18	8	13.79
Red, Orange, and Black Bands	3	13.64	7	3.43	3	5.17
Red-Pink Slip on Lt. Grey to Cream Body	5	22.73	24	11.76	11	18.97
Undecorated	3	13.64	83	40.69	4	6.90
Undetermined	0	0.00	20	9.80	13	22.41
TOTALS	22	100.00	204	100.00	58	100.00

Table 17: Tonalá Bruñida Ware Vessel Quantities

ITEM	MNV	MNV %	WEIGHT	WEIGHT %	SHERDS	SHERDS %
Escudilla Style Bowls	5	22.73	21	10.29	10	17.24
Platos	3	13.64	4	1.96	4	6.90
Taza Cups	3	13.64	5	2.45	4	6.90
Saucer	1	4.55	11	5.39	2	3.45
Small Mouthed Vessel	2	9.09	14	6.86	7	12.07
Unidentified Vessel	5	22.73	55	26.96	15	25.86
Candle Holder	1	4.55	70	34.31	1	1.72
Figurine	2	9.09	4	1.96	2	3.45
Misc Body Sherds	0	0.00	20	9.80	13	22.41
TOTALS	22	100.00	204	100.00	58	100.00

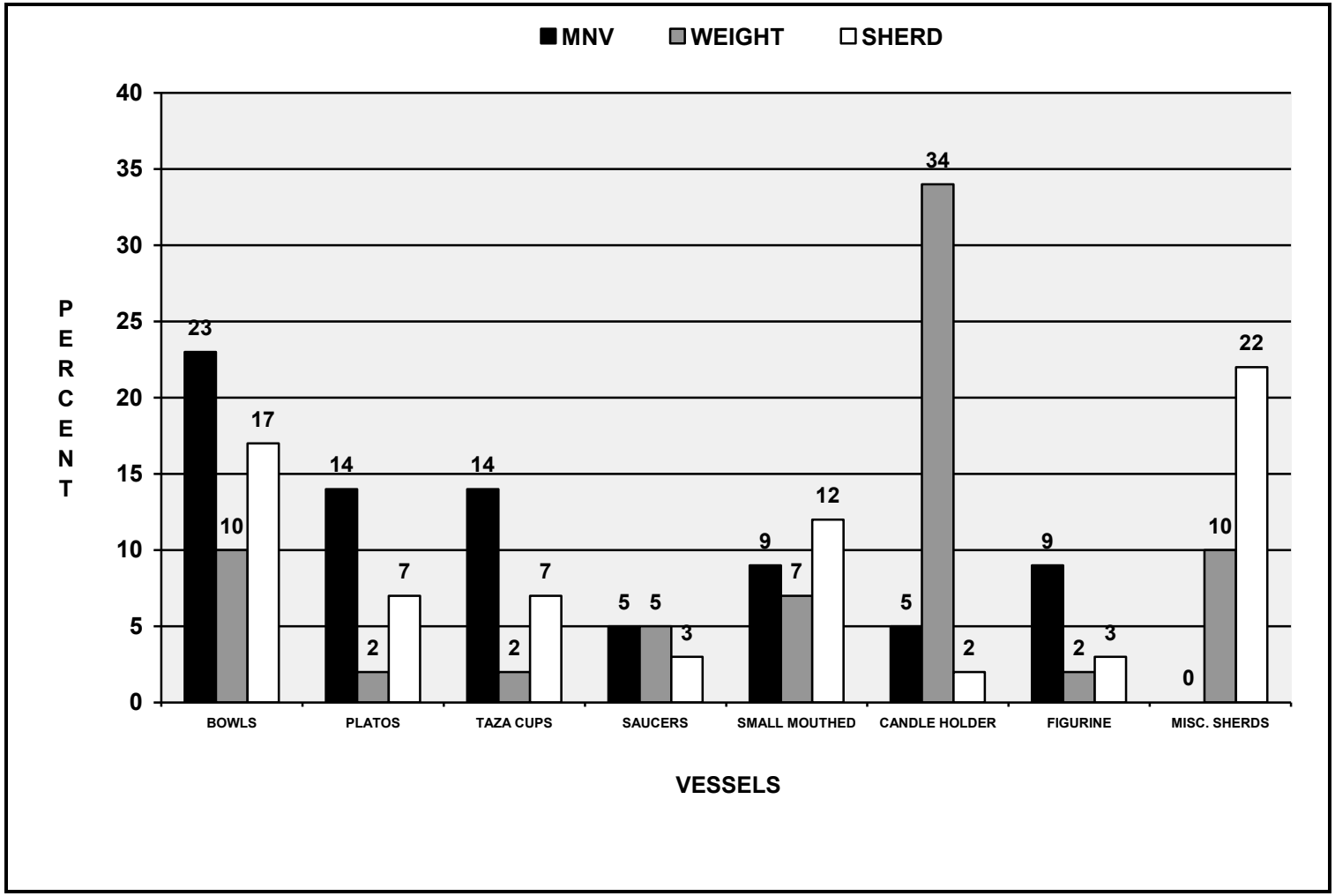

Figure 73: Tonalá Bruñida Ware Vessel Percentages.

BOTIJA – OLIVE JAR

By Stephen R. Van Wormer

Definition

Botijas - Olive Jars were coarse earthenware amphora shaped vessels with narrow necks and mouth openings. They were sometimes coated on the inside with a lead glaze varying from emerald to olive green in color and on some the exteriors had a thin white slip. The paste color is usually reddish to pale tan. For slightly over 300 years (1490-1800) they served as the main ceramic shipping container for the Spanish Colonies. Remains are common on the Caribbean islands and the Atlantic seacoast from Florida to Venezuela. Examples occur much less frequently in the Mexican interior, the current American Southwest, and California, although a few sherds are present at almost every Colonial period site (Goggin 1960:5-6; Deagan 1987:32; James 1988:43; Carruthers 2003:41). Although most were manufactured in Spain, substantial quantities were also produced in the Americas, which is why in this report they have been included in the Mexican Ceramics discussions.

Although their main use was the transport of wine and olive oil from Spain to the Colonies they also held a variety of other products including olives, honey, vinegar, almonds, capers, chickpeas (garbanzos), hazelnuts, rice, tuna, raisins, figs, eggplant, flour, myrrh, brandy, lima beans (habas), lard, various types of fragrant oils, pitch, soap, gunpowder, and round lead shot for firearms (Goggin 1960:3; Deagan 1987:30-31; Carruthers 2003:42; Fox and Ulrich 2008:64; Pasinski & Fournier 2014:1, 4). Specific products sent in Botijas from San Blas to California Presidios included honey, lemon syrup, oil, and Sevillean olives (Perissinotto 1998:176, 224, 302, 306, 318, 328, 362).

New World colonists reused Botijas as storage and transportation containers in domestic and military contexts. They were utilized for the storage of foodstuffs, fermentation of liquor, and for packaging of local products for shipment throughout the colonies and back to Spain. Many saw use as tinajas for holding household water. In some instances the

mouth was reworked to make a larger opening (Deagan 1987:32; Pasinski and Fournier 2014:5; Guerrero-Rivero et al. 2020:5).[44]

As with many Mexican Colonial period ceramics, there is no consensus on a common term for these containers. Historically a number of labels were used including tinaja, perulera, botija, and botixuela or botijuela (Goggin 1960:4; Deagan 1987:31; Guerrero-Rivero et al. 2020:4). In light of the fact that all of these terms had other meanings in contemporary Latin American usage, John Goggin used the designation Olive Jar in his initial 1960 study "as the equivalent to a 'type name' with no local, ethnographic, or linguistic significance." This label also had no reference to contents (Goggin 1960:5). Archaeologists working within the context of the United States generally use the term Olive Jar, while Spanish language publications use botija, which seems to reflect the most common historic usage (Carruthers 2003:42). Pasinski and Fournier (2014) have proposed the label "Spanish ceramic shipping container." The current study has adopted the term Botija - Olive Jar, which will be shortened to Botija in most of the remaining text.

History

Botijas represent a shipping and storage tradition with ancient origins in the Mediterranean region extending back to the Canaanite, Phoenician, Greek, Roman, Byzantine, and Medieval eras (Goggin 1960:30; Deagan 1987:35; James 1988:43; Guerrero-Rivero et al. 2020:4). "They probably represent the end of one of the longest continuous ceramic traditions on record" (Goggin 1960:30). Botija production occurred largely in Spain but substantial vessel quantities were also produced in the Americas. Documentary and geochemical analysis on sherds found in the old and new worlds indicate Spanish potters in the regions of Seville and Cadiz in Southern Andalusia manufactured these vessels (Goggin 1960:5, 31; Fournier et al. 2017; Guerrero-Rivero et al. 2020:4-5). Production in the Americas has been confirmed for Panama, Peru,

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[44] A secondary use of Botija-Olive Jars has been seen in building construction.

Argentina, and possibly Chile (Ferrer et al. 2014; Pasinski and Fournier 2014:4; Guerrero-Rivero et al. 2020:5-8). Styles changed. Early in the colonial period Spaniards used a globular and a conical form. Over time the globular vessel handles were done away with and production evolved from joining two molded halves together to throwing on a potter's wheel (Pasinski and Fournier 2014:2).

Scholarship

The first major study of Botijas was Goggin's 1960 work on "The Spanish Olive Jar," which he presented as "an initial contribution to the study of the olive jar, outlining major styles and indicating their time range. Although it does not completely define all major details of this ware, some of these will be brought out in more intensive later studies of individual archaeological sites" (Goggin 1960:30). He defined three datable styles: Early (ca. 1500–1580), Middle (ca. 1580–1800), and Late (post ca. 1800); and four vessel shapes within each style (Goggin 1960:30; Deagan 1987:31; Pasinski and Fournier 2014:5). Subsequent studies have expanded on Goggin's original typology and provided refinements of the various periods (Martin 1979; Skowronek 1987; James 1988; Marken 1994; Avery 1997; Carruthers 2003:42). Continuing investigations have led some scholars to believe that definitions have become clouded, leading Pasinski and Fournier (2014:5) to conclude:

> There appears to be no consensus on the definition of a colonial, ceramic shipping container. If, in Greco-Roman times, it was defined by the "carrot-shaped" amphora, Goggin accepted that in his study but was forced to include the globular vessels also used in Spanish Colonial maritime commerce. Subsequent writers have brought into the discussion flat-bottomed containers, with their myriad of shapes and sizes (e.g., James 1988; Marken 1994).

Chapel Complex Botija – Olive Jar

Botija fragments consisted of 42 sherds weighing 1035 gms. Of these 27 sherds weighing 913 gms represented a minimum number of 3 vessels. Pieces were too fragmented to allow determination of body shape (Figure 74). It is assumed that they represent Goggin's middle to late styles, which would be closest to the period of use and deposition of other artifacts from the Chapel Excavation deposits.

The Botijas undoubtedly arrived as product containers aboard San Blas supply ships. They were then retained to be reused, the most likely secondary function being as cántaros or tinajas for water transport and storage.

An example of a Botija reused for water storage was encountered during the 1983 excavation of the Peñasquitos Adobe in San Diego County. The building had been constructed by Presidio Commandant Maria Francisco Ruiz in 1823-1824. The Botija was found buried right side up in a Kitchen – Lavenderia area. The vessel measured 60 cm (23.6 inches) in length and 40 cm (16 inches) in diameter at its widest point. The opening had been enlarged by cutting the top portion off at the shoulder. It thus served as a tinaja for storing household water (Figures 75 - 76) (Hector 1984, 1993, 1998; Hector and Van Wormer 1986).

With a MNV number of only 3 vessels, Botijas are not a common ceramic item in the Chapel Complex ceramic assemblage. From the Building 13 Midden deposit at the San Francisco Presidio two Botijas (ollas de acete) were identified by minimum vessel grouping (Voss 2002:446-447). From the San Diego Presidio Gateway Excavation trash pit Botija (Olive Jar) sherds made up just 2 percent of the non-Mayolica Mexican-produced sherds, which made up only 5 percent of the total ceramic sherd recovery (Barbolla 1992:121, 125). Consequently, at both San Francisco and the San Diego Presidio Gateway trash deposit Botijas were extremely uncommon items, so that

quantities are comparable to those for the San Diego Presidio's Chapel Excavation assemblage.

Figure 74: Chapel Complex Olive Jar Sherds. Rim, shoulder, and interior green glazed body sherds (MNV # G91).

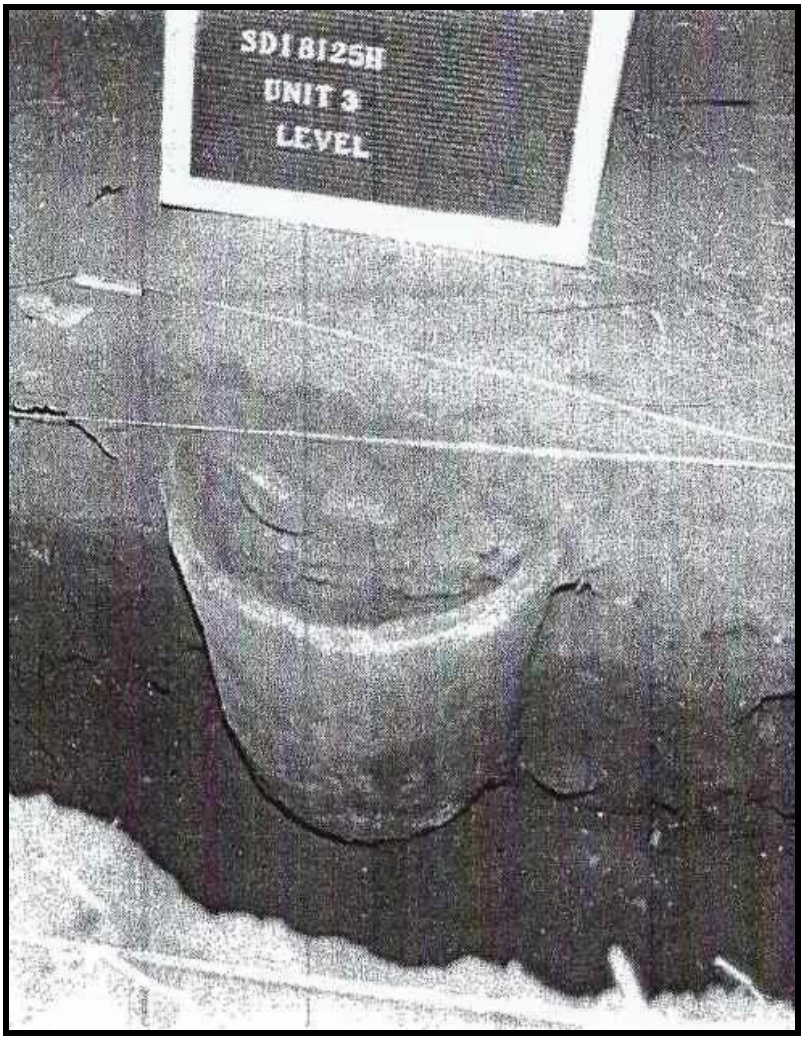
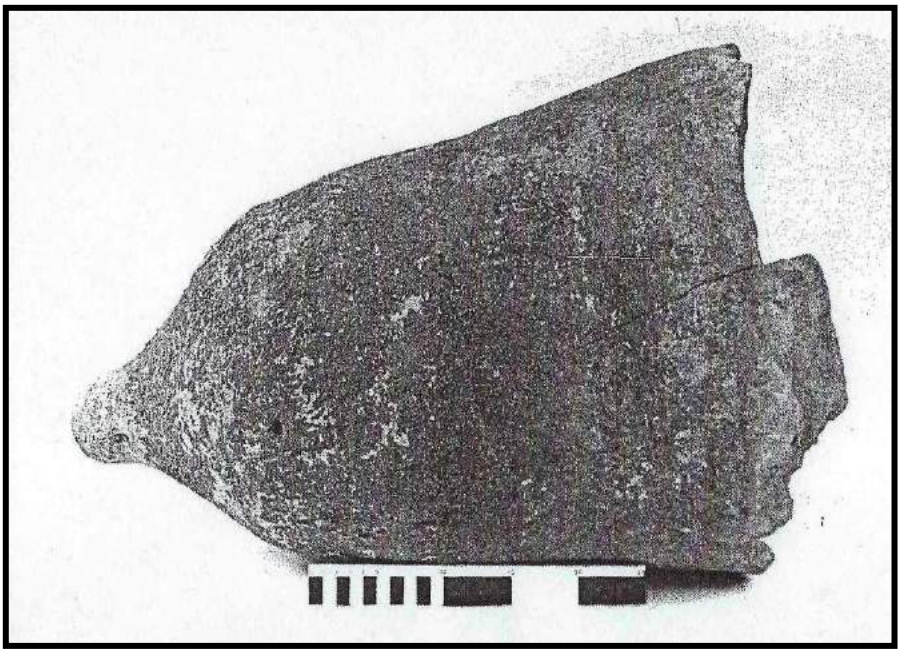


Figure 75: Peñasquitos Botija in Situ (Hector 1984: Photograph 10).



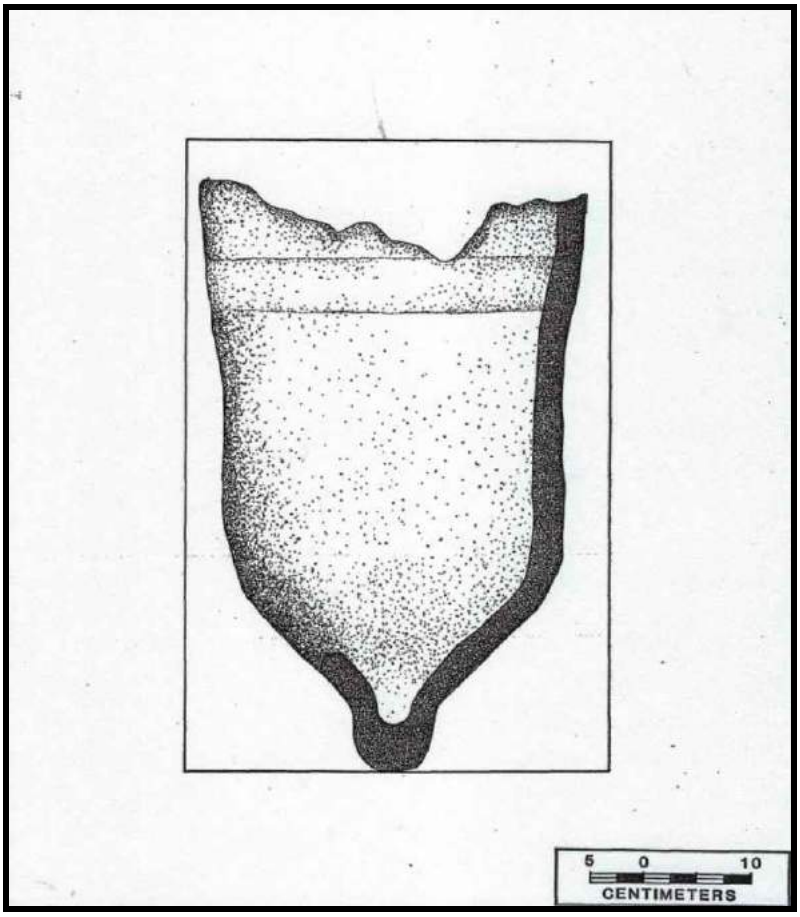


Figure 76: Peñasquitos Botija (Hector and Van Wormer 1986).

NATIVE AMERICAN BROWN WARE POTTERY

By Sue A. Wade and Stephen R. Van Wormer

A las doce comen juntos . . ., sus tazas de barro, sus vasos de yerba bien tejida que el agua no puede salir, sino cuando es tenida ante la cara del sol, sus sartenes de barro, sus parrillas de palo hechas para aquel día, y sus cántaros para el agua, también de barro (Pablo Tac 1840) (At twelve everyone eats together . . . , with their clay cups, their well-woven grass baskets that let no water leak out unless it is held up to the face of the sun, their clay pans, their wood grills made for that day, and their cántaros, also made of clay) .[45]

A la hora de comer cada uno tomaba su platillo colorado hecho por los alfaros (Amador 1877:142) (When it was time to eat each one got their red plates made by the local potters).

Los que tenían platos, que eran pocos, comeron en ellos – los que no, usaban cajetes de barro que tenían forma que los platos comunes (Lugo 1877:84) (Those who had plates, which were few, ate on them – those who did not used cajetes of clay, that had the same form as common platos).

It is wonderful to see ... how these Indians manage to manufacture their well-finished earthen pots (De Cañizares 1769:344).[46]

The cooking utensils are made of clay and are of all dimensions (Ryan 1848-1849:119-120, quoted in Crosby 2015:118).

Definition

Native American Brown Ware pottery is an unglazed, usually undecorated, low fired ceramic produced by local Southern California Native Americans. It is known by a variety of terms including: brown ware, unglazed brown ware, Southern California

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[45] Original Spanish version provided by Dr. Damian Bacich. See also Hass 2011.

[46] Also quoted in Panich and Wilken-Robertson 2013:75.

Brown Ware, plainware, unglazed low fired earthenwares, Alta California Unglazed Earthenwares, Tizon Brown Ware, and brown ware pottery of Southern California (Griset 1990, 1996; Williams 1997:28; Voss 2002:77, 686; Silliman 2004:34-35; Schafer 2012; Felton et al. 2014; Skowronek et al. 2014; Peelo 2014).

Two major types were recovered at the San Diego Presidio: Tizon Brown Ware and to a much lesser extent Lower Colorado Buff Ware [47] (Bartel 1991; Ezell and Ezell 1980; Barbolla 1992:120; Williams 1997:28, 2004). Both are pottery traditions with prehistoric origins. Vessels were formed by coiling and shaped with a paddle-and-anvil.[48] Tizon Brown Ware was made from high iron content residual granitic-derived clays of the Peninsular Range, and takes on various shades of grey-brown to orange red after being fired under oxidizing conditions.[49] Formed from low iron content sedimentary clays of Southern California's Colorado Desert, Lower Colorado Buff Wares fire to colors of pink, buff, beige, and grey (Waters 1982; Griset 1990:180, 1996; Wade 2004a:6-7; Panich and Wilken-Robertson 2013).

History

The Indian people of Southern Alta and northern Baja California have produced pottery vessels for over a thousand years. The ability to produce ceramic vessels provided opportunities for travel and exchange. Pots functioned as carriers of trade goods, containers for long-term storage, and efficient vessels for food preparation. Paddle-and-anvil manufacturing techniques as well as overall forms remained constant throughout the region during the Late Prehistoric period. Prehistoric potters utilized clays from two regions, mountain residual brown clays and desert sedimentary buff clays. Distribution of pottery vessels made from both clay types across Southern California attests to the

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[47] Also known as buff ware (Griset 1990:180; Barbola 1992:120) and Colorado River Buff Ware (Williams 1997:28).

[48] For a detailed description of manufacturing techniques see Rogers 1936:5-15, 45-50; Wade 2004a:9-20.

[49] Although originally used by Lyndon L. Hargrave to describe pottery in northwestern Arizona, "Tizon Brown Ware" is now commonly applied by archaeologists to paddle-and-anvil pottery made from residual clays found in the western part of the Yuman culture area (Panich and Wilken-Robertson 2013:76-78; also see Griset 1990).

importance of pottery in the exchange and travel networks of the natives. In San Diego County, the pottery-making tradition persisted through the historical period until the mid-twentieth century; however, in Baja California, in the Paipai ranchería of Santa Catarina, traditional pottery is still being produced (Wade 2004a:v, 1, 21-22; Panich and Wilken-Robertson 2013).

The ceramic tradition in coastal Southern California is thought to have been first introduced from the Southwest, perhaps as early as A.D. 600–799 (1400-1200 years before the present). Both Yuman and Shoshonean speakers made paddle-and-anvil pottery. Brown ware was produced by the Kumeyaay (Ipai/Tipai), Luiseño, Juaneño, Mountain Pass and Desert Cahuilla, some of the southernmost Gabrielino and Serrano, as well as the Colorado Desert tribes east of the coastal mountains. Production extended as far south as the Paipai in northern Baja California and in a broad swath from coastal southern California into northwestern Arizona. Because of the pre-existing ceramic tradition in these areas, Indian-made pottery in historic contexts is often virtually indistinguishable from prehistoric examples (Waters 1982; Griset 1990:181, 1996:263; Wade 2004a:20; Burton and Quinn 2013:100; Graham 2019:71).

It was the custom for Mexican Colonial households to use Indian pottery for much of their primary cookware. This occurred early in the European settlement of the Americas. Residents of sixteenth century Spanish colonies in the Caribbean, Mexico, Florida, and South America adopted Native American ceramics (Deagan 1996:143, 146; Fournier 1999:153; Ness 2017:94). As the frontier moved north from central Mexico, settlers incorporated the native earthenware they encountered into their daily lives with little change so that Native made pottery continued to be used extensively in Mexican households. The pre-conquest vessel shapes adapted easily to meet the colonizers' needs for food preparation, consumption, water transportation and storage (Fournier 1999:161; Pavao-Zuckerman and Loren 2012:220; Thiel 2017:318), and Mexican Colonial women found native pots and bowls more than suitable for use as ollas, cajete-style bowls, cazuelas, jarros, drinking vessels, and water storage containers. As was their already well established custom, upon arrival in present-day Southern California, Colonial settlers

quickly adapted local native produced Tizon Brown Ware, and to a lesser extent Lower Colorado Buff Ware pottery vessels to their own culinary and household needs (Felton et al. 2014:230-231).

With a few brief exceptions, notations about use of Indian-made pottery are largely absent from period writings but brown ware pottery sherds are prevalent in the historical archaeological record. Artifactual evidence indicates that Indians produced an abundance of vessels for use in presidios, missions, pueblos, and ranchos. "Native pots were incorporated in the Euro-American ceramic assemblage and were used as culinary implements contemporaneously with imported ceramics" (Griset 1990:191). As noted above, Native American ceramics occur in abundance at the Presidio of San Diego (Ezell and Ezell 1980; Bartel 1991; Barbolla 1992:120; Williams 2004). They also occur in Mexican and American period sites in Old Town San Diego, on rural ranchos, and other Early American Period occupations in San Diego County and throughout Southern California (Evans 1969; Griset 1990:191; Silliman 2004:34-35; Wade 2004a:2, 47; Schafer 2012:140; Felton et al. 2014). As Felton and others (2014:227) have noted "The sheer volume of unglazed brown ware ... of Native American manufacture in historic period deposits in Old Town [San Diego] suggests wide spread and ongoing use of these vessels. This in turn implies a lively ceramic industry through at least the 1840s." In the late nineteenth and early twentieth centuries, the Kumeyaay were still producing traditional pottery for trade or sale to settlers, collectors, ethnographers, and museums. The last pottery to be produced in early twentieth century southern California was sold to art collectors and tourists, and incorporated non-traditional technologies, forms, and decorations. Paipai potters in Baja California continue to produce pottery for the tourist trade. The persistence of the Indian pottery tradition for over 250 years after European contact is strong evidence for the strength and continuity of Native traditional cultural survival and adaptation to Hispanic and American society (Wade 2004a:118).

Scholarship

Introduction

The study of brown ware pottery produced by prehistoric and historic period Yuman peoples of Southern California began in the mid-nineteenth to early twentieth centuries with collections of representative vessels from the region's Indian communities, made during ethnographic and anthropological studies. These collections contributed to the holdings of many local and national museums, such as the San Diego Museum of Man (now the Museum of US), the Phoebe Hearst Museum of Anthropology, and the National Museum of the American Indian, as specimens of ethnographical interest. The vessel collections provide an invaluable template of indigenous forms and historic modifications against which to evaluate pottery assemblages under study today. Brown ware pottery study in the early-to-mid twentieth century shifted to the archaeological focus developing in museum and academic spheres. Collections of excavated brown ware fragments were then valued as components of site collections and analyzed for their archaeological data value and their ability to assist in archaeological research. In recent decades, numerous archaeometric studies have been employed in analysis of both prehistoric and historic period brown ware pottery sherds to investigate a variety of research questions.

For archaeological research of the San Diego Presidio, the data provided in the ethnographic/anthropological collections are of value to understand the persistence and adaptations reflected in the pottery forms in use (Griset 1990; Wade 2004a). This work informed the subsequent vessel form descriptions and syntheses developed for early archaeological analysis by Gladwin, Colton, Rogers, Euler, and Schroeder and refined in the later twentieth-century by San Diego County archaeologists. The vessel form typology used for the brown ware Presidio analysis reflects this history. It is hoped that the wealth of archaeometric studies that have provided recent advancements in the research can be employed in future research of the Presidio collections.

Ethnology and Anthropology

The beginnings of scholarly interest in Native American brown ware pottery vessels were in ethnological studies and museum collecting of the nineteenth century. The National

Museum of the American Indian (NMAI) at the Smithsonian Institution holds the earliest known pottery collections from San Diego County. These are attributed to one of the great botanical, archaeological, ethnological, and zoological collectors of the nineteenth century, Dr. Edward Palmer (McVaugh 1956). In the summer of 1875, his work in San Diego "involved a trip by coach to Soledad, another to Jamul, a long trip of a month to the Cuyamaca Mountains and Julian, the Diegueños near Warner's Ranch, and the Indians in Coahuila Valley." His success in collecting may be judged from a newspaper notice, which he received on his return to San Diego: "[Dr. Palmer] arrived here from Julian City yesterday, bringing with him two wagon loads of the curious things he had gathered" (McVaugh 1956:63). National Museum of the American Indian accession records (Smithsonian Institution 2020) document that Palmer collected ten brown ware vessels in 1875 in San Diego County California attributed to the "Diegeños Indians." Photographs identify two Open Bowls (one described as "for eating" and one "for cooking"), two Vertical Sided Pots, four Moderately Constricted Pots, and two Highly Constricted Pots. Two buff ware painted vertical-sided pots were also collected. The brown ware vessels all appear to represent "in-use" items, as four are highly burned with extensive carbon deposits from use over a fire and two are identified as "pot for cooking." All are traditional forms with no historical modifications. Their variety suggests that Palmer strived to acquire a representative sample of vessel forms in use by the native people.

Horatio Rust, after decades of avocational archaeological excavation and collecting in the eastern United States, began exploring in the West, eventually moving to Pasadena in the 1880s, and was ultimately appointed Indian Agent for a large area of the state. He documented Native village activities and ceremonies and collected artifacts, culminating in the sale of his personal collection of an estimated four thousand artifacts to Frank G. Logan for exhibition at the 1893 World's Columbian Exposition. His collection was curated at the Logan Museum of Anthropology, Beloit College, Wisconsin. Rust was formally commissioned by the Smithsonian Institution to collect among the Southern California Indians in 1900 and 1901 (Militello 2009). His collected brown ware pottery vessels are attributed to the "Dieguenos Inds" and now curated at the National Museum

of the American Indian (Smithsonian Institution 2020). The brown ware vessels include a "double-lobed" "olla" with a flat bottom, an "olla," a moderately-constricted pot with two tabs on either side with holes for cord and apparent red paint.[50] The flat-bottom, the double-lobes, and the "hanging" tabs are apparent historical modifications. Rust also collected pottery- making tools - a stone anvil (that appears to actually be a bifacial mano), a polishing stone, and a wood paddle made from a pine plank from a "Borax Soap Co." crate. These items were purchased in "San Felippe" and "Coahuilla," both regions of eastern San Diego County that had experienced European contact for decades (the village of San Felipe was noted by the first travelers on the Southern Overland Trail in the 1850s), and where Palmer apparently collected 25 years earlier.

In the early twentieth century, between 1901 and 1908, and later in 1920, Alfred Kroeber and his associates and students at the Department of Anthropology, University of California, Berkeley, documented Indian tribes throughout California. Kroeber, Thomas Waterman, and Leslie Spier collected hundreds of pottery vessels, baskets, stone and bone tools, fiber items, bows, arrows, and food and botanical samples from the Mojave, Luiseño, Diegueño, Cupeño, and Cahuilla peoples of Southern California (Phoebe A. Hearst Museum 2020). Unfortunately, data/photographs of the ceramic items at the Phoebe A. Hearst Museum of Anthropology are not currently available on-line. Recognizing that relationships with local Indian communities took years to develop, large-scale collectors and non-local museums also employed Indian agents, trading post owners, ranchers, or local ethnographers. The Hearst Museum also curates 23 Kumeyaay ceramic vessels acquired in the early twentieth century from local collector Ben Squiers, photographs of which have also yet to be made available on-line.

Edward Davis is the best known and most prolific of the local collectors in San Diego County (Quinn 1965; Showley 1992; Bonilla and Wyaco 1998). Coming to California in

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[50] The term "olla" in quotation marks refers to original referenced vessel typology terminologies. Olla in the typology used for this study refers only to vessels of Mexican manufacture. Traditional Native-American vessels in this study's typology are referred to as pots and bowls (See Volume 2, Mexican Folk Vessel Typology).

the 1880s, he eventually bought land in Mesa Grande, built a home for his family, and set about ranching. He at once began to make Indian friends and some of his earliest notes refer to trips to neighboring Indian communities to deliver food and clothes, and to collect Indian artifacts. Pottery vessels included in his first catalog of "curios" in 1907 included "1 olla ladle, 1 2-mouthed olla (La Jolla), 1 sm. decorated olla, 1 olla maker (Manzanita), 1 sm. olla & olla basin (Manzanita), 1 small necked water olla (Campo), 1 small mouth olla (Mapipo), 3 large ollas from desert, 1 large basin olla (desert), 1 small cooking olla (San Felipe), 1 very large acorn storage olla, and 3 olla bowls (Puerta Chiquita)" (Davis 1907). The utilitarian vessel types and notation of Indian village names suggest that, at this time, Davis primarily collected vessels in use, either by exchange of goods or for cash, from the Indians living in these communities.

By 1912, Davis's desire to collect ancient Indian artifacts appears to have become well known, as he documented several trips with local Indian men to collect pots from old Indian sites in San Felipe ("ten ollas") and the nearby village of "Mat.why" ("two ollas") (Davis 1912). By 1915, his collection numbered in the hundreds. His 1913 "Original Indian Catalog" lists numerous utilitarian as well as ceremonial artifacts and includes notes and drawings of eight "ollas." Unlike the 1907 catalog, however, all were brought to him by Indian men who had excavated them from archaeological sites or retrieved them from locations where the ancestors had hidden them in the mountains, either for storage or for burial of cremated remains (Davis 1913). His drawings illustrate round vessels with very constricted openings similar to the prehistoric examples of water or storage "ollas." At this time, Davis was clearly seeking to acquire pottery that was being used in traditional activities or that was from ancient Indian sites.

The materials described in these catalogs came to the attention of the New York Heye Foundation Museum of the American Indian and in 1915 the Foundation purchased his collection. Subsequently, over a period of twenty-seven years from 1915 to 1932, Davis traded for and purchased thousands of objects from the Indians of Alta and Baja California for transfer to the Heye Foundation Museum. This collection is now curated at

the National Museum of the American Indian (Smithsonian Institution 2020). The first indication that San Diego Indian potters were modifying traditional pottery technology and decoration is noted in Davis's journal describing "Campo Ollas" in March 1918 (Davis 1918). While there are no specific notes associated with his drawings to indicate their history, the vessels are associated with other items from the three reservations of La Posta, Manzanita, and Campo. Included in the collection are a wide flat-bottomed cup with one handle and clay beads decorating the outside rim, a decorated flat-bottomed pot with large handles on either side, a double-mouth jar with widely-flared rims and flat bottom, a constricted-mouth "olla" with two handles and clay bead decoration around the rim, a double-mouth "olla" resembling two glass beverage bottle shapes, and an "effigy ladle painted with triangular shapes on the interior." It appears that by 1918, Indian potters in the Campo area were producing modified forms and decorative styles to attract Anglo consumers.

Also, within the first decades after the turn of the twentieth century, artifact collections from Southern California were gathered by John P. Harrington for San Diego's 1915 Panama-California Exposition, Science of Man display (Hewett 1917; Hedges 1984). At the end of the Exposition, the San Diego Museum of Man was formed to house the gathered materials, which included numerous pottery examples gathered from around the Southwest.

In 1928, Malcolm Rogers accepted a position as Field Archaeologist and later Acting Director with the San Diego Museum of Man. Rogers had conducted archaeological surveys in loose affiliation with the Museum of Man in the early 1920s. In addition, he worked for E.L. Hewett and Odd S. Halseth with the School of American Research and the Museum of Arizona in 1926-1927. His early interest in pottery is demonstrated by a publication during his Southwest fieldwork, "A Question of Scumming" (Rogers 1928). As noted by Rogers's biographer, David Hanna, the publication "deals almost exclusively with recommendations for improved ceramic typology. While referencing contemporary work of others in the region, and apparently accepting their types, Rogers suggests that

greater utility can be gained by examining traits characteristic of the locales in which particular wares were made" (Hanna 1982:180). Hanna also observes that the first known research that Rogers undertook after his 1928 return to San Diego was a combined ethnographic and ceramic production study at Manzanita Indian Reservation. His later well-known work "Yuman Pottery Making" (Rogers 1936), was based on at least some of this work and additional field research.

As an associate of the Museum of Man, Malcolm Rogers began his explorations of the San Diego area in the early 1920s. He conducted archaeological excavations at major Kumeyaay villages throughout Southern California, recovering huge numbers of pottery vessels. He also collected ethnographic information and artifacts; his collections are some of the most valuable data available on San Diego prehistory (LaFee 1999). In this early period, Rogers maintained conversations with his Southwestern colleagues Harold Gladwin and Emil Haury regarding Yuman ceramic types and chronological seriation as they related to pottery from the Snaketown and Ventana Cave excavations (Hanna 1982). Hanna believes that a paper, now lost (Waters 1982:4), was written by Rogers detailing the ceramic types used in his reconstruction of Southwestern California and Southwestern relationships.

Rogers' only book devoted to documenting ethnographic craft production was *Yuman Pottery Making* published in 1936. As he introduces the book:

> Its purpose [was] to present the subject of Yuman ceramic technique in its aboriginal form, deleting recent intrusive practices where they could be proved to be such. It is still, however, an historical picture in which ancient practice is stressed. Archaeological evidence indicates that it is not a complete presentation of the earliest phase of the art; and ethnological research, that knowledge of these phases cannot be obtained from Indian informants (Rogers 1936).

His field research, as noted above, was conducted in 1928 with Wass Hilmawa, a Manzanita Reservation Kumeyaay woman whose Spanish name was Rosa López. Rogers' goal was to document traditional pottery production techniques. Other ethnographic documentation of the time confirms his data. However, although Wass Hilmawa was undoubtedly producing pottery for use, her work was popular with local collectors. Her pieces were acquired by Ben Squiers (as noted previously, a contributor of collections to the Hearst Museum) and Berkeley's Ethnological and Archaeological Survey (Gendar 1998), as well as by the Museum of Man. In fact, when pottery pieces from the Squiers collection came up for auction in 1998, the Museum of Man eagerly purchased a highly decorated and figurative piece: "a fantastic double human effigy parching tray" (SDMM 1998). The piece is comparable to a less elaborate effigy scoop produced by Wass for Rogers during his fieldwork and similar to the decorated "ladle" from the Campo/Manzanita/La Posta area, illustrated by Ed Davis in his 1918 journal. Adapting traditional pottery forms and decorations to appeal to the Anglo market was apparently successful by this time, having persisted for at least a decade.

The items Wass Hilmawa produced for Rogers in 1928 combine traditional production technology with non-traditional forms, functions, and use of decoration. The collection contains two small and medium-sized Vertical Sided Bowls with recurved rims, small and medium sized "ollas" (one with an atypical straight-sided neck), an effigy scoop, and a pottery-making anvil (Rogers 1936). All are highly decorated with paint and, as the prehistoric archaeological evidence has shown, this characteristic is rarely found in archaeological collections of brown ware pottery. Additional vessels in the San Diego Museum of Man collections include a flat bottomed bowl, produced by Wass, and a flat bottomed cup with handle (Wade 1986a, 1986b).

Thus, based on the above-described state of knowledge about Kumeyaay pottery technology and forms, the first vessel form classification system was published in *Yuman Pottery Making* (Rogers 1936). Rogers presented a vessel form typology organized by geographic area that formed the basis of archaeological pottery analysis for

archaeologists through the twentieth century. Relevant to the Southern California mountain and coastal areas is Rogers' "Western Division" that includes Lower Californians, Southern Diegueño, Northern Diegueño, Luiseño, Cupeño, and Mountain Cahuilla. He enumerates four vessel form groupings related to food preparation: narrow-mouthed large "ollas" used for food storage, narrow-mouthed smaller "ollas" used for water storage and as canteens, wide-mouthed bowls with recurved as well as direct rims used for cooking, and narrow-mouthed pots used for cooking. Rogers also makes mention of historic-period modifications including cup and plate forms, loop-handled wares, pedestal bases, and adopted painted designs.

As noted above, some of the earliest archaeological interest in prehistoric pottery analysis began in Arizona with the early twentieth-century excavations in Southern Arizona at Hohokam sites such as Snaketown (Gladwin et al. 1937) and in northern Arizona as synthesized by Colton (1937). These researchers focused on identification of pottery types, series, and wares based on the materials used; techniques of manufacture; and vessel form, styles of design and other methods of ornamentation. Malcolm Rogers communicated with Gladwin and Haury as they evolved their analysis concepts of pottery recovered from Snaketown (Gladwin et al. 1937). In 1937, with the publication of Museum of Northern Arizona Bulletin 11, "Handbook of Northern Arizona Pottery Wares" (Colton and Hargrave 1937), Colton documented definitions of types, series, and wares to systematize the analysis of pottery for Northern Arizona, in particular for archaeological sites surrounding the Flagstaff area to the north, east and southeast. Although not described in detail, Colton includes a figure identifying representative vessel forms. Vessel forms with openings wider than or equal to the body of the vessel include plaque, plate, shallow bowl, deep bowl, bowl-out flare rim, colander, and mug (with handle). Vessel forms with openings narrower than the body of the vessel include seed bowl, wide mouth jar, narrow mouth jar, vase, and pitcher (with handle). Additional items include an effigy jar, scoop, and ladle. Because the figure is included only to supplement the discussion of type recognition there is no elaboration regarding possible functions (Colton and Hargrave 1937:33).

Colton, in 1939, described types of Tizon Brown Ware (named for an early Spanish name for the Colorado River: "Tizon, firebrand") in the area around Flagstaff. However, it was not until Robert Euler and Henry Dobyns began their research with the Hualapai in the mid-twentieth century that plain brown ware pottery of the Yumans of Northwestern Arizona was first described and incorporated into Colton's wares. "Our conclusions are that Tizon Brown Ware was made by Upland Arizona Yuman Indians, principally the Walapai, and their direct ancestors of the Cerbat Branch" (Euler and Dobyns 1958). Type photographs and descriptions include shallow and medium deep bowls and wide mouth, sloping sided, straight necked, recurved, globular, flared, and constricted-opening jars (Euler and Dobyns 1958).

Colton, also in 1939, described Topoc Buff Ware in the area along the Colorado River. The ware description was updated and incorporated into Colton's wares in the 1950s by Albert Schroeder (Schroeder 1958). "Present evidence suggests that the Indians of the lower Colorado River below Hoover Dam began to manufacture pottery by about 800 A.D. or possibly earlier. In many ways their early efforts resembled those of the Pioneer Period (pre-700 A.D.) of the Casa Grande-Phoenix area of Southern Arizona. … In time, firing techniques improved resulting in a controlled oxidizing atmosphere which consistently produced a buff-colored pottery. The decorative style developed along lines quite distinct from that of any neighboring group, and a clay grout, producing a stucco finish, was applied to the exterior basal portions of undecorated vessels" (Schroeder 1958). Schroeder notes synonymy with Yuman types described by H.S. Gladwin in the 1930s and Rogers in 1945. Type descriptions include hemispherical and out-flare bowls, low and high-necked jars with small and large mouths, saucers, seed jars, and a rare divided plate. Painted decorations are mainly red-on-buff containing various elements.

The term Tizon Brown Ware was subsequently adopted in San Diego County to describe pottery found in Anza-Borrego State Park and on Palomar Mountain (Meighan 1959 cited in True et al. 1974). Since that time the name has been used to describe residual clay

wares found in the coastal and mountain areas of Southern California although others have also have argued for distinguishing the brown wares of Southern California from those of Arizona and many now refer to them as Southern California Brown Ware (Van Camp 1979; Lyneis 1988; Griset 1996). Lower Colorado Buff Ware in the San Diego County region was later described and synthesized chronologically by Michael Waters (1982). Waters identified several subtypes based on temporal and form divisions: Colorado Beige produced during the Patayan I period (pre-A.D. 1000), Tumco Buff and Salton Buff from the Patayan II period (A.D. 1000-1500), and Lower Colorado Buff, manufactured during the Patayan III period (A.D. 1500-1900). The variation of buff wares suggests that Indian potters were adapting the technology as new clay sources and characteristics were identified.

Archaeology

The second half of the twentieth century saw a proliferation of archaeological research with the passage of historic and archaeological protection legislation such as the National Historic Preservation Act (NHPA) in 1966 and the California Environmental Quality Act (CEQA) in 1970. As a result, researchers developed artifact analysis methodologies, sometimes utilizing the academic and institutional research completed in the first half of the twentieth century. An important archaeological study that developed a systematic methodology for pottery form analysis of archaeological sherds was "Excavation of a Portion of Ystagua, A Coastal Valley Ipai Settlement" (Carrico and Taylor 1983). In this report Carrico and Theskin devised a vessel shape classification system consisting of four general categories based on the ratio between vessel opening size and vessel height. Rim sherd forms identified are: a) shallow bowl, b) vertical-sided bowl, c) moderately constricted pot, and d) highly constricted-sided pot. The lip of the rim sherd was oriented on a horizontal plane and the sherd was categorized based on the angle or constriction of the neck (Theskin, personal communication, 5/9/85). In this way, "the exterior profile of the sherd can be extrapolated to hypothesize the original vessel shape. Using works by Rogers (1935[1936]) and Van Camp (1979), ethnographic and historic vessel shapes and functions can be compared" (Carrico and Theskin 1983). This rim profile technique was

successfully used for the analysis of pottery from surrounding loci of the Ystagua village (Wade 1985 and 1986a). To further elaborate this analytical approach, research was completed with actual complete vessels at the San Diego Museum of Man for a pottery analysis at the Johnson-Taylor (Peñasquitos) Adobe site (Wade 1986b). During this research project, 18 vessels with provenience locating them from within and west of the Peninsular Mountains were photographed, measured, and profiled. Subsequently information on several other vessels was added to the database. The classification of this collection of vessels was basically consistent with that developed by Carrico and Theskin and further substantiated with actual prehistoric vessel forms identified in later research.

Archaeological research into nineteenth century Native American Brown Ware use includes analysis of archaeological collections from Spanish and Mexican period mission and presidio sites and Californio rancho and pueblo sites. With the coming of the Spanish, new types of ceramics were imported and new production styles were introduced. However, there are differences in the degree of incorporation of these historic influences. The evidence indicates that one of the major factors for these differences is whether or not there was a preexisting native pottery-making tradition. In Southern California, traditional production techniques and forms were incorporated with few alterations from introduced form requirements, introduced technology, or modified resource availability. Where the Native population possessed a pottery-making tradition, brown ware of the historic period is very difficult to distinguish from that of the prehistoric period (Wade 1985, 1986a, 1986b, 1990, 1991, 1999, 2001). One example is SDM-W-1833, a historically occupied Luiseño site (1880–1914) and two nearby sites, SDI-5422 and SDM-W-569 (1790–1850) where excavated pottery sherds exhibited possible polishing or burnishing but no other indications of historic alterations (Van Wormer 1979). Early twentieth century sherds at the Aguirre adobe in Old Town San Diego exhibited only instances of slightly thicker walls than what would be expected on prehistoric sherds (Wade 2001).

Excavations at the San Diego Presidio have supplied more evidence for the use of local Indian-made pottery. Ezell states that while the "wealthier San Diegans of the time, at least, had Spode and Wedgewood and Cantonese Willow Ware, brought in by the Manila galleons and by the smugglers operating contrary to Spanish law,... the poorer people cooked and ate with dishes made by the local Indians" (Ezell 1976).

Abundant brown ware pottery sherds were identified at the Missions San Juan Capistrano (Wade 1990) and San Luis Rey (Wade 1991), indicating their importance to everyday mission life. These missions are located at the northern extent of the prehistoric pottery making tradition. Analysis of these pottery sherd collections demonstrated that the majority of the ceramics were manufactured in the Indian tradition; however, a few historical influences were present. In the collection from Mission San Luis Rey these included nontraditional rim forms, two sherds (one brown and one buff) with painted decoration, and several with possible wheel marks. The presence of Lower Colorado Buff Ware sherds demonstrated that travel and exchange with the Colorado Desert region was still an important component of Spanish/Indian relations. Vessel form identifications were tenuous because of the fragmented nature of the remains; however, some rims appeared to exhibit non-traditional forms. At Mission San Juan Capistrano, the collection was notable for its variety, consisting of Tizon Brown Wares constructed in the prehistoric tradition; brown wares exhibiting historical influences such as organic temper impressions, wheel marks, and added mineral temper; Lower Colorado Buff Wares; and imported and local folk wares reflecting Mexican technological influences. Some Lower Colorado Buff sherds exhibited scumming on the surface and a painted geometric design was present on one buff ware sherd. These sherds represent clear evidence of travel and exchange between the mission and the Indian communities in the Colorado Desert region. Vessel forms were traditional including four straight-sided cook pots, three neckless pots, and one narrow-mouthed “olla”. The rim sherds of the four straight-sided cook pots and one neckless pot exhibited burning in the form of heavy carbon deposits emphasizing the use of these vessels for cooking. Overall, 66 percent of the total pottery sherd collection exhibited cooking use. The narrow-mouthed “olla” was likely used for storage of water or grains. In summary, the archaeological pottery remains from the two missions suggest

that the majority of brown and buff ware pottery was produced by Indians using traditional technology. The presence of buff wares substantiates the continuation of trade between the coastal and Colorado Desert communities into the historic period. The data from San Juan Capistrano suggest that Indian made pottery was used for cooking and storage.

Brown ware was also a part of the 1830s hide and tallow butchering and household dump site associated with the Yorba Rancho north west of Mission San Juan Capistrano near the present-day City of Orange. Other traditional Indian items recovered included bone awls and ground stone food processing tools (Van Wormer 2004). An overview inspection of the pottery collection indicated that the majority of the sherds were very thick-walled heavy vessel fragments. Most of the vessels were made using paddle-and-anvil technology as illustrated by the irregular interior walls indented by the anvil during production and evidence of seams and joins along the coils. Some sherds showed concentric marks and smooth surfaces, evidence of non-native wheel construction. Approximately two-thirds of the sherds exhibited thick soot and char deposits, demonstrating that the majority of the brown ware pottery was used for cooking. It is likely that the vessels were either produced by Indian workers at the site, or were obtained in trade with Mission San Juan Capistrano. Again, some scummed and painted buff ware sherds were present in the collection, indicating exchange with the Colorado River area. As noted above, decorated pottery become more prevalent through the later nineteenth century as, with time, Indian potters adapt the technology to consumer desires (Wade 2004b).

At Rancho Peñasquitos in San Diego County, a circa 1820 to 1850 rancho adobe home was constructed on the site of a native settlement and Archaic Period prehistoric village near Peñasquitos Creek (Wade 1986; Christenson Newell et al. 2016). Brown ware ceramics were excavated from the interior of the earliest historic structure within the historic upper levels. Although few other prehistoric type artifacts were recovered within these levels, Tizon Brown Ware was present in large quantities. In addition, the pottery

was largely associated with the historic kitchen areas. This was in contrast to random patterns of pottery deposition in other areas at the adobe. Large portions of the pottery associated with the kitchen areas was burned from cooking use and the vessel types were restricted to a bowl shape identified as a cookpot. All but a few sherds exhibited production technology and forms that were thoroughly prehistoric. No evidence of historic production techniques such as wheel marks, straw or rounded sand temper, crude and rough surface treatment, burnishing, or historic vessel forms was found. One sherd was recovered with very fine paste texture. One sherd of a brown-firing clay was slipped. One T-shaped rim sherd was assumed to be of historic Indian manufacture based on its similarity to rim profiles of historic vessels observed at the San Diego Museum of Man. It was concluded that the native wares were either made at the site by Native potters or imported from a nearby native village for use by the Mexican inhabitants of the Rancho. The few unusual sherds recovered provided scant evidence for the presence of historic influence on the Native pottery-making tradition.

Similarly, investigations at Rancho Guajome in northwestern San Diego County produced 55 Tizon Brown Ware sherds. While the locational association of these sherds is not conclusive, "It does appear... that aboriginal artifacts were used at Guajome during the historic occupation" (Hightower 1980).

In contrast, in central and northern California, where there was no preexisting native tradition of pottery-making, brown ware ceramics were necessarily historically introduced, and possess forms and attributes characteristic of historic technology. Because the missionaries often brought Indian converts north when establishing new missions, it is unclear how much of the native technology was brought north and how much was taught to the neophytes by mission instructors. As a result of his analysis of pottery from the San Buenaventura Mission Plaza excavation, May (1976),identified five types of Tizon Brown Ware associated with that site. Although there has been some discussion as to the appropriateness of describing the mission pottery as Tizon Brown Ware (Love and Resnick 1983), he included it in Tizon Brown Ware based on the ware

traits of residual clay raw material, coil bonding, and firing in an oxidizing atmosphere. He notes, "This family of ceramics is usually restricted to the Peninsular Mountain Range south of the Santa Ana River in Orange County and in the mountains of north western Arizona. However, it has been found in all Spanish and Mexican mission sites in Southern California and in Baja California" (May 1976). Attributes of the types identified at San Buenaventura include slips, burnishing, rough surface treatment, straw temper impressions, thoroughly fired cores, alluvial sand temper, flat bottoms, handles, and flat brims and lips; most of these are not traits associated with prehistoric Tizon Brown Ware. The stratigraphic associations indicate that the type with unoxidized, black cores the earliest present, with the attributes mentioned above being later additions to the industry. May suggested that the knowledge of pottery-making was diffused from mission to mission during the period of colonization and that the traditional forms and technology were lost during the period of rapid diffusion. Many scholars feel that these ceramics are distinct enough that they should not be called Tizon Brown Ware, and have adopted terms such as Plainware, brown ware, Mission Ware, and Mission Pottery (Love and Resnick 1983; Griset 1996; Costello 2014; Peelo 2014).

In recent decades, ceramic analysis potential has been advanced by the use of thin-section/optical mineralogy analysis and trace element identification through neutron activation analysis. From the 1970s to the 1990s, researchers experimented with microscopic identification methods to further examine sherd and clay sources. Analysis of pottery thin sections for comparison of temper constituent minerals to surrounding geology produced promising results (Koerper et al. 1978). In the 1990s, to address the clay sourcing issue with quantifiable and replicable methods, samples from sherd collections were thin-sectioned and mineral inclusions were quantified. Sherds from SDI-6071 (Carmel Mountain Ranch), SDI-10,780 (Scripps Ranch), SDI-10,882/10,780 (South Escondido), and ORA-627 (Mission San Juan Capistrano) were thin-sectioned and Stephen L. Williams completed point counts of minerals. In addition, four clays (three representing clay sources used by ethnoceramicist Bern Tillman, and one at Lake Henshaw, representing a known Kumeyaay clay source) were analyzed, as well as clays from Peñasquitos Creek, Otay Lakes, and Ocotillo/Fossil Canyon. The mineralogy of the

sampled clay sources differed significantly from that of the archaeological sherds. The sherd mineralogy indicated that their clays weathered from quartz diorite, hornblende and pyroxene gabbro, quartz-plagioclase-biotite gneiss, and biotite granodiorite and suggested several geological sources for the clays. Exposures of these are located within 10 kilometers of the San Diego County sites. These preliminary microscopic clay mineralogy studies suggested that additional clay source sampling is necessary to identify geographical relationships between pottery production and clay sources (Hector and Wade 1986; Wade and Hector 1989; Wade 1989b, 1990).

Neutron Activation Analysis to identify trace minerals has also been used successfully to link pottery with clay sources (Glascock 1992). The research was advanced by Hildebrand et al. (1997, 2002), whose study combines thin section sherd mineral quantification completed by the researchers and trace mineral neutron activation analysis (NAA) completed at the University of Missouri Research Reactor (MURR). Submitted samples included pottery sherds and clay sources from the San Diego County Coast, Peninsular Mountains, and Colorado Desert. The results of this study (Hildebrand et al. 2002) identified four compositional groups. IMP-1 included Tumco and Topoc Buff types of Lower Colorado Buff Ware and a very few Salton Brown Wares, as well as clay samples from Holocene Lake Cahuilla at the Dunaway Road site, the Palm Springs Formation at Yuha Buttes, and San Sebastian. Group IMP-2 consisted of Salton Brown Wares from desert, mountain, and coastal sites as well as clay samples from the Brawley formation in the Superstition Mountains. Group SDI-1 had solely Tizon Brown Ware from the mountain Buckman Springs site. Group SDI-2 included a geographically widespread assemblage of Tizon Brown Ware sherds from mountain, foothill, and coastal sites as well as clays from Mount Laguna, McGinty Mountain, and Mission Gorge. Interestingly, several clay sources fell well outside of the groupings, particularly a clay sample collected by Rogers from Owas Hilmawa during his 1920s fieldwork on Manzanita Reservation. This result was explained as an outcome of reduced Indian mobility whereby potters were forced to use non-traditional clay sources available at the reservation. Other researchers have followed up on these studies to investigate pottery collections in Anza-Borrego State Park (Burton and Quinn 2013).

Most recently, characterization of ware types has been an issue for Mission period studies in southern, central and northern California. Three studies have dealt with Mission pottery in locations where there was no pre-existing brown ware pottery tradition among Native peoples (Bailey 2022, Griset 2022a, 2022b; Peelo, et. al. 2022). To illuminate the attributes that characterize brown ware pottery vessels produced by mission-trained neophytes, the studies utilized a variety of analytical methods including neutron activation (NAA) identification of trace elements and electron microprobe analysis to characterize pottery paste, thin section optical mineralogy analysis and re-firing to identify mineral inclusions, optically stimulated luminescence for dating, and gas chromatography-mass spectrometry examination of food residues. Characterization of ware types was also an issue for these Mission period studies. These three studies documented the methods by which the craft of pottery production was brought to missions where there was no pre-existing tradition, as well as presenting the hypothesis that mission-made brown ware was being traded to surrounding Native settlements, who had not manufactured ceramics.

Bailey (2022) addresses colonial era deposits in Chumash village sites marked by the introduction of new materials and introduced technologies, including metal objects, glass beads, and both porcelain and low-fired brown ware ceramics. Petrographic analyses of brown ware sherds recovered from these sites as well as from coastal Spanish outposts support the hypotheses that: 1) sherds from coastal villages match the petrographic signature of brown ware produced at the missions of Santa Barbara and San Buenaventura; and 2) brown ware recovered from inland sites appears to have been produced locally and likely represents a native ceramic tradition originating from interior groups to the east.

Peelo et al. (2022) utilized re-firing, binocular sorting, petrographic analysis, and electron microprobe analysis on fragments of Mission Santa Clara Plain Wares recovered from features associated with a 1784-1840 Indian Rancheria. The researchers concluded

that the wares were made locally at the mission and that indigenous potters at Mission Santa Clara de Asís used a single clay source and in so doing formed a shared community of practice and identity. Griset (2022a, 2022b) analyzed a sample of ceramics from data recovery and monitoring activities at Mission San Gabriel concluding that they were produced using two techniques, wheel thrown and hand modeling. Most forms reflected those made prehistorically by the ceramic producing peoples of Southern California – bowls and jars in small, medium, large sizes, and occasionally extra large, and with a few new forms that include handled and flat-bottomed vessels, small bowls or cups, and four candlestick holders, and may have included the comal as a new cooking form. The ceramics suggest that the mission residents employed an expedient approach to ceramic manufacturing, using locally available clays and multiple techniques taught to neophytes by skilled Mexican craftsman potters, settlers, and soldiers, or by neophytes with natal traditions modified by access to new techniques.

Summary

As noted in the introduction, the study of brown ware pottery produced by prehistoric and historic period Yuman peoples of the Southern California began in the mid-nineteenth to early twentieth century with collections of representative vessels from the region's Indian communities, made during ethnographic and anthropological study. These collections contributed to the holdings of many local and national museums such as the San Diego Museum of Man (now called the Museum of Us), the Phoebe Hearst Museum of Anthropology, New York Heye Foundation Museum of the American Indian; and the National Museum of the American Indian as specimens of ethnographical interest. These vessel collections provide an invaluable template of indigenous forms and historic modifications against which to evaluate pottery assemblages under study today. In the early-to-mid twentieth century, brown ware pottery studies shifted to the archaeological focus then developing in museum and academic spheres. Collections of excavated brown ware fragments were valued as components of site collections and analyzed for their archaeological data value and their ability to assist in archaeological research. In addition, numerous archaeometric studies have been employed in recent decades, to

analyze both prehistoric and historic period brown ware pottery sherds to address a variety of research questions.

To address the archaeological research of the San Diego Presidio, the data provided in the ethnographic/anthropological collections is of value to understand the persistence and adaptations reflected in the pottery forms identified in the Chapel Complex collection. This work informed the subsequent vessel form descriptions and syntheses developed for early archaeological analysis by Gladwin, Colton, Rogers, Euler, and Schroeder and refined in the later twentieth century by San Diego County archaeologists. The vessel form typology used for the brown ware Presidio analysis reflects this history.

Chapel Complex Native American Brown Ware

A total of 19,573 sherds of Native American Brown Ware, weighing 109.05 kilos was recovered from the Chapel Complex Excavation. Of this amount 18,709 sherds (95.6%) weighing 97.24 kilos (89.2 %) consisted of undecorated fragments that provided no evidence for identification of vessel type or decorative style. These were not used in the following analysis of vessel forms. The remaining 864 sherds (4.4 %), weighing 11.81 kilos (10.8 %) represented a minimum of 675 distinct vessels.

Paste types for the undecorated fragments that provided no evidence of vessel shape or decorative style were analyzed by selecting sherds having little or no burning (so that minerals and clay matrix of the cores could be discerned), sampling multiple spatial proveniences across the site, and choosing pieces representing the variety of color, texture, and surface attributes in the site collection. While this method was limited, a good approximation of the ware types present was ascertained. Forty sherds were selected and cut with tile cutters to expose a clean interior cross-section. By far, the majority were Tizon Brown Ware. Twenty-six were identified as having “orange” paste and are composed of an orange/orange-red/orange-brown/mostly-brown sandy clay containing primarily medium-to-coarse angular-to-subangular-to-subrounded quartz, feldspar, biotite mica, and ancillary dark mineral (possibly amphibole) inclusions. Four

additional “orange” sherds were composed of a very fine paste with medium-sized inclusions. Minor amounts of “residual brown” sherds (3) containing medium to coarse angular to sub-angular quartz, feldspar, and biotite mica inclusions were present. One “residual brown” sherd was fine paste with medium-sized inclusions. Two unusual “red” sherds, with a red-surface thought to be a red slip, were observed to be red or red-brown throughout with no indication in cross section of application of a slip. Three Lower Colorado Buff Ware sherds were present. Each has a fine buff clay paste, one with a grey/tan scum surface, one with fire-clouded or possibly painted surface, and one with prominent “wipe” marks and sherd temper.

The 675 individual vessels were identified from rim sherds largely through an analysis of diameter, shape, and paste similarities. Vessel forms were determined by orienting the plane of the rim to a horizontal surface then estimating the projection to establish a likely profile. Probable forms were ascertained by referencing typologies developed from specimens at the San Diego Museum of Man (Wade 2004a:12-20). Paste and temper were examined with a hand lens. Of these only two (0.3 %) were Lower Colorado Buff Ware. The remaining 99.7 percent (665) were Tizon Brown Ware.

By far the majority, 667 (99 %), of the vessels identified were traditional Native shapes that showed no modifications or alterations from prehistoric forms. Since the Mexican Colonial inhabitants of the presidio used these containers for their own culturally defined ceramic vessel needs, they would have been adapted to function as traditional Mexican folk vessels. Using the Mexican Folk Vessel Typology in Volume 2, probable Mexican folk vessel uses were postulated based on the general body shape, diameter, overall size, and presence or absence of carbon residue or burning on the sherds (Figures 77-80). In addition, analysis identified eight (1%) Native American Paddle-and-Anvil produced Mexican Folk Vessel shapes. Based on clay and production techniques, they were all of Tizon Brown Ware even though they showed definite diversions from traditional native forms.

Native American Vessels

Introduction

As noted above, 99 percent (667) of the vessel identified showed no variations from traditional prehistoric forms. These included Moderately to Slightly Constricted Pots, Neckless Constricted Pots, Highly Constricted Pots, Open Bowls, and Vertical Sided Bowls. Silhouette outlines of each type are shown at the beginnings of the descriptive discussions that follow. Probable Mexican folk vessel functions represented included taza and pocillo cups, escudilla style bowls, jarros, small and large cazuelas, cooking and serving cajete style bowls, cooking ollas, serving ollas, along with cántaros, and tinaja-botellón water storage vessels (See Volume 2, Mexican Folk Vessel Typology).

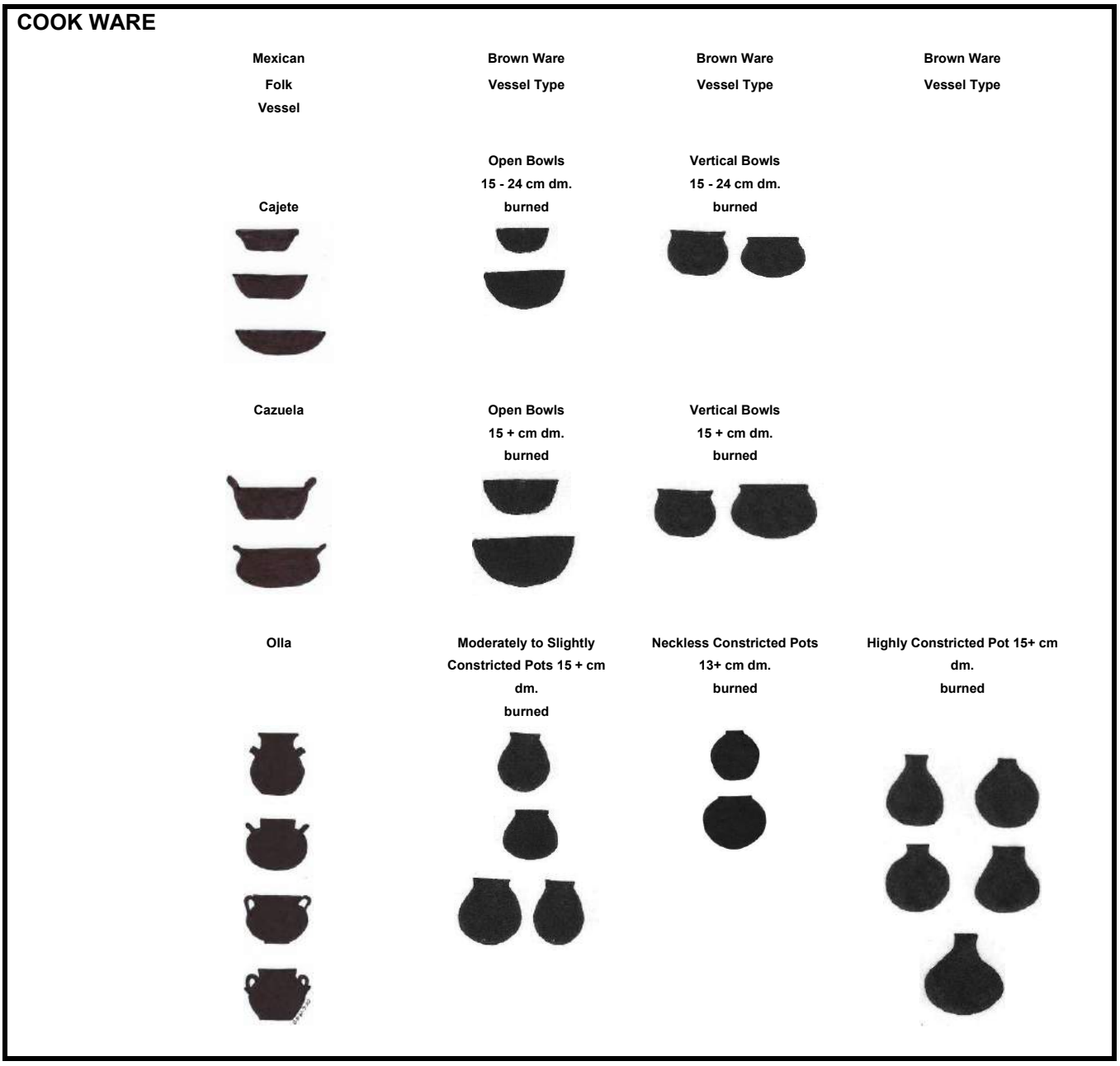

Figure 77: Mexican Folk and Native Brown Ware Cooking Vessel Functional Equivalents. Mexican Folk vessels are shown in the left column and functionally equivalent Brown Ware vessels to the right.

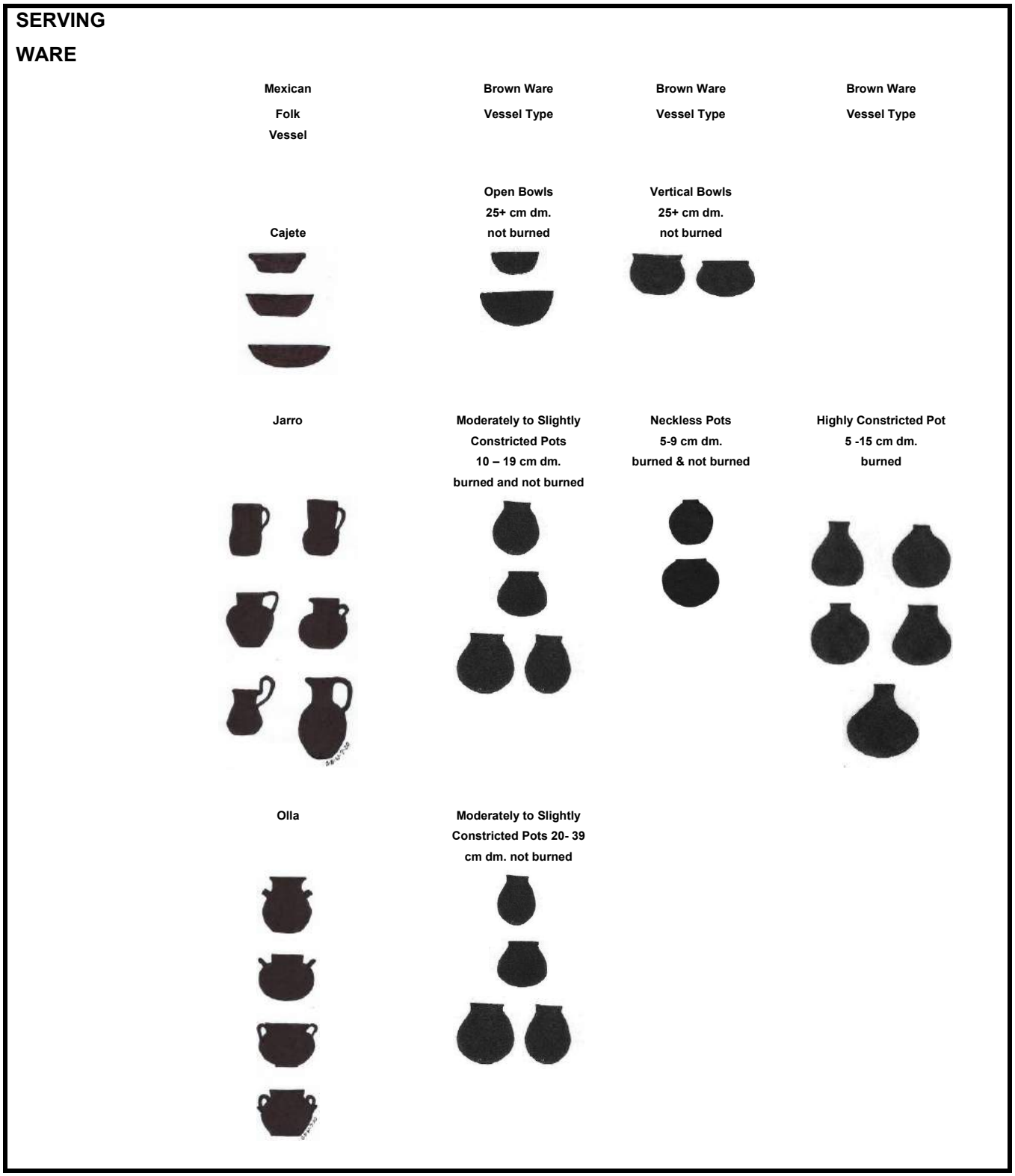

Figure 78: Mexican Folk and Native Brown Ware Serving Vessel Functional Equivalents. Mexican Folk vessels are shown in the left column and functionally equivalent Brown Ware vessels to the right.

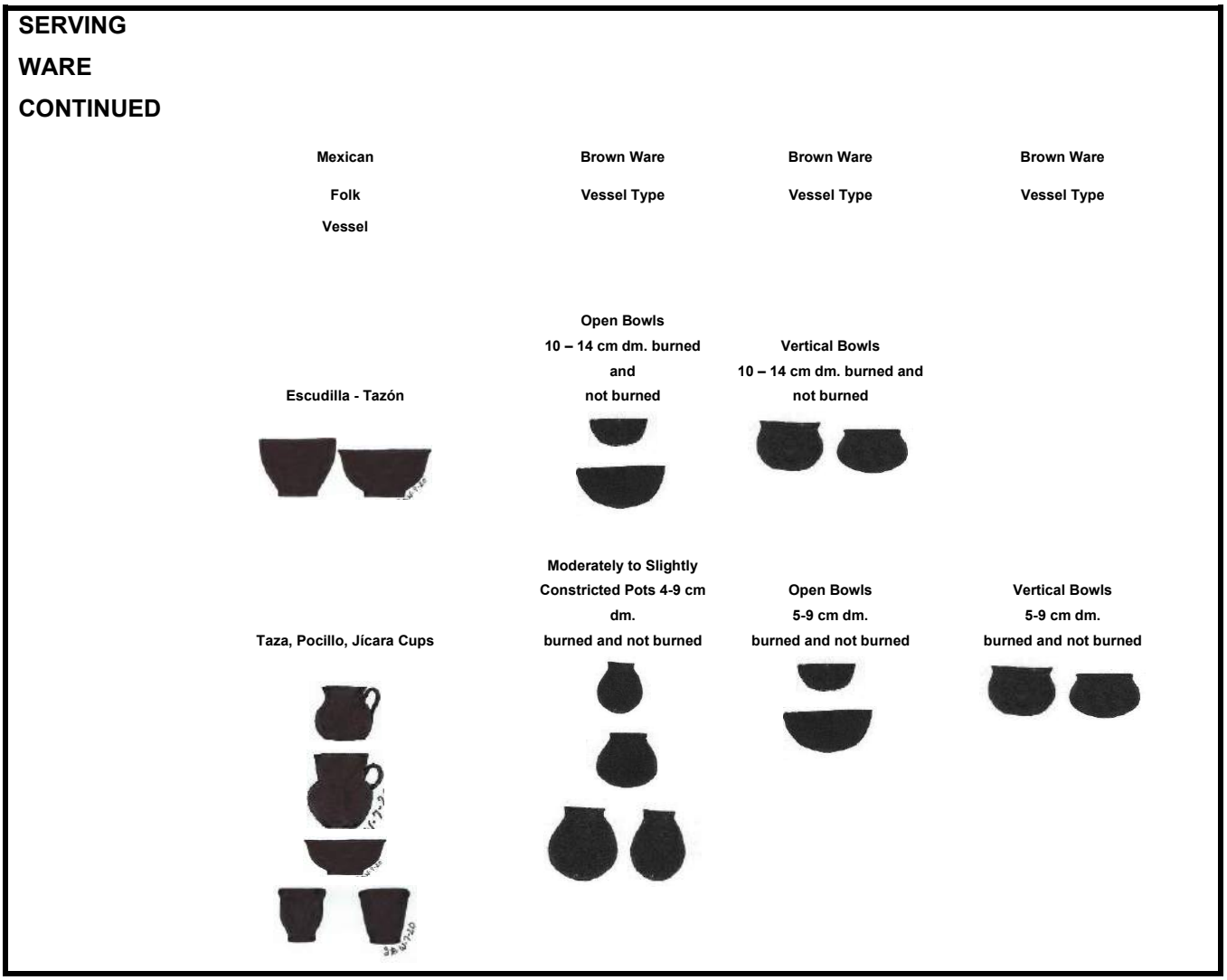

Figure 79: Additional Mexican Folk and Native Brown Ware Serving Vessel Functional Equivalents. Mexican Folk vessels are shown in the left column and functionally equivalent Brown Ware vessels to the right.

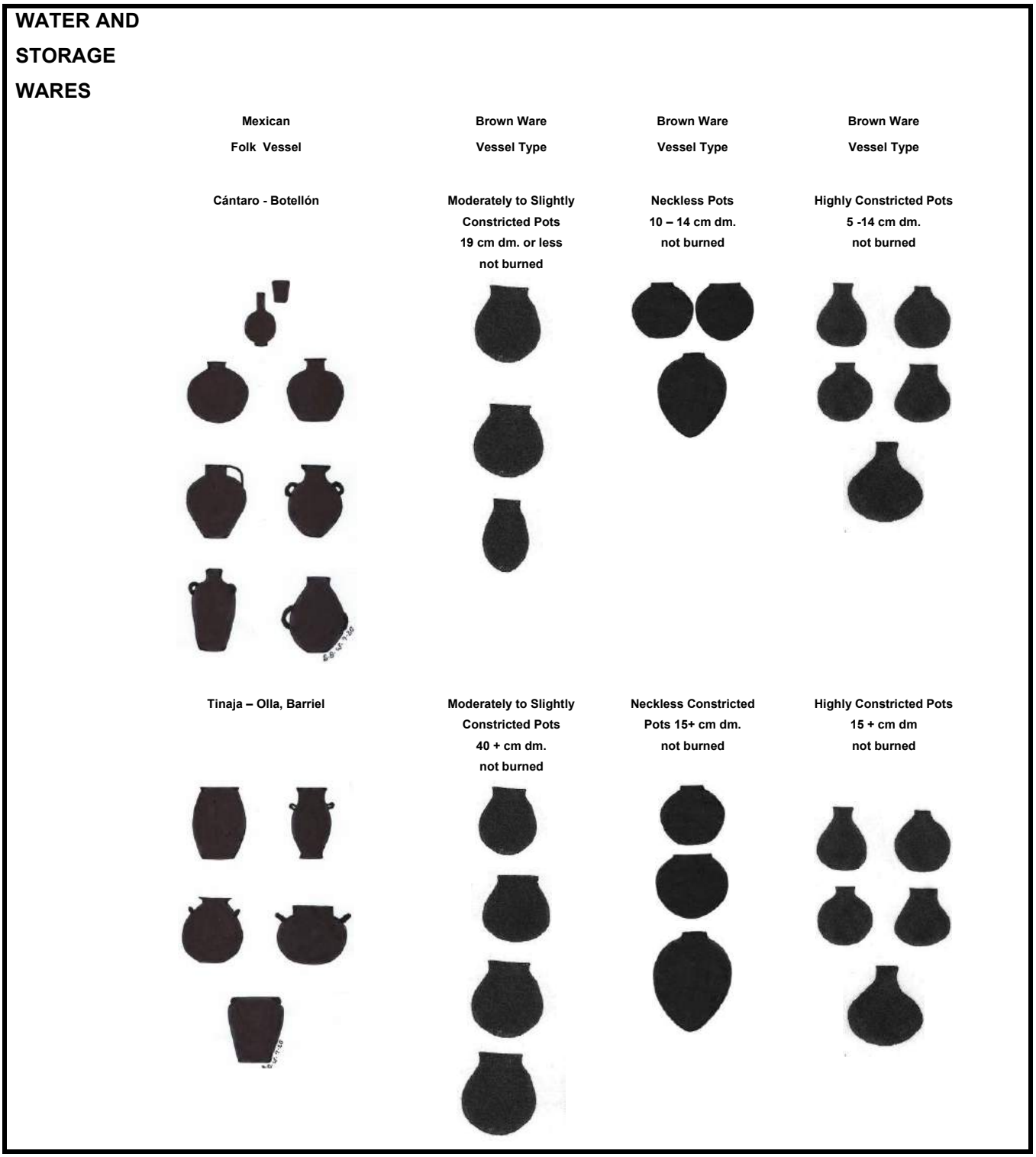

Figure 80: Mexican Folk and Native Brown Ware Water and Storage Vessel Functional Equivalents. Mexican Folk vessels are shown in the left column and functionally equivalent Brown Ware vessels to the right.

Moderately to Slightly Constricted Pots

Description

Moderately to Slightly Constricted Pots closely resemble Mexican Folk Typology ollas. However, these were traditional pre-Contact native vessel forms that were adopted by the Mexican colonial population without modifications. They are round-bottomed, wide-mouthed, globular pots, taller than they are wide, with short necks and slightly to moderately everted rims, and without handles. They have short wide necks, with a gradual narrowing of the shoulder to the neck. The base is approximately the same diameter as the neck. The wider belly exhibits a maximum diameter ranging from just above the base to midpoint in the vessel wall (Wade 2004a:15-16).[51]

A minimum number of 284 (42.08 %) individual Moderate to Slightly Constricted Pots were identified from 250 (40.51 %) sherds (Table 18). All appeared to be coiled paddle-and-anvil manufacture (Figures 81-82). Rim diameters ranged from 3.5 to 70 cm (1.5 - 28 in). Diameters of the majority ranged from 5 to 34 cm (2-9.5 in). Seventy percent (200) showed soot and evidence of burning, confirming their use as cooking implements used on an open flame (Table 19, Figure 83). They constitute the majority of all rim diameter ranges including the smallest. The thirty percent (84) that showed no evidence of burning also included a wide range of diameters (Table 20). Probable Mexican Folk Vessel Typology uses for these vessels, based on the general wide mouth and globular body shape, diameter, and presence or absence of burning on the sherds, are shown in

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[51] A variety of terms have been applied to these vessels including cooking bowls, cooking pots (Rogers 1936:52-53), jar (Griset 1990:181), food preparation ollas (Porcayo Michelini 2013:66), pot (recurved rim), pot (simple rim) (Felton et al. 2014:229), semi-globular olla, globular olla, transitional olla (Porcayo Michelini 2016:23).

Figure 84. Burned vessels include pocillo cups, jarros and cooking ollas. Unburned sherds represented pocillo cups, serving ollas, and tinaja-botellón water storage vessels.

Figure 81: Chapel Complex Moderately to Slightly Constricted Pot Rim Sherds (MNV #S P41, P365, P468, P366).

Figure 82: Moderately to Slightly Constricted Pots at the San Diego County Archaeological Center. Photograph by S. R. Van Wormer.

Table 18: Moderately to Slightly Constricted Pots

DIAMETER	TOTAL	PERCENT
3.5-4 Cm	3	1.06
5-9 Cm	38	13.38
10-14 Cm	55	19.37
15-19 Cm	82	28.87
20-24 Cm	31	10.92
25-29 Cm	21	7.39
30-34 Cm	24	8.45
35-39 Cm	9	3.17
40-44 Cm	9	3.17
45-49 Cm	4	1.41
50-51 Cm	3	1.06
60 Cm	2	0.70
65 Cm	2	0.70
70 Cm	1	0.35
TOTAL	284	100.00

Table 19: Burned Moderately to Slightly Constricted Pots

DIAMETER	MEXICAN FOLK TYPOLOGY	COUNT	PERCENT	PERCENT OF TOTAL
4 Cm	Pocillo Cup	2	1.00	0.70
5-9 Cm	Pocillo Cup	23	11.50	8.10
10-14 Cm	Jarro	42	21.00	14.79
15-19 Cm	Cooking Olla	54	27.00	19.01
20-24 Cm	Cooking Olla	23	11.50	8.10
25-29 Cm	Cooking Olla	16	8.00	5.63
30-34 Cm	Cooking Olla	19	9.50	6.69
35-39 Cm	Cooking Olla	7	3.50	2.46
40-44 Cm	Cooking Olla	6	3.00	2.11
45-49 Cm	Cooking Olla	4	2.00	1.41
50-51 Cm	Cooking Olla	3	1.50	1.06
70 Cm	Cooking Olla	1	0.50	0.35
TOTAL		200	100.00	70.42

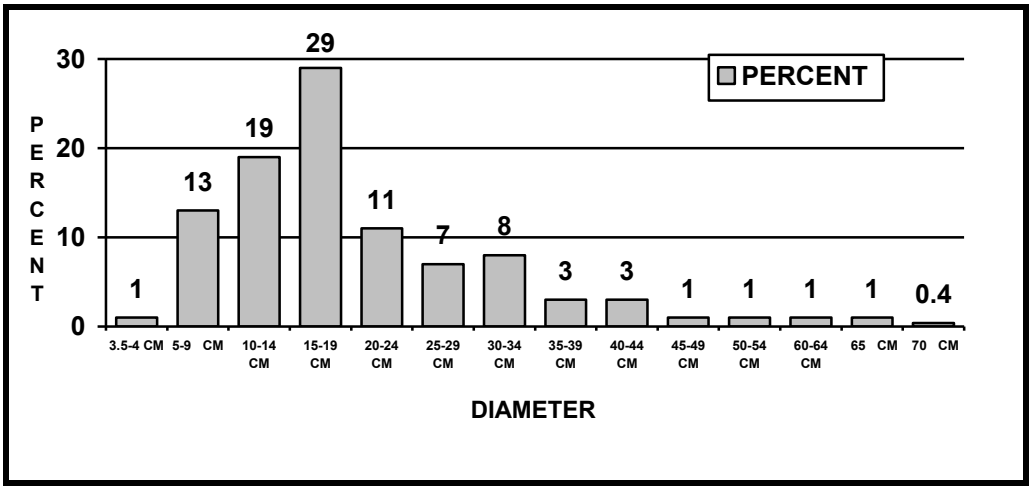

Figure 83: Moderately to Slightly Constricted Pots by Diameter.

Table 20: Not Burned Moderately to Slightly Constricted Pots

DIAMETER	MEXICAN FOLK TYPOLOGY	COUNT	PERCENT	PERCENT OF TOTAL
3.5 Cm	Pocillo Cup	1	1.19	0.35
5-9 Cm	Pocillo Cup	15	17.86	5.28
10-14 Cm	Jarro	13	15.48	4.58
15-19 Cm	Jarro	28	33.33	9.86
20-24 Cm	Serving Olla	8	9.52	2.82
25-29 Cm	Serving Olla	5	5.95	1.76
30-34 Cm	Serving Olla	5	5.95	1.76
35-37 Cm	Serving Olla	2	2.38	0.70
40-43 Cm	Tinaja-Olla	3	3.57	1.06
60 Cm	Tinaja-Olla	2	2.38	0.70
65 Cm	Tinaja-Olla	2	2.38	0.70
TOTAL		84	100.00	29.58

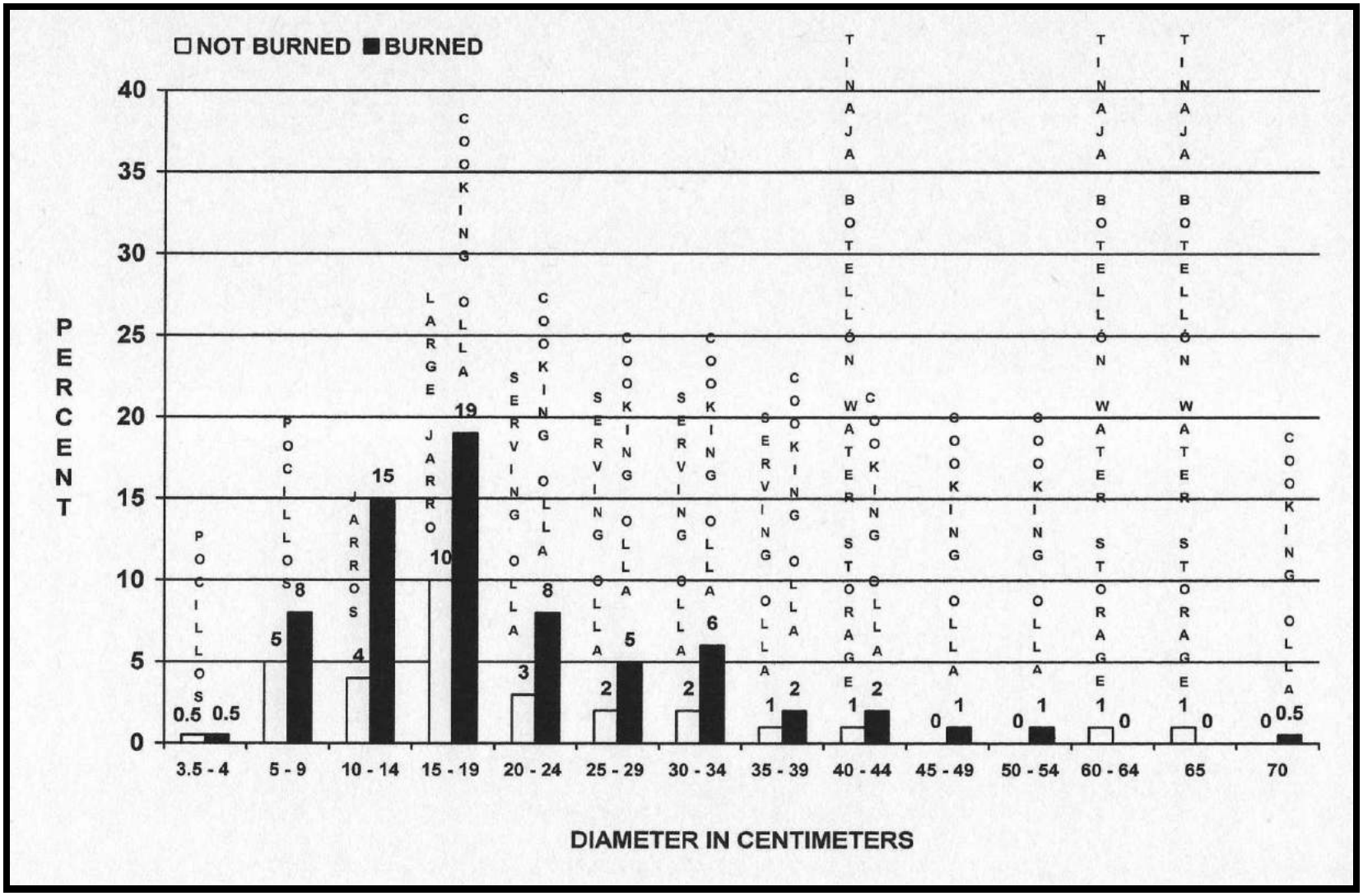

Figure 84: Mexican Folk Vessel Adaptations for Native American Brown Ware Moderately to Slightly Constricted Pots Based on Burning and Diameter.

Neckless Constricted Pot

General Description

These globular to egg-shaped round-bottomed pots have no neck to slightly raised direct short straight rims with no recurve (Wade 2004a:17).[52]

Seven (1.04%) Neckless Constricted Pots were identified from 8 (0.93%) sherds (Figures 85 - 87). Rim diameters ranged from 5 to 15 cm (2 - 6 in). Sizes were pretty evenly distributed with two 10 cm (4 in) diameter vessels and the remaining sizes represented by a single pot each (Table 21). All appeared to be coiled paddle-and-anvil manufacture. Only a single (14%) 13 cm (5 in) rim diameter vessel showed no evidence of burning. The remaining 6 (86 percent) showed evidence of use as cooking implements. Based on the narrow opening and globular body of theses pots, the most likely Mexican Folk Vessel Typology use for the 5 that are 11 cm and less in diameter would be as jarros. The single unburned example may have been a tinaja-botellón water storage vessel. The 15 cm (6 in) rim diameter burned sherd most likely represented a cooking olla (Figure 88).

[52] Terms applied to these vessels include storage ollas (Rogers 1936:52-53), jar (Griset 1990:181), storage vessels (Porcayo Michelini 2013:65), and horizontal, semi, spherical canteens (Porcayo Michelini 2016:23).

Figure 85: Chapel Complex Neckless Constricted Pot Rim Sherds (MNV #S P619, P617, P618).

Figure 86: Neckless Constricted Pots at the San Diego County Archaeological Center. Photographed by S.R. Van Wormer.

Figure 87: Neckless Constricted Pot at the California State Parks, Colorado Desert District, Begole Archaeological Center. Photographed by S.A. Wade.

Table 21: Neckless Constricted Pots

DIAMETER	MEXICAN FOLK TYPOLOGY	COUNT	PERCENT
5.0 Cm	Jarro	**1**	14.3
8.0 Cm	Jarro	**1**	14.3
10.0 Cm	Jarro	**2**	28.6
11.0 Cm	Jarro	**1**	14.3
13.0 Cm	Tinaja-Botellón *	**1**	14.3
15.0 Cm	Cooking Olla	**1**	14.3
TOTAL		**7**	100.0

* not burned

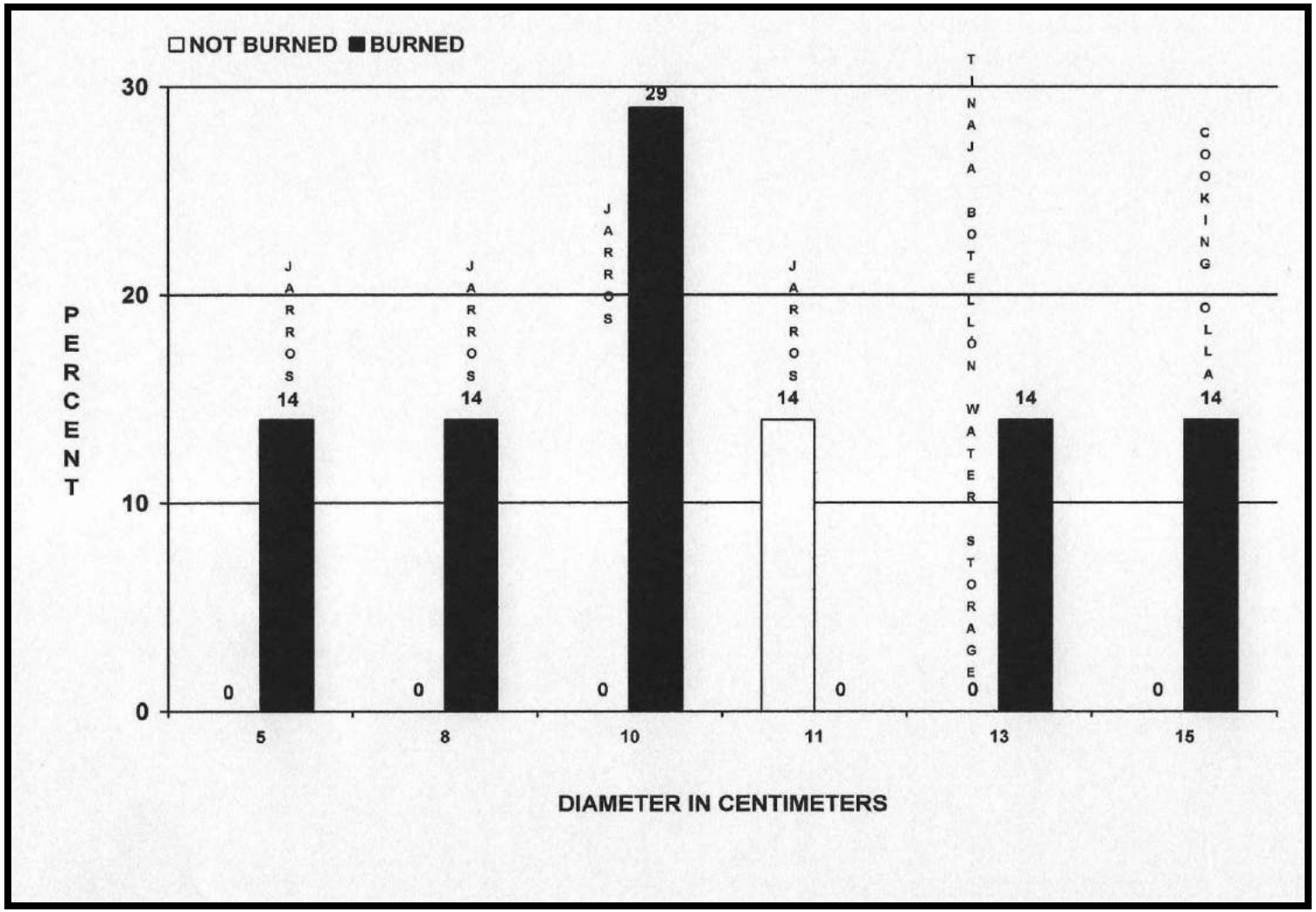

Figure 88: Mexican Folk Vessel Adaptations of Native American Brown Ware Neckless Constricted Pots Based on Burning and Diameter.

Highly Constricted Pot

General Description

Highly Constricted Pots are taller than they are wide, globular to egg shaped vessels with round bottoms. They are characterized by their narrow openings and highly recurved everted necks and rims (Wade 2004a:18).[53]

A minimum number of 24 (3.56 %) individual Highly Constricted Pots were identified from 28 (3.24%) sherds (Figures 89 - 90). All appeared to be coiled paddle-and-anvil manufacture. Rim diameters ranged from 5 to 24 cm (2-9 in). Diameters of the majority (22) ranged from 5 to 14 cm (2-5.5 in), with over half (54%) falling between 5 and 9 cm (2–3.5 in). The two largest measured 20 to 24 cm (8–9.5 in) (Table 22 and Figure 91). Thirty-eight percent (9) showed soot and evidence of burning, confirming their use as food or heated beverage preparation implements (Table 23). Sixty-two percent (15) showed no evidence of burning (Table 24). Burned and unburned vessels were represented in all diameter ranges. Probable Mexican Folk Vessel Typology uses for these vessels based on the general narrow mouth and globular body shape, overall size, and presence or absence of burning on the sherds are shown in Figure 92. Burned vessels include jarros and a cooking olla. Unburned sherds represented cántaros and tinaja-botellón water storage vessels.

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[53] Terms applied to these vessels include water ollas, canteens (Rogers 1936:52-53), jar (Griset 1990:181), highly constricted olla (Wade 2004:18), water storage or water transport vessels (Porcayo Michelini 2013:65), water jar (Felton et al. 2014:229), globular olla with spout, jar with a shoulder and spout, globular jar with spout, semi-triangular canteen, and semi triangular-canteen with spout (Porcayo Michelini 2016:23-25).

Figure 89: Chapel Complex Highly Constricted Pot Rim Sherds (MNV #S P609, P430, P568).

Figure 90: Highly Constricted Pots at the San Diego Archaeological Center. Photographed by S.R. Van Wormer.

Table 22: Highly Constricted Pots

DIAMETER	TOTAL	PERCENT
5-9 Cm	13	54.17
10-14 Cm	9	37.50
20-24 Cm	2	8.33
TOTALS	24	100.00

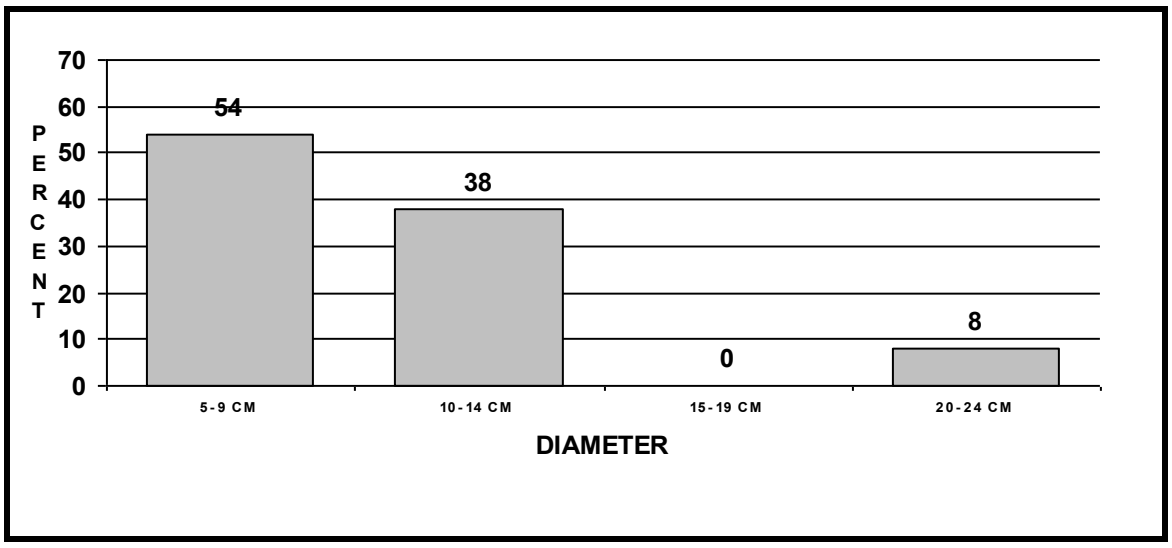


Figure 91: Highly Constricted Pots by Diameter.

Table 23: Highly Constricted Pot Burned

DIAMETER	MEXICAN FOLK TYPOLOGY	COUNT	PERCENT	PERCENT OF TOTAL
5-9 Cm	Jarro	4	44.4	16.7
10-14 Cm	Jarro	4	44.4	16.7
20-24 Cm	Cooking Olla	1	11.1	4.2
TOTALS		9	100.0	37.5

Table 24: Highly Constricted Pot Not Burned

DIAMETER	MEXICAN FOLK TYPOLOGY	COUNT	PERCENT	PERCENT OF TOTAL
5-9 Cm	Cántaro	9	60.0	37.5
10-14 Cm	Cántaro	5	33.3	20.8
20-24 Cm	Tinaja-Olla	1	6.7	4.2
TOTALS		15	100.0	62.5

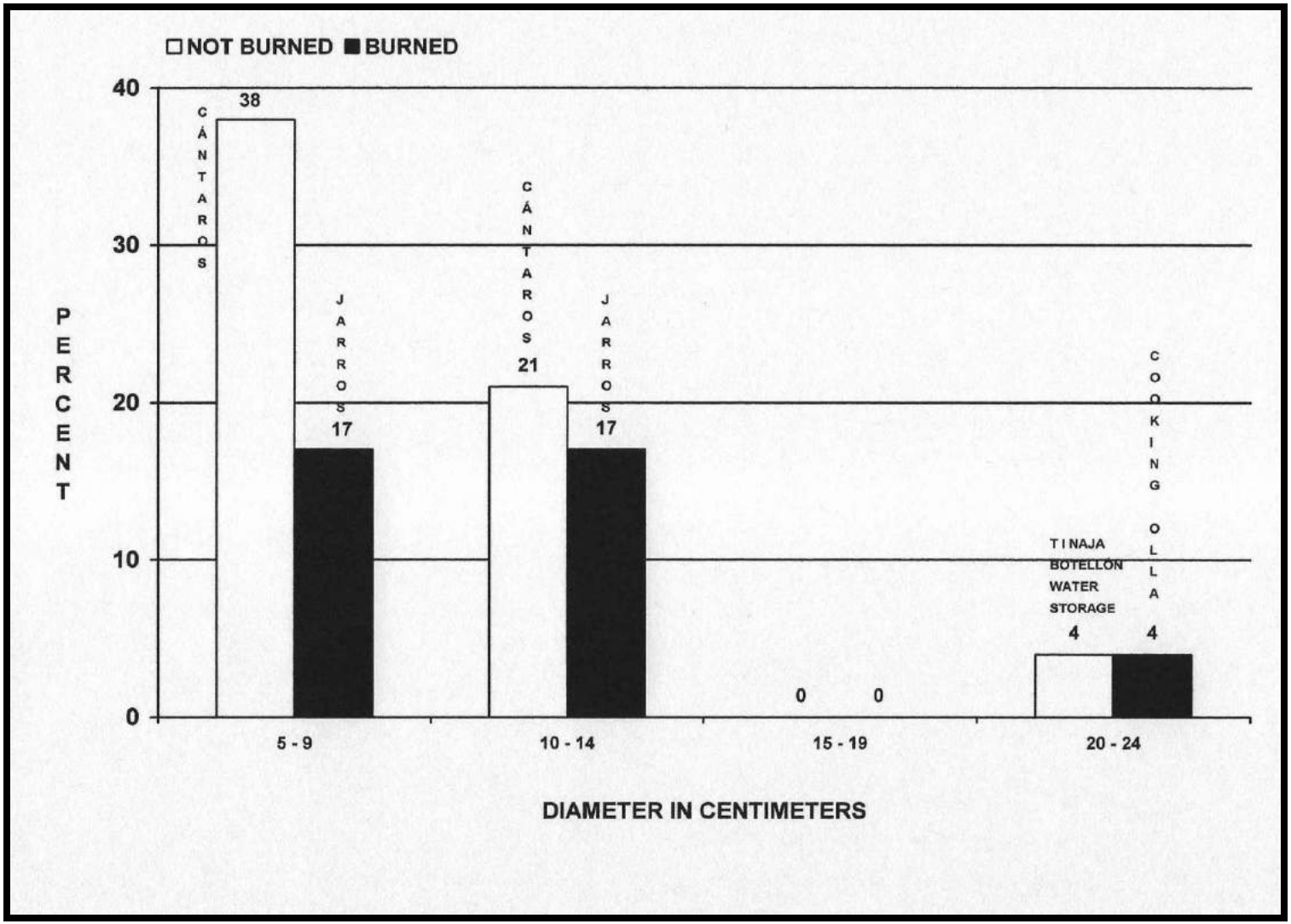
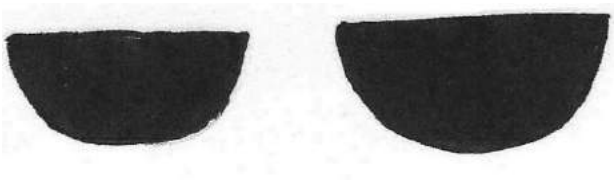


Figure 92: Mexican Folk Vessel Adaptations for Native American Highly Constricted Pots Based on Burning and Diameter.

Open Bowl



General Description

Open Bowls are simple, short, wider than they are high, open vessels with flared sides, concave bottoms, and no neck recurve (Wade 2004a:13).[54]

A minimum number of 227 (33.63 %) individual Open Bowls were identified from 319 (36.92%) sherds (Figures 93 - 94). All appeared to be coiled paddle-and-anvil manufacture. Rim diameters ranged from 5 to over 95 cm (3.5-37 in). Diameters of the majority ranged from 10 to 40 cm (4-16 in) (Table 25, Figure 95). Seventy-two percent (163) showed soot and evidence of burning, confirming their use as cooking implements used on an open flame (Table 26). These constitute the majority of most diameter ranges. Twenty-eight percent (64) that showed no evidence of burning also included a wide range of diameters (Table 27). Probable Mexican Folk Vessel Typology uses for these vessels based on their general bowl shape, overall size, and presence or absence of burning on the sherds are shown in Figure 96. Burned vessels include taza cups, escudilla style bowls, small cazuelas, and large cazuelas. Unburned sherds represented taza cups, escudilla and cajete style bowls, and serving cajete style bowls.

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[54] Terms applied to these vessels include food bowls (Rogers 1936:52-53), bowl (Griset 1990:181; Porcayo Michelini 2016:21), bowl with curved sides (Porcayo Michelini 2013:67).

Figure 93: Chapel Complex Open Bowl Rim Sherds (MNV #S P409, P266, P379, P460).

Figure 94: Open Bowls. Left: San Diego County Archaeological Center, photographed by S.R. Van Wormer; right late twentieth century Santa Catarina, Baja California, collection of S.R. Van Wormer.

Table 25: Open Bowls

DIAMETER	TOTAL	PERCENT
5-9 Cm	15	6.61
10-14 Cm	32	14.10
15-19 Cm	53	23.35
20-24 Cm	36	15.86
25-29 Cm	33	14.54
30-34 Cm	20	8.81
35-39 Cm	9	3.96
40-44 Cm	13	5.73
45-49 Cm	2	0.88
50-54 Cm	5	2.20
55-59 Cm	3	1.32
60-64 Cm	2	0.88
65- 70 Cm	2	0.88
95 + Cm	2	0.88
Totals	227	100.00

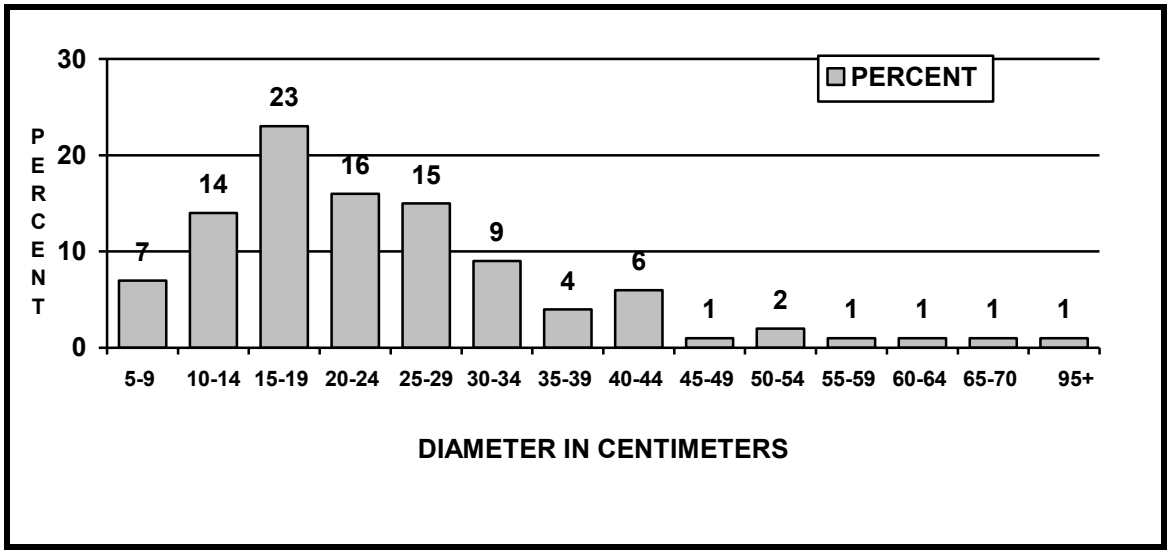

Figure 95: Open Bowls by Diameter.

Table 26: Open Bowls Burned

DIAMETER	MEXICAN FOLK TYPOLOGY	COUNT	PERCENT	PERCENT OF TOTAL
5-9 Cm	Taza Cups	6	3.7	2.64
10-14 Cm	Escudilla Style Bowl	18	11.0	7.93
15-19 Cm	Small Cazuela	42	25.8	18.50
20-24 Cm	Small Cazuela	26	16.0	11.45
25-29 Cm	Large Cazuela	23	14.1	10.13
30-33 Cm	Large Cazuela	16	9.8	7.05
35-39 Cm	Large Cazuela	8	4.9	3.52
40-44 Cm	Large Cazuela	12	7.4	5.29
45-49 Cm	Large Cazuela	2	1.2	0.88
50 Cm	Large Cazuela	3	1.8	1.32
55-59 Cm	Large Cazuela	3	1.8	1.32
65 Cm	Large Cazuela	1	0.6	0.44
70 Cm	Large Cazuela	1	0.6	0.44
95 + Cm	Large Cazuela	2	1.2	0.88
Totals		163	100.0	71.81

Table 27: Open Bowls Not Burned

DIAMETER	MEXICAN FOLK TYPOLOGY	COUNT	PERCENT	PERCENT OF TOTAL
5-9 Cm	Taza cups	9	14.1	4.0
10-14 Cm	Escudilla Style Bowls	14	21.9	6.2
15-19 Cm	Cajete Style Bowls	11	17.2	4.8
20-24 Cm	Cajete Style Bowls	10	15.6	4.4
25-29 Cm	Serving Cajete Style Bowls	10	15.6	4.4
30-34 Cm	Serving Cajete Style Bowls	4	6.3	1.8
35-39 Cm	Serving Cajete Style Bowls	1	1.6	0.4
40 Cm	Serving Cajete Style Bowls	1	1.6	0.4
50-52 Cm	Serving Cajete Style Bowls	2	3.1	0.9
59-60 Cm	Serving Cajete Style Bowls	2	3.1	0.9
Totals		64	100.0	28.2

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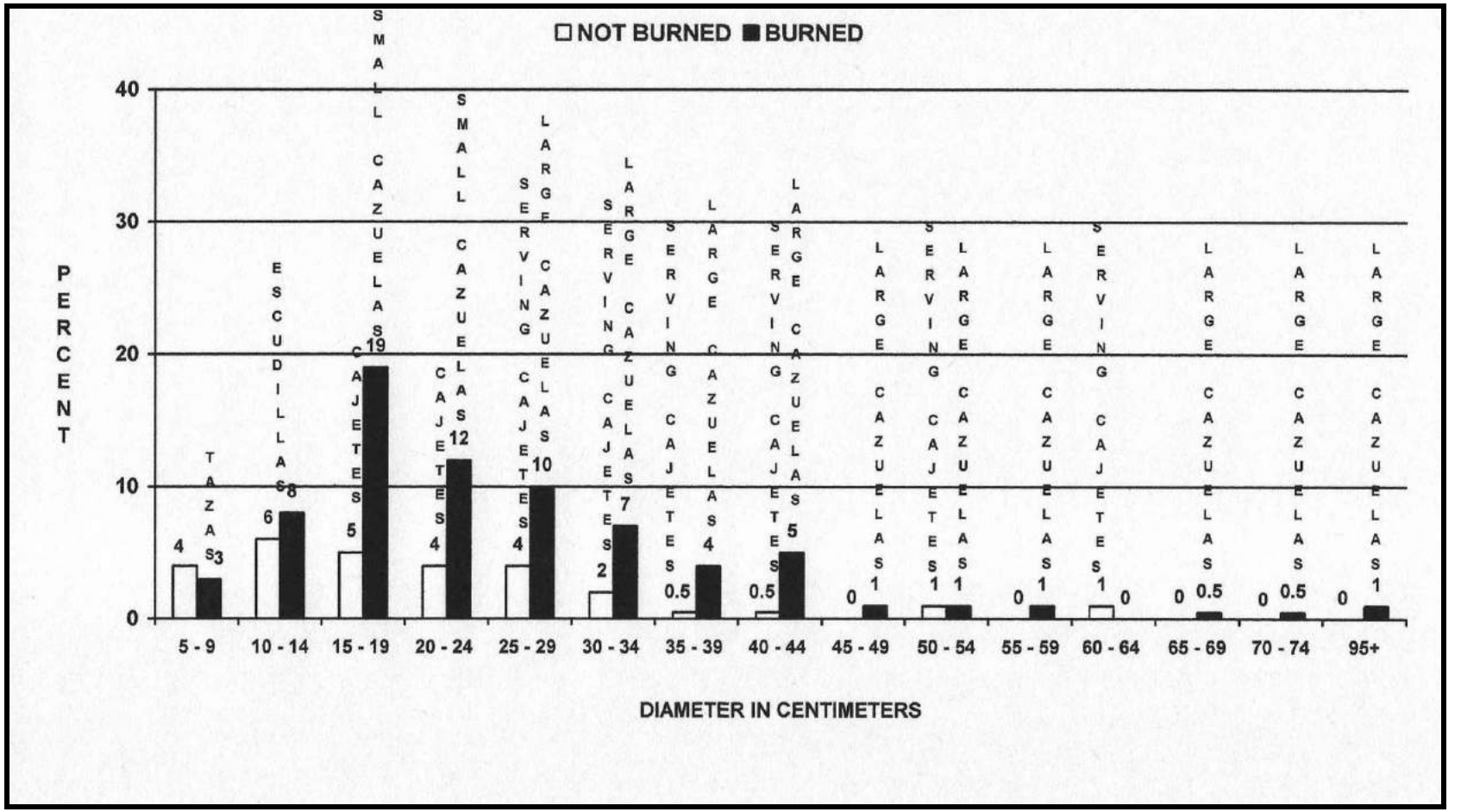

Figure 96: Native American Brown Ware Open Bowl Mexican Folk Vessel Adaptations Based on Burning and Diameter.

Vertical Sided Bowl

General Description

Vertical Sided Bowls are simple, wider than they are high, short, open vessels with concave bottoms. They differ from open bowls in that they have vertical sides with a slightly everted rim that sometimes exhibits a shallow neck recurve (Wade 2004a:14).[55]

A minimum number of 89 (13.19 %) individual Vertical Sided Bowls were identified from 104 (12.04%) sherds (Figures 87 - 98). All appeared to be coiled/paddle-and-anvil manufacture. Rim diameters ranged from 5 to over 95 cm (2-37 in). Diameters of the majority ranged from 10 to 44 cm (4-17 in) (Table 28, Figure 99). Seventy-two percent (64) showed soot and evidence of burning, confirming their use as cooking implements used on an open flame (Table 29). These constitute the majority of most diameter ranges. Twenty-eight percent (25) that showed no evidence of burning also included a wide range of diameters (Table 30). Probable Mexican Folk Vessel Typology uses for these vessels, based on their general bowl shape, overall size, and presence or absence of burning on the sherds are shown in Figure 100. Burned vessels include taza cups, escudilla style bowls, small cazuelas, and large cazuelas. Unburned sherds represented taza cups, escudilla style bowls, cajete style bowls, and serving cajete style bowls.

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[55] Terms applied to these vessels include food bowls (Rogers 1936:52-53), bowl (Griset 1990:181), bowl with straight walls (Porcayo Michelini 2013:67), and transitional bowl (Porcayo Michelini 2016:21-22).

Figure 97: Chapel Complex Vertical Sided Bowl Rim Sherds (MNV #S P436, P440A, P272).

Figure 98: Vertical Sided Bowls. Left: San Diego County Archaeological Center, photographed by S. R. Van Wormer; right, The Fowler Museum at UCLA Specimen # X65.12858, Public Domain https://oac.cdlib.org/ark:/13030/hb0g500746/?layout=metadata&brand=oac4.

Table 28: Vertical Bowls

DIAMETER	TOTAL	PERCENT
5-9 Cm	6	6.74
10-14 Cm	12	13.48
15-19 Cm	7	7.87
20-24 Cm	17	19.10
25-29 Cm	11	12.36
30-34 Cm	8	8.99
35-39 Cm	9	10.11
40-44 Cm	9	10.11
45 Cm	1	1.12
50 Cm	1	1.12
60-62 Cm	3	3.37
70 Cm	1	1.12
75 Cm	1	1.12
80 Cm	1	1.12
95+ Cm	2	2.25
Totals	89	100.00

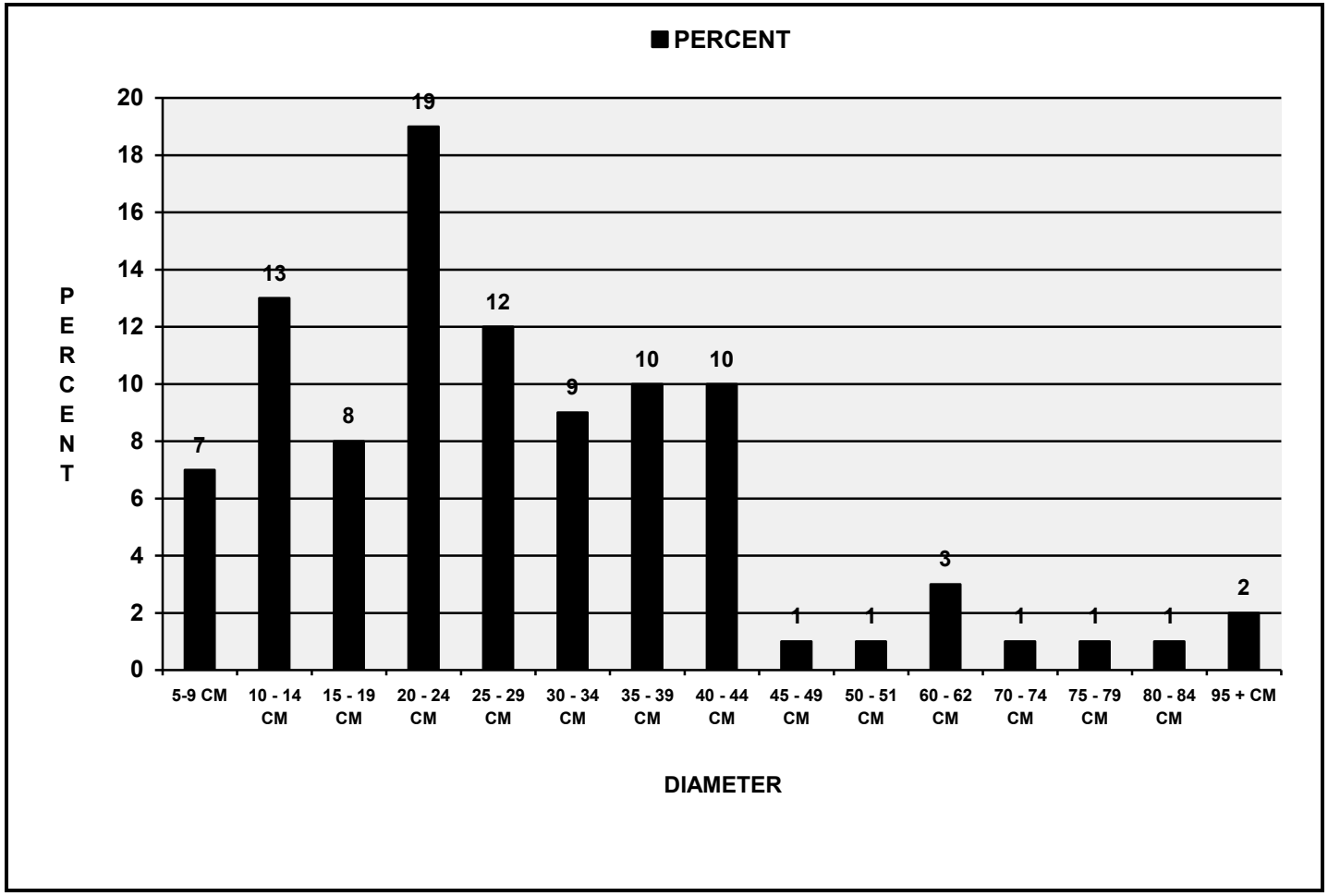

Figure 99: Vertical Sided Bowls by Diameter.

Table 29: Vertical Bowls Burned

DIAMETER	MEXICAN FOLK TYPOLOGY	COUNT	PERCENT	PERCENT OF TOTAL
5-9 Cm	Taza	3	4.7	3.37
10-14 Cm	Escudilla	10	15.6	11.24
15-19 Cm	Small Cazuela	3	4.7	3.37
20-24 Cm	Small Cazuela	12	18.8	13.48
25-29 Cm	Large Cazuela	7	10.9	7.87
30-34 Cm	Large Cazuela	6	9.4	6.74
35-39 Cm	Large Cazuela	9	14.1	10.11
40-44 Cm	Large Cazuela	7	10.9	7.87
45 Cm	Large Cazuela	1	1.6	1.12
50 Cm	Large Cazuela	1	1.6	1.12
60-62 Cm	Large Cazuela	2	3.1	2.25
75 Cm	Large Cazuela	1	1.6	1.12
80 Cm	Large Cazuela	1	1.6	1.12
95+ Cm	Large Cazuela	1	1.6	1.12
TOTALS		64	100	71.91

Table 30: Vertical Bowls Not Burned

DIAMETER	MEXICAN FOLK TYPOLOGY	COUNT	PERCENT	PERCENT OF TOTAL
5-9 Cm	Taza	3	12.0	3.37
10-14 Cm	Escudilla Style Bowls	2	8.0	2.25
15-19 Cm	Cajete Style Bowls	4	16.0	4.49
20-24 Cm	Cajete Style Bowls	5	20.0	5.62
25-29 Cm	Serving Cajete Style Bowls	4	16.0	4.49
30 Cm	Serving Cajete Style Bowls	2	8.0	2.25
40 Cm	Serving Cajete - Basin	2	8.0	2.25
60 Cm	Serving Cajete - Basin	1	4.0	1.12
70 Cm	Serving Cajete - Basin	1	4.0	1.12
95+ Cm	Serving Cajete - Basin	1	4.0	1.12
Totals		25	100.0	28.09

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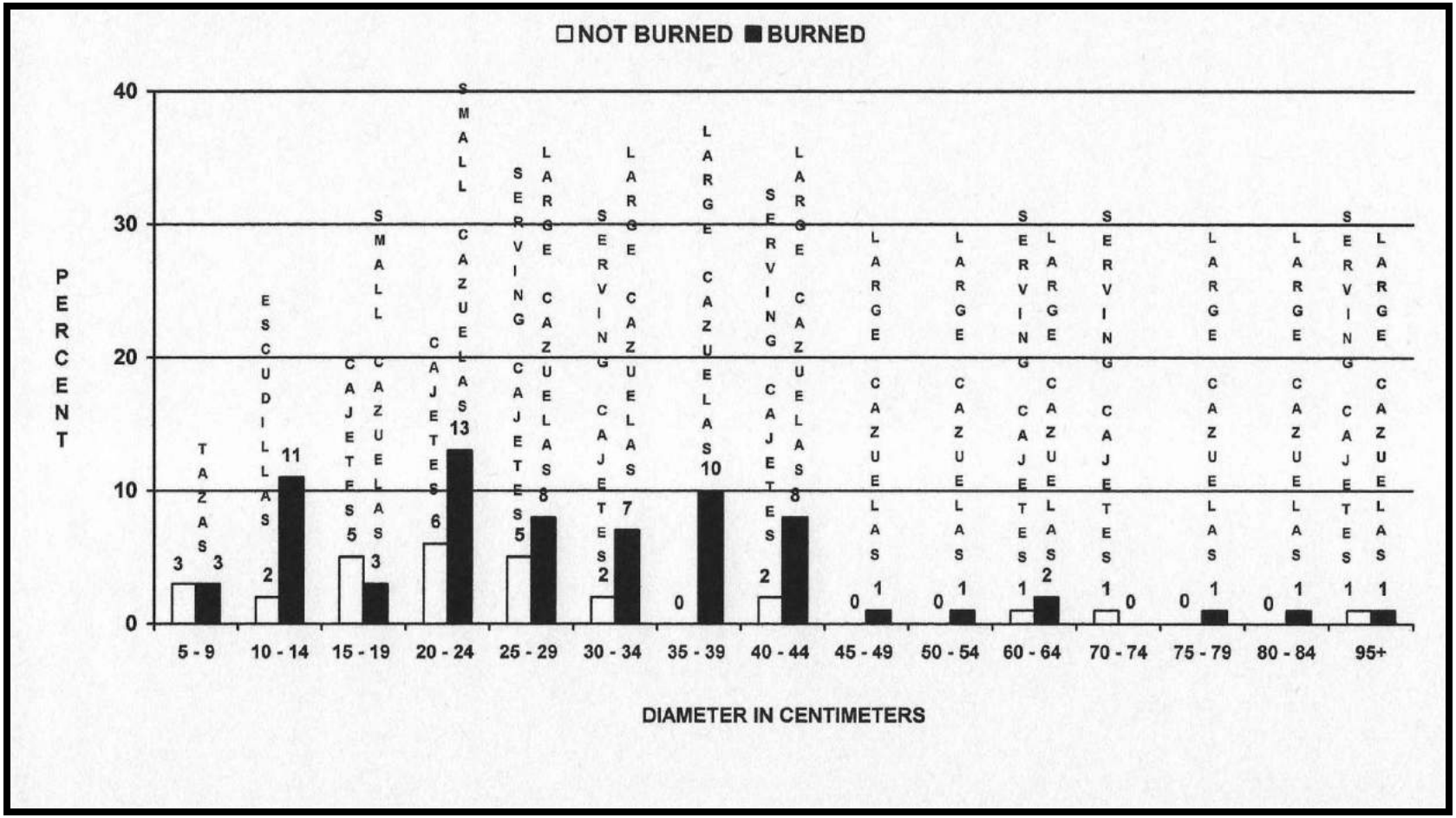

Figure 100: Vertical Sided Bowl Mexican Folk Vessel Adaptations Based on Burning and Diameter.

Native Paddle-and-anvil Produced Mexican Folk Vessels

Introduction

Only seven percent (44) of the vessels identified showed variations from traditional prehistoric forms. These included comales, a pocillo cup, a taza cup, small and large cazuelas, and an olla. Probable hollowware forms were ascertained by referencing Costello's typology for Mission Wares (Costello 2014). Production methods included use of traditional local clays, coil manufacture, and shaping with paddle-and-anvil or pressing onto molds, and therefore represent native manufacturing techniques applied to new forms. Consequently, these vessels are seen as a continuation of the Tizon Brown Ware Tradition[56] (Griset 1990:181; Wade 2004a; Graham 2019, 2020).

This is unlike parts of California where there had been no previous prehistoric pottery. In these places neophytes learned pottery-making from Mexican artisans, soldiers, and indigenous people from Baja California, Southern California, and the Central Valley, brought by the missionaries to the missions for the specific purpose of teaching wheel-thrown, molded, and hand-built techniques. These distinct pottery types are not seen as a continuation of pre-contact native traditions and are generally called Mission Wares[57] (Webb 1952; May 1976; Love and Resnick 1983; Griset 1990:181; Costello 2014:69; Peelo 2014:152; Skowronek et al. 2014:180).

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[56] . Traditionally vessel bases were formed by using the bottom of a broken or already existing pot as a mold to press clay onto, so forming on a mold was already a part of Tizon Brown Ware manufacturing technology.

[57] Also called Alta California Unglazed Earthenwares (Voss 2002:686).

Comal

General Description

The comal is a circular, flat to slightly dished, thin, ceramic griddle. The thin design transfers heat quickly (Foster 1948a:81-8; Reynoso Ramos 2004:84-88; Newman 2013; Morton 2014:xvii). It is the single Mexican Folk vessel type in the Chapel Complex assemblage commonly manufactured by local Naive Americans after contact.[58]

Through an analysis of 42 sherds, 36 (5.33%) brown ware comales were identified (Figures 101 - 102). They appeared to be formed on molds and exhibited a wide range of diameters from a small disk 5 cm (2 in) in diameter to the largest at over 95 cm (37 in) in diameter. Diameters of the majority ranged from 20 to 45 cm (8-14.5 in) (Table 31, Figure 103). Eighty-three percent of the comales (30) showed soot and evidence of burning, confirming their use as cooking implements used on an open flame. These constitute the majority of all diameter ranges including the smallest (Figure 104). Those not burned may have been used as lids, or platos, or simply may have been broken before they were used. The number of comales provides substantial evidence for the consumption of corn and flour tortillas by the San Diego Presidio population (Fournier 1998).

[58] Local Native produced comales were also common at Colonial Tucson (Thiel 2017:318).

Figure 101: Comal Rim Sherds (MN #S P241, P428, P366).

Figure 102: Unglazed Brown Ware Comales from Oaxaca Mexico. Collection of S. R. Van Wormer.

Table 31: Comal Totals by Diameter.

DIAMETER	COUNT	PERCENT
5 Cm	1	2.8
10-17 Cm	2	5.6
20 Cm	5	13.9
25 Cm	7	19.4
30-32 Cm	4	11.1
35-39 Cm	3	8.3
40-45 Cm	6	16.7
46-50 Cm	3	8.3
51-55 Cm	3	8.3
95 Cm	1	2.8
95+ Cm	1	2.8
TOTAL COMALES	36	100.0

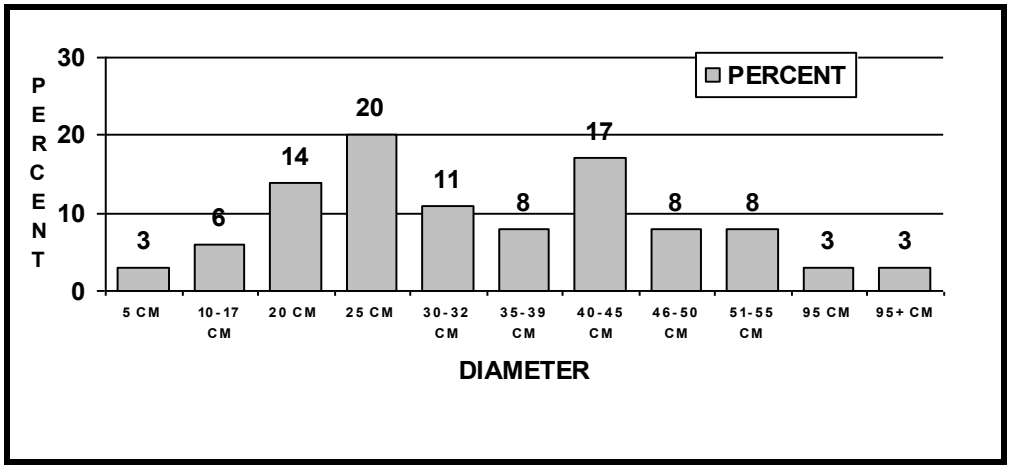


Figure 103: Comales by Diameter.

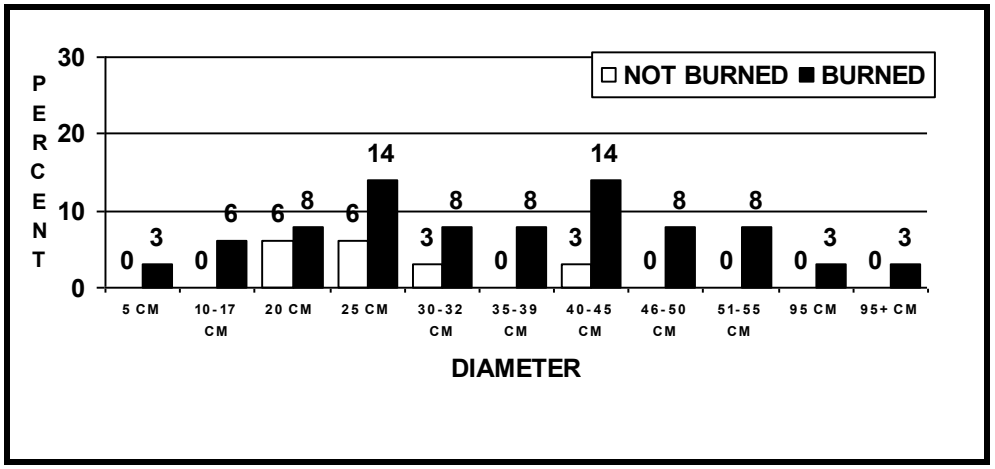


Figure 104: Burned and Not Burned Comales by Diameter.

Pocillo

A single (0.15 %) footed base pocillo cup with a single side handle was identified through analysis of 4 (0.5 %) sherds (Figure 105). This 8 cm (3 in) rim diameter vessel is essentially a moderately constricted pot with a 6 cm (2 in) diameter annular base ring pressed on to the vessel bottom. The associated handle segment is 1.5 cm (.5 in) in length. The sherds did not exhibit any evidence of burning or sooting.

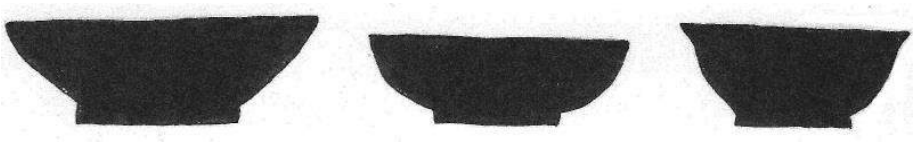
Figure 105: Pocillo Cup Sherds (MNV #S P623A, P623D, P623B).

Taza

Represented by 3 sherds (0.3%), this single vessel is essentially a vertical sided bowl with a flat base (Figure 106). An example can be seen in Wade 2014 Figure 11a. The hand formed sides have been pressed onto the 7 cm (3 in) diameter base that was made by pressing clay into a mold. It is heavily sooted.

Figure 106: Taza Sherds (MNV #S P157A, P157B, P157D).

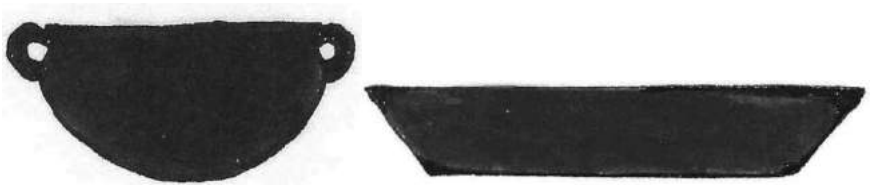
Small Cazuela



Through an analysis of four sherds, (0.5%) three (0.4%) small cazuelas were identified (Figure 107). These flat bottomed bowls with flaring sides and annular base rings closely resemble Costello's Mission Ware Type WB3. Unlike those vessels, however, which were wheel thrown, these are coiled paddle-and-anvil manufactured. In addition, they supported loop side handles similar to those shown in Costello's PJ1 through PJ5 series (Costello 2014:83, 88). Base rings and handles were pressed onto the finished bowls. One base was 10 cm (4 in) in diameter. The other two were 8 cm (3 in) in diameter. Based on Costello's form WB3 profiles, rim diameters would have been around twice that of the bases or 16 to 20 cm (6 to 7.8 inches). All show signs of sooting which led to their identification as cooking vessels.

Figure 107: Small Cazuela Sherds. Base on left side (MNV #S P624A), handle on right (P624B).

Cazuela - Cajete



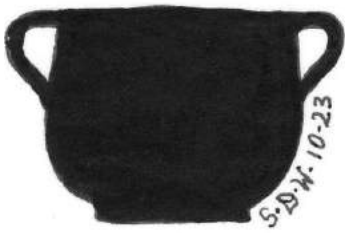
Through an analysis of four sherds (0.5%), two (0.4%) cazuela - cajetes were identified (Figures 108 - 109). One cazuela was represented by a partial 40 cm (16 inch) diameter rim fragment. It closely resembled but did not exactly match vessel profiles a, c, f, and g in Costello's PJ1 and PJ3 series (Costello 2014:83). Loop side handles were formed and attached by hand. It could not be determined if this vessel was manufactured in a mold or by coiled paddle-and-anvil methods. The rim did not exhibit burning or sooting, so this vessel may have been used for serving, mixing, as a wash basin, a chamber pot, or some other purpose.

The second vessel may have been a cazuela or a cajete since it could not be determined if it originally had handles or not. It was represented by a 10 cm partial base with flaring sides, resembling in profile Costello's type WB2. The 10 cm (4 inch) base diameter would indicate a rim diameter of 20 cm (8 inches) or more (Costello 2014:88). The base was formed by hand pressing onto a mold. Evidence of soot provided testimony to the vessel's use for cooking.

Figure 108 : Large Cazuela Sherds (MNV #S P267, P155A).

Figure 109: This Unglazed Brown Ware Cazuela from Oaxaca Mexico Closely Resembles the form Represented by MNV #S P267 & P155a (S.R. Van Wormer Collection).

Olla



One olla was identified from a partial rim and footed base (Figure 110). The 15 cm (6 inch) diameter rim matched Costello's PJ4 plain curving rimmed pots. The vessel had been made by either hand pressing into a mold or by coiled paddle-and-anvil methods. The 7 cm (3 inch) diameter annular footed base ring had been pressed onto the vessel bottom. Soot on the base indicated this had been a cooking pot.

Figure 110: Olla Base and Rim Sherds (MNV #s P158A, P158B).

Exotics

Two native pottery items identified were not vessels. One was an ovoid shaped disk approximately four cm (1.5 in) in diameter that had been formed by abrading the edges of a pot sherd. The other was a round flat four cm (1.5 in) diameter disk with a square cut out of its center during manufacturer and before the item was fired (Figure 111).

Items like the abraded disk have often been considered to be gaming pieces (Sampson 2019). At colonial-era locations in California they have been interpreted as two-sided dice that "facilitated the social cohesion of Native people living in the large multiethnic Indigenous communities that formed around Spanish colonial missions and later Mexican-era ranchos" (Panich et al. 2018:1). There is also evidence that they were used as small lids to seal narrow mouthed containers and as patches to repair pots by attaching them with adhesives over holes and cracks (Ezell 1961:40; Sampson 2019; Hector 2022:2-3). The purpose of the piece with the square cut out of the middle is not known.

Figure 111: Abraded Sherd on the Left (P159), and Round Flat Disk with a Square Cut Out of the Center on Right (P160).

Native American Brown Ware Pottery Assemblage Characteristics

Native American Brown Ware included Tizon Brown Ware and Lower Colorado Buff Ware sherds. A minimum number of 675 individual vessels were identified. By far the majority, 667 (93 %), were traditional Native shapes that showed no modifications or alterations from prehistoric forms. Of these only two (0.3 %) were Lower Colorado buff ware. The remaining 99.7 percent (665) were Tizon Brown Ware. Eight (1%) Native American Paddle-and-anvil Produced Mexican Folk Vessels were also identified and showed definite diversions from traditional native forms. They were all of Tizon Brown Ware.

Relative frequencies of vessel forms are compared in Table 32 and Figure 112. By MNV counts Moderately and Slightly Constricted Pots dominated at 42 percent, followed by Open Bowls at 34 percent, Vertical Bowls at 13 percent, Comales at 5 percent, Highly Constricted Pots at 4 percent, and Neckless Constricted Pots along with other Native constructed folk vessels at 1 percent each. See Figures 77 through 80 for a graphic guide of the probable Mexican folk vessel usage of these traditional Native American shapes.

Table 33 and Figures 113 - 114 present brown ware vessel quantities by probable Mexican Folk vessel typology usage. Cooking ware made up a slight majority with 396 items making up 59 percent of the collection. Vessels included comales (5%), cazuelas (29%), ollas (20 %), and cajete style bowls (4%). Two hundred seventy-nine serving vessels constituted 41 percent of the collection. These forms consisted of jarros (14%), taza –pocillo cups (9 %). escudilla-tazón style bowls (7 %), cajete style bowls (5 %), ollas (3 %), cántaros (2%), and tinaja-botellones water containers (1%). So although a majority of the brown ware vessels were used for cooking, almost half functioned in serving capacities. Some of the unburned vessels may also have been utilized in household functions such as wash basins, ewers, or chamber pots.

Table 32: Native American Brown Ware Vessel Forms

VESSEL	MNV COUNT	MNV PERCENT	WEIGHT COUNT	WEIGHT PERCENT	SHERD COUNT	SHERD PERCENT
Moderately to Slightly Constricted Pot	284	42.08	4077.2	34.52	350	40.51
Neckless Pot	7	1.04	30.0	0.25	8	0.93
Vertical Bowl	89	13.19	1356.0	11.48	104	12.04
Open Bowl	227	33.63	5206.9	44.09	319	36.92
Highly Constricted Pot	24	3.56	374.0	3.17	28	3.24
Comal	36	5.33	350.0	2.96	42	4.86
Other Native Constructed Folk Vessels	8	1.19	417.0	3.53	13	1.50
TOTAL	675	100.00	11811.0	100.00	864	100.00

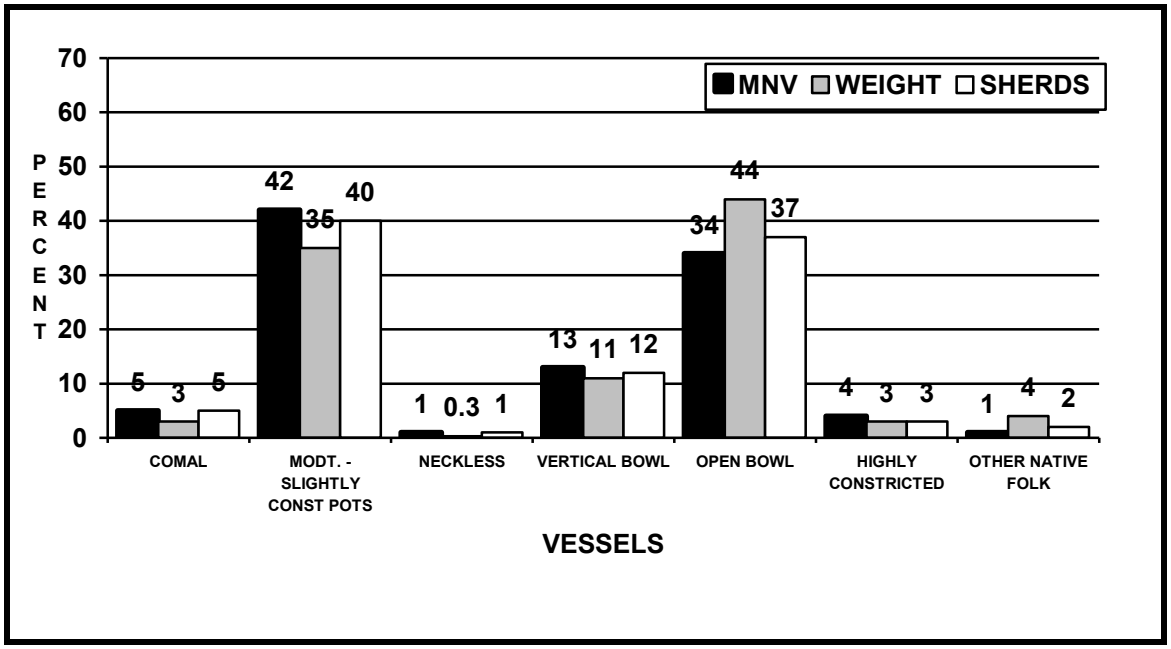


Figure 112: Native American Brown Ware Vessel Forms.

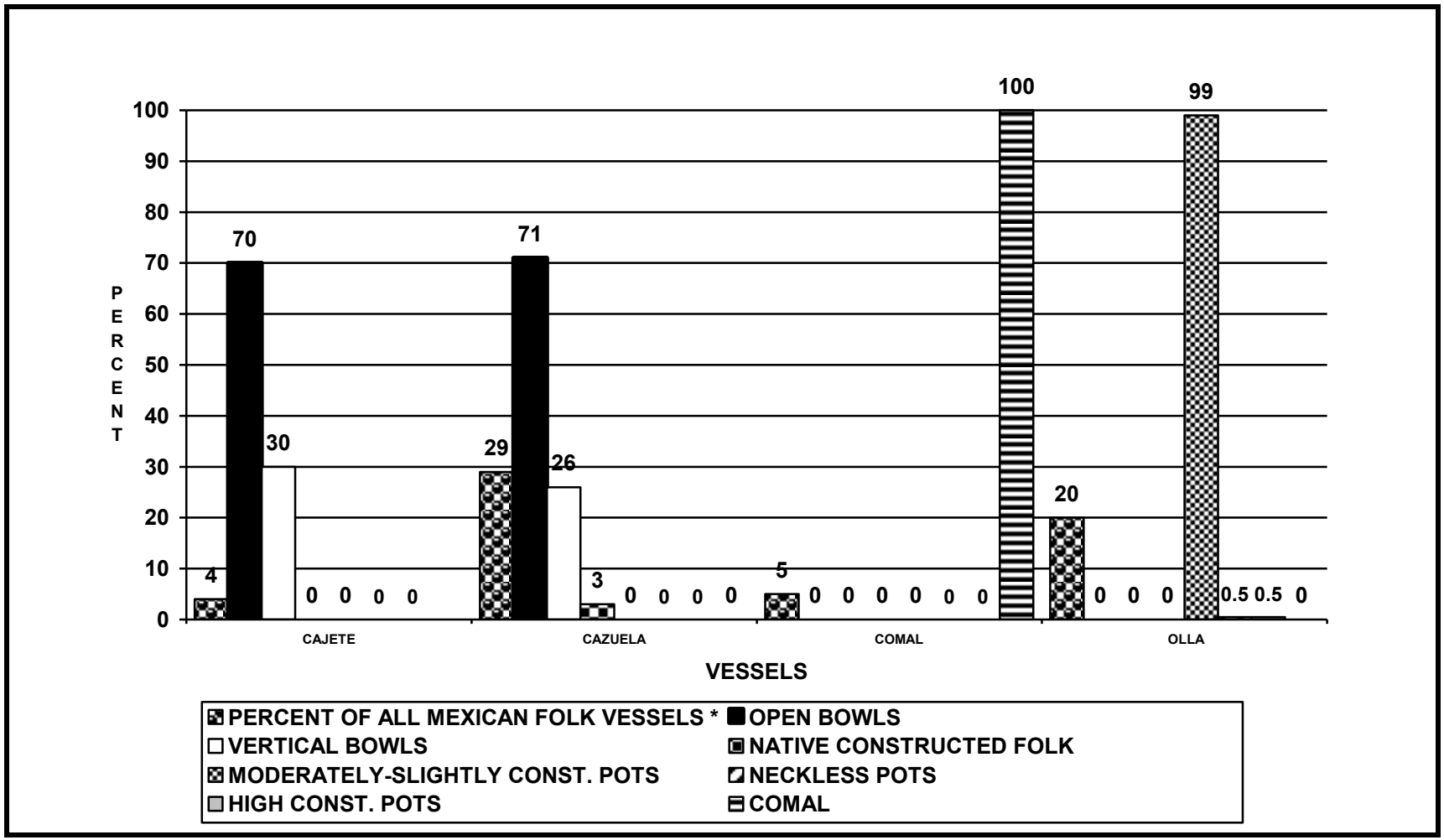
Table 33: Native American Brown Ware Mexican Folk Vessels.

WARE TYPES	Mexican Folk Vessel	Brown Ware Vessel Type	Brown Ware Vessel Totals	Brown Ware Vessel Percent	Mexican Folk Vessel Totals	Mexican Folk Vessel Percent
COOK WARE (396 MNV 59%)						
	Cajete Style Bowls				30	4.44
		Open Bowls	21	70.00		
		Vertical Bowls	9	30.00		
	Cazuelas				195	28.89
		Open Bowls	139	71.28		
		Vertical Bowls	51	26.15		
		Native Construction Folk Vessels	5	2.56		
	Comales				36	5.33
		Native Construction Folk Vessels	36	100.00		
	Ollas				135	20.00
		Moderately to Slightly Constricted Pots	133	98.52		
		Neckless Pots	1	0.74		
		Highly Constricted Pot	1	0.74		
SERVING WARE (279 MNV 41 %)						
	Cajete Style Bowls				31	4.59
		Open Bowls	20	64.52		
		Vertical Bowls	11	35.48		
	Jarros				96	14.22
		Moderately to Slightly Constricted Pots	83	86.46		
		Neckless Pots	5	5.21		
		Highly Constricted Pot	8	8.33		
	Ollas				21	3.11
		Moderately to Slightly Constricted Pots	20	95.24		
		Native Construction Folk Vessels	1	4.76		
	Platos				0	0.00
	Escudilla - Tazón Style Bowls				44	6.52
		Open Bowls	32	72.73		
		Vertical Bowls	12	27.27		

Table 33: Native American Brown Ware Mexican Folk Vessels

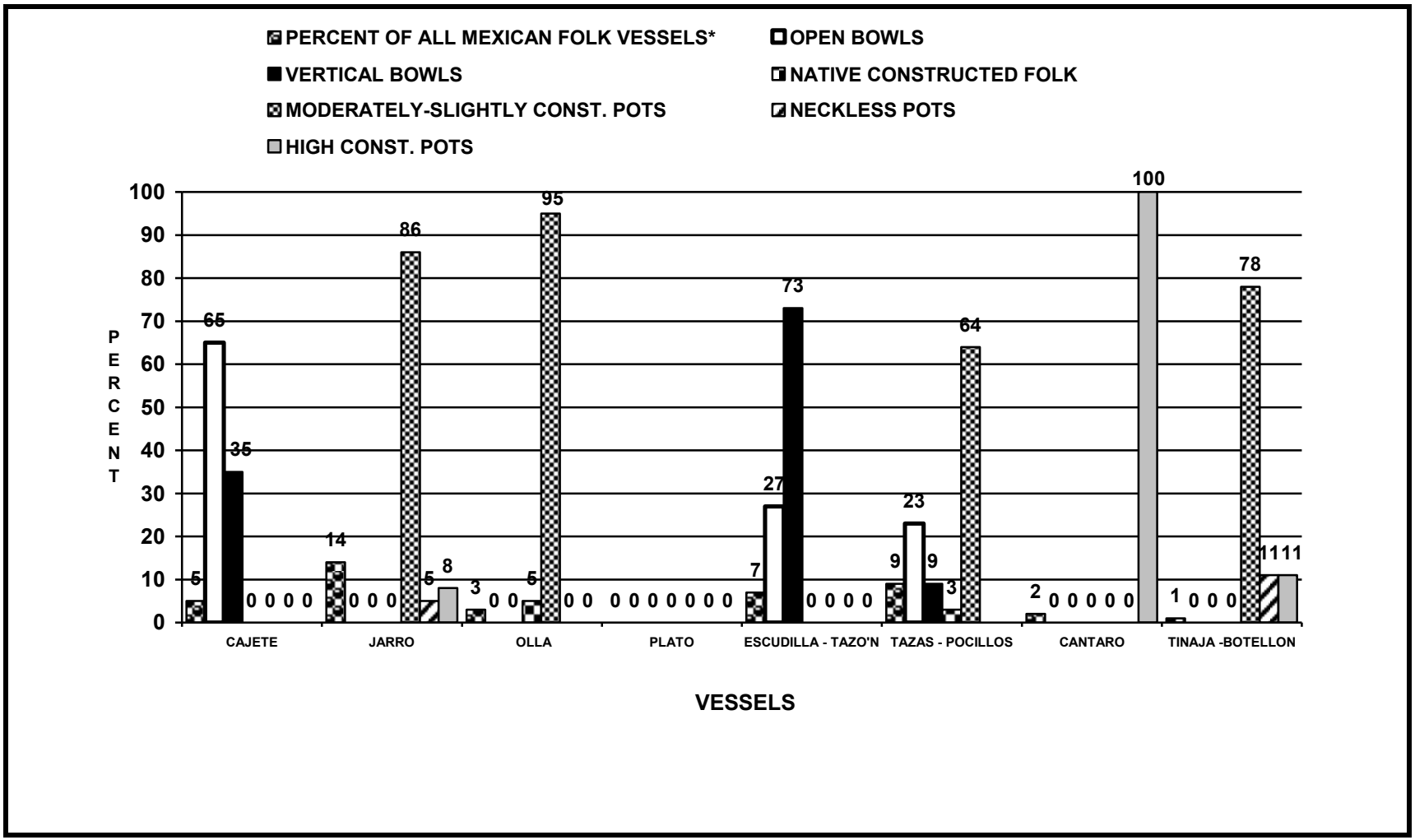
(Continued)

WARE TYPE	Mexican Folk Vessel	Brown Ware Vessel Type	Brown Ware Vessel Totals	Brown Ware Vessel Percent	Mexican Folk Vessel Totals	Mexican Folk Vessel Percent
SERVING WARE (Continued)	Taza, Pocillo Cups				64	9.48
		Moderately to Slightly Constricted Pots	41	64.06		
		Open Bowls	15	23.44		
		Vertical Bowls	6	9.38		
		Native Construction Folk Vessels	2	3.13		
WATER AND STORAGE WARES						
	Cántaros				14	2.07
		Highly Constricted Pot	14	100.00		
	Tinajas - Botellones					
		Moderately to Slightly Constricted Pots	7	77.78	9	1.33
		Neckless Pot	1	11.11		
		Highly Constricted Pot	1	11.11		
		Total	**675**		**675**	**100.00**



* This total includes Cook Ware, Serving Ware, and Water and Storage Wares as shown on Table 33.

Figure 113: Native American Brown Ware Vessel Percents within Mexican Folk Cook Ware Vessel.



* This total includes Cook Ware, Serving Ware, and Water and Storage Wares as shown on Table 33.

Figure 114: Native American Brown Ware Vessel Percents within Mexican Folk Serving Ware and Water and Storage Ware Vessels.

Native American Brown Ware Cross Site Comparisons

Cross site comparisons were conducted for two aspects of the Native American pottery assemblage: visual groups (sherds with similar fabric characteristics as defined by Felton et al. 2014) and vessel forms. The analysis used data from two nearby sites: Old Town San Diego Block 408, which produced deposits dating circa 1834 to 1846 (Felton et al. 2014:226), and the Casa de Bandini, an assemblage with a deposition context of 1829 to the mid-1860s (Schafer 2012; Van Wormer and Walter 2012).[59] For the Visual Group comparison only Old Town Block 408 data was used. This type of data was not available for the Casa De Bandini assemblage.

Visual Groups

For the analysis of Native pottery from Old Town San Diego Block 408, California State Park archaeologists sorted Tizon Brown Ware sherds "into groups that had similar fabric characteristics," which "resulted in three major visual groups." These were the Tizon Brown Ware (TBW) Group, Laminar Group, and the Red Surface-Gray Core (RS/GC) Group (Felton et al. 2014: 232-234).

The Tizon Brown Ware (TBW) Group was identified by sherds with "a dark reddish gray medium to coarse fabric. It contained poorly sorted angular to sub angular granite inclusions. Nothing distinguished these sherds from the Tizon Brown Ware found throughout San Diego County." The TBW group was the most frequent class and made up 76 percent of the Block 408 Native Brown Ware assemblage (Felton et al. 2014: 232).

The Laminar Group was "similar in appearance to the TBW Group but the fabric is characterized by scattered lamina that are often (but not always) parallel to the vessel surface. These are small round voids, short longitudinal voids, and an occasional

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[59] The Building 13 Midden at the San Francisco Presidio produced a MNV quantity of 43 "Alta California Unglazed Earthenware" vessels. Identified only as hollow wares these definitions were not precise enough to allow cross site comparison. "Analysis of vessel function was limited to identification of soot residues on vessel surfaces. In this manner, 14 vessels (33%) were identified as cooking vessels" (Voss 2002:687-688). This is substantially fewer cooking vessels than those represented in the Brown Ware assemblage from the San Diego Presidio Chapel.

longitudinal cast that is clearly botanical in origin. Subsequent microscopic inspection suggested that an organic temper, possibly dung, had been added." Laminar sherds made up 17 percent of the Old Town collection (Felton et al. 2014: 233).

The Red Surface-Gray Core (RS/GC Group) "exhibits an abrupt color change from red surface ring to a gray core. This initially appeared to be a slip from a float, although subsequent analysis demonstrated that the two zones were part of the same fabric, differing only in color." This group constituted about 10 percent of the Old Town sample (Felton et al. 2014: 234). It was hypothesized that "In historic period times fuel sources in the San Diego vicinity were decimated and animal dung may have replaced oak bark as a fuel. . . . It is possible that the rapid loss of heat in an open dung fired kiln resulted in our Red Surface–Gray Core" (Felton et al. 2014: 239).

The Old Town Block 408 Visual Groups were applied to the Presidio Chapel Native American Brown Ware pottery analysis. In addition to the three visual groups used for Old Town Block 408, three others were added: a Buff Wares Group, a Burned Sherds Group for charred pieces that did not allow visual group identification, and an Unidentified Group. Results are compared to Old Town Block 408 in Table 34 and Figure 115. Distinctions are immediately apparent between the Chapel and Old Town assemblages. The main differences are between the RS/GC group which dominates the Chapel collection at 65 percent and makes up only 10 percent of the Old Town collection, and the Laminar Group which makes up 76 percent of the Old Town assemblage, but only 0.4 percent of the chapel vessels identified.

Table 34: Presidio Chapel Native Pottery Visual Groups

VISUAL GROUP	MNV	PERCENT
Buff	2	0.30
Burned	125	18.50
Laminar	2	0.40
RS/GC	444	65.50
TBW	99	15.00
Undetermined	4	0.60
TOTAL	675	100.00

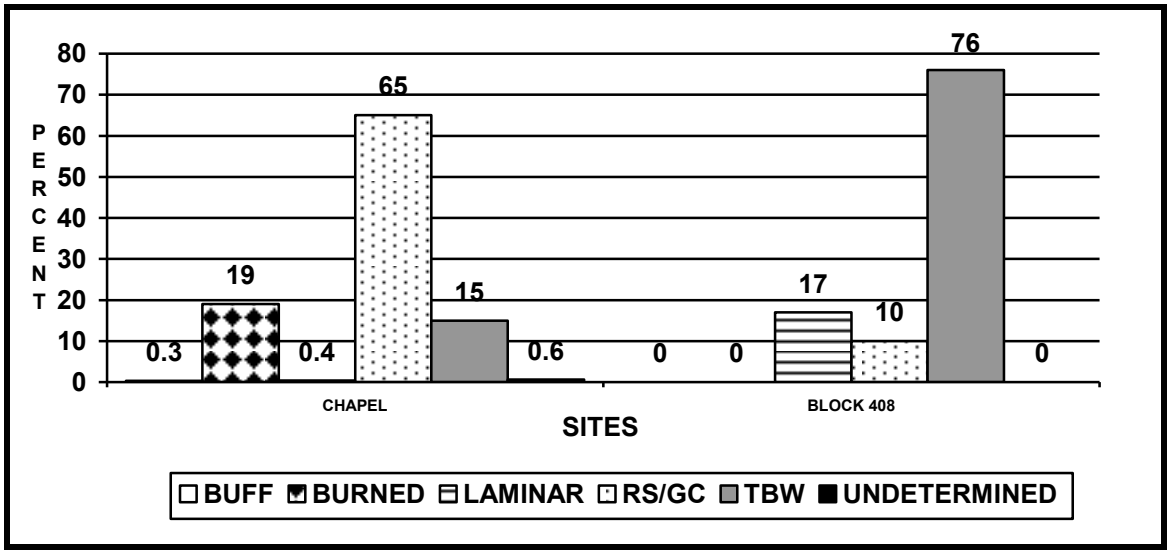

Figure 115: Compared Presidio Chapel and Old Town Block 408 Native Pottery Visual Groups.

Vessel Forms

In Table 35 and Figure 116, MNV quantities of Native American Brown Ware vessels from the San Diego Presidio Chapel complex are compared to Old Town San Diego: Block 408 (Felton et al. 2014:226), and the Casa de Bandini assemblages (Schafer 2012).[60]

Moderately and Slightly Constricted Pots dominate all three assemblages with frequencies ranging very close to each other at between 42 and 44 percent. These are followed by Open Bowls at 34 percent each for the Presidio Chapel and Block 408, and 23 percent for Bandini.[61] Vertical Sided Bowls follow next with Bandini at 23 percent and Block 408 and the Presidio Chapel at 15 and 12 percent respectively. The remaining vessel types made up five percent each or less of the Chapel and Block 408 assemblages, and were absent from the Casa de Bandini Collection. All three assemblages are functionally very much the same and are dominated by Mexican Folk Vessel olla style Moderately and Slightly Constricted Pots and Cajete/Cazuela-like bowls. Each of the sites produced collections of Native American Brown Ware consisting of vessels strongly associated with adaptations to Mexican Folk Cultural food ways.

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[60] The Building 13 Midden at the San Francisco Presidio produced a MNV quantity of 43 "Alta California Unglazed Earthenware" vessels. Identified only as "hollow wares," these definitions were not precise enough to allow cross site comparison. "Analysis of vessel function was limited to identification of soot residues on vessel surfaces. In this manner, 14 vessels (33%) were identified as cooking vessels" (Voss 2002:687-688). This is substantially fewer cooking vessels than those represented in the Brown Ware assemblage from the San Diego Presidio Chapel.

[61] Distinctions between Open Bowls and Vertical Sided Bowls were not made for the Casa Bandini analysis (Schaefer 2012). For this report's cross site comparison the total percentage of bowls (46) was split evenly between open and vertical categories.

Table 35: Native American Brown Ware Cross Site Comparisons

VESSEL	PRESIDIO CHAPEL MNV	PRESIDIO CHAPEL %	OLD TOWN BLOCK 408 MNV	OLD TOWN BLOCK 408 %	CASA DE BANDINI MNV	CASA DE BANDINI %
Moderately to Slightly Constricted Pot	284	42.08	47	43.12	16	44.44
Neckless Pot	7	1.04	0	0	0	0
Vertical Bowl	89	13.19	16	14.68	10	23.00
Open Bowl	227	33.63	37	33.94	10	23.00
Highly Constricted Pot	24	3.56	4	3.67	0	0
Comal	36	5.33	5	4.59	0	0
Other Native Constructed Folk Vessels	8	1.19	0	0	0	0
TOTAL	675	100.00	109	100.00	36	100.00

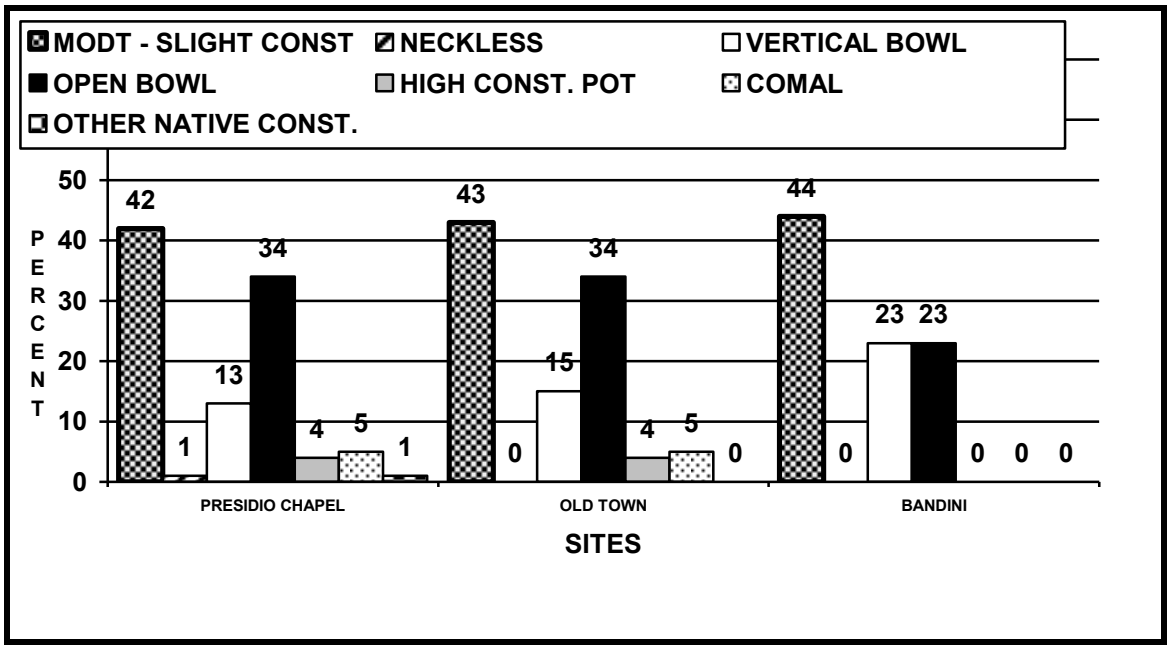

Figure 116: Native American Brown Ware Cross-Site Comparisons.

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