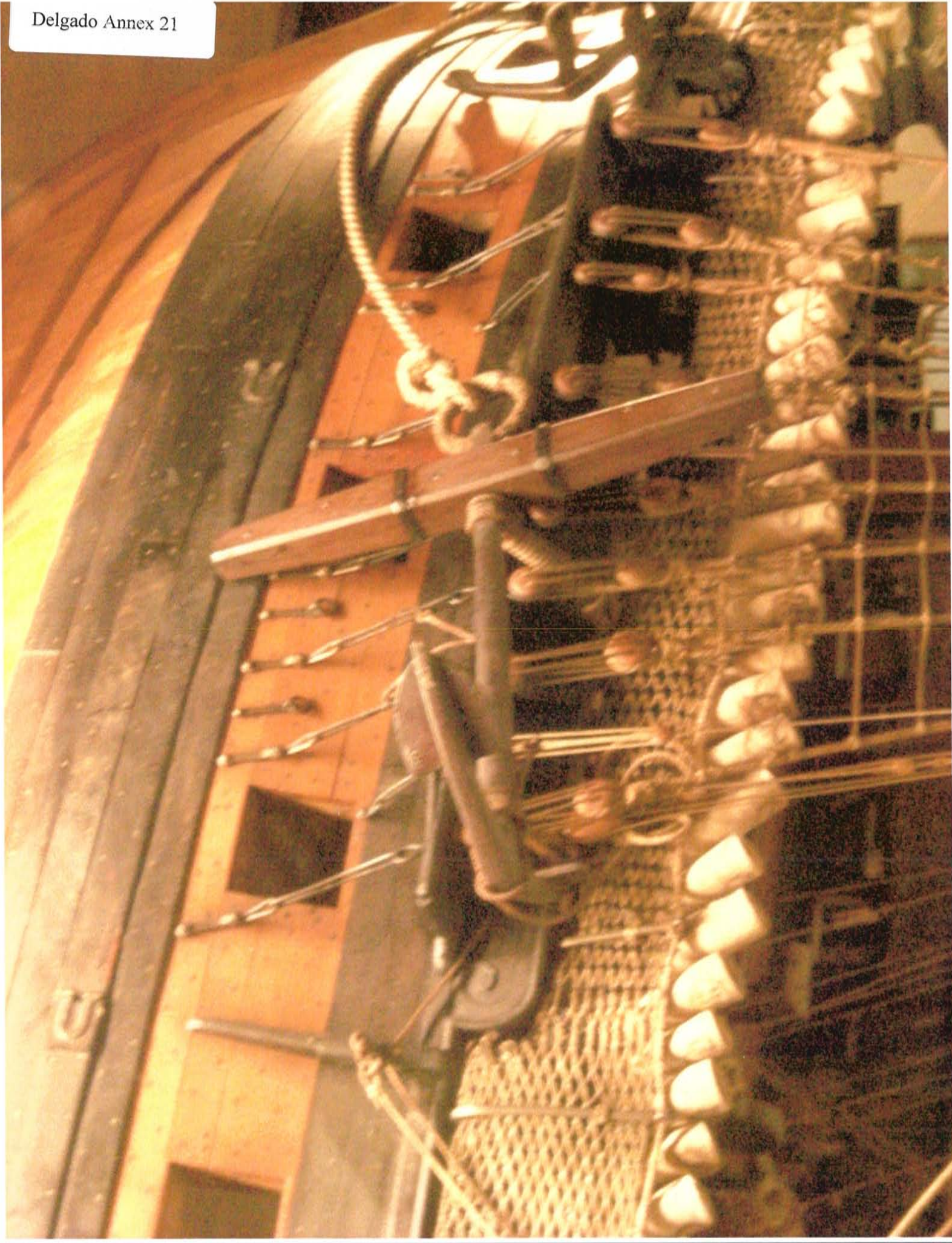
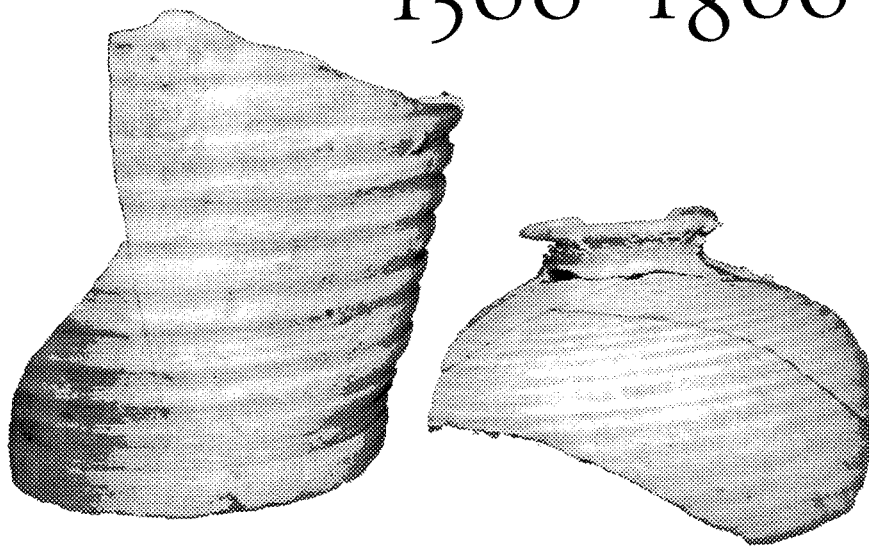


ANNEX 21
TO EXHIBIT D
(Delgado Declaration)



ANNEX 22
TO EXHIBIT D
(Delgado Declaration)

POTTERY FROM
SPANISH
SHIPWRECKS
1500-1800



MITCHELL W. MARKEN

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Late Eighteenth-Century Types

The latest eighteenth-century shipwreck finds known to this researcher are from the 1766 wreck of the *El Nuevo Constante*. Originally reported by Pearson, the ship's manifest recorded that the *Constante* was carrying four botijas of balsam as cargo (Pearson, 1982: 26, 27). One tapered cork was recovered from the wreck (*ibid.*). The rim fragments also recovered indicate that at least three jars were present. The small number of sherds—111 in all (*ibid.*)—suggests that the jars were originally fewer in number than the large quantity from the *Tolosá* and *Guadalupe* (1724), which may indicate a phasing out of their use. In addition to the examples illustrated, 89 sherds were examined, which had wall thicknesses of between 1 cm and 1.4 cm. Over 62% were glazed with a light to emerald green glaze ranging to brown and almost yellow. The fabrics ranged from buff to brownish tan to light brown terra-cotta, with fine mineral inclusions. Throwing marks were evident on the interiors and exteriors of the sherds.

Figure 4.47 is the rim and upper shoulder of a large jar that is different enough in form to suggest a stylistic transition away from the earlier Type A jars. The compressed and thickened rim noticeably lacks the lower ledge separating the rim from the neck and shoulders, which is characteristic of Type 3 and Type 4 rims. This new rim type, which I have called Type 6, has not been encountered in earlier assemblages and may mark the beginning of a new style. It may have been a well-smoothed-over join of a Type 4 shape with an exaggerated lip or formed by pushing the excess clay around the neck down toward the shoulders and pinching the top for a lip. The

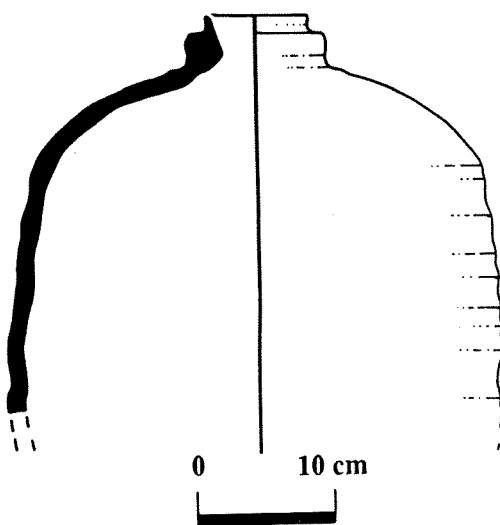


FIG. 4.47 A large olive jar from the wreck of the *Constante* (1766).

exterior is a sloped "V" fashioned for a cork. Throwing marks are evident on the interiors and exterior walls. The paste is similar to the sherds, and the walls are covered in a green lead glaze. The rim from the above jar is shown at a bigger scale in fig. 4.48A.

Figure 4.48B is a rounded, slightly pointed base covered in green glaze. The spiral swirl on the interior suggests a similar construction technique as employed on the earlier jars (discussed below). The paste is tannish brown with a gray core with visible mineral tempering.

The rim illustrated in figure 4.49A has characteristics of the Type 4 style, although part of the profile is thicker and looks as though it was shaped using fingertips instead of a braced hand. It is covered in a green glaze covering an off-white to pinkish terra-cotta paste with mineral tempering.

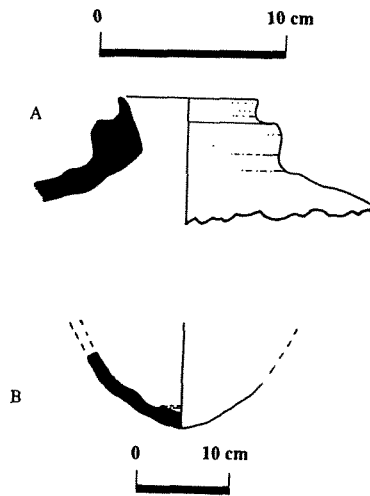


FIG. 4.48 A, Type 6 rim, detail of fig. 4.47; B is an olive jar base. Both are from the wreck of the *Constante* (1766).

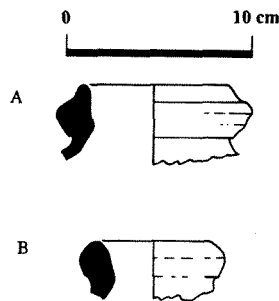


FIG. 4.49 Olive jar rims (A-B) from the wreck of the *Constante* (1766).

Some small sections of the rim overhanging the neck are almost smoothed over, although not as definitively as the previous example. Figure 4.49B is a rim similar to the half-circle Type 3 rims found earlier, although the wall at the neck is thicker, which may mean that the rim was rolled over to make it thicker, rather than added. There is less of a definitive ridge on the middle exterior, although it is perceivable. The rim is glazed green with a light tan to terra-cotta paste containing several large whitish mineral inclusions.

The examples from the *Constante* may prove to represent a stylistic change for the jars, because all three previously recorded types do not appear to be present. The jar form in Figure 4.47 may be a version of Goggin's Late Style shape C (1960: 12–13) if the slightly pointed base is part of the same form, or possibly a later version of the Type A shape. The associated rim form, however, marks an important stylistic change, and because it does not occur in earlier contexts, it should be considered a temporal indicator.

The *Elizabeth*, a ship wrecked off western Australia on route from Manila in 1839, yielded at least three olive jars and a number of sherds categorized as Goggin's Late Style by Henderson (1973). The contents of the jars included olive seeds, grape seeds, and passion fruit seeds, (*ibid.*: 7, 25, 27). Glazing was not evident on any of the jars (*ibid.*: 27). The jars pictured and illustrated in Henderson's report closely resemble Goggin's Late Style shape D jars (1960). Figure 4.50 illustrates one of the nineteenth-century examples. Of important note is the Type 6 rim form, which is similar to the example recovered from the *Constante* (1766). It has a compressed rim with a raised lip. At the shoulders the walls invert dramatically to form the long, narrow bottom. Paste on the jars ranges from a pale yellowish white to pale salmon (Henderson, 1973: 24). A find similar to the *Elizabeth* jars was recovered in 1987 from a trench in Charleston, South Carolina (photographs were sent to me by Roland Young of the South Carolina Underwater Archaeological Research Council, Inc.).

The finds from the *Constante* (1766) seem to mark the beginning of important stylistic changes and a dramatic reduction in the numbers of jars encountered on associated wrecks. The examples from 1766 and from the *Elizabeth* (1839) may be attributed to Goggin's Late Style, which he dated to range from 1780 to 1850 (1960: 24), although the *Constante* examples occur 14 years earlier.

Manufacture Techniques

A discussion of manufacturing techniques is overdue. Because so much has been previously written about the intentions of the potters without first exploring how the jars were made, it is hoped that further understanding of construction techniques will help us recognize subtle changes in form. In

a 1/2 arroba (Lyon, letter on file, 1986). Type C conical jar volumes change dramatically over time, with the early seventeenth-century jars averaging 2.18 liters compared to the early eighteenth-century average of 3.46 liters.

As more colonial era shipwrecks are recovered and larger sample groups are statistically quantified, the picture will become clearer. At the present time, complicated approaches seem unnecessary in attempting to piece together the puzzle. Quickly fabricated handmade pottery will never fit exactly into precisely defined measuring standards. The fact that the jars are close in size at all pays great tribute to the skill of the potters. The absence of a full body mold for exact duplication suggests that rough guidelines were sufficient for containing the commodities.

Typological Summary

The review of jars in this study has focused primarily on the broad time range established by Goggin and associated with his "Middle Style." The study begins with finds from the first Spanish wrecks recovered in the Americas dated to the first part of the sixteenth century, shortly after colonization began. With only one intact jar from the possibly early sixteenth-century St. John's Bahamas wreck and the absence of large quantities of sherds (the sherds are definitely in evidence) from the three Padre Island wrecks of 1554, it may be that olive jars were just beginning to replace other types of containers used for ocean transport. The different styles of rims encountered on the St. John's Bahamas wreck suggest a period of experimentation or transition leading to the more standardized (and more common) later forms, also evidenced by the Type 2 rim recovered from the 1554 wrecks.

Assigning a starting date for olive jars, however, seems pointless as the forms did not suddenly appear, but are the lineal descendants of the long traditions of Mediterranean amphorae. Although the forms were probably adapted to suit the changing requirements and needs of the colonists, their evolution also reflects elements of state control and the effects of mass production. The enormous quantities of olive jar material that characterize wrecks associated with Spanish trade to the Indies do not begin to appear in the archaeological record until the early part of the seventeenth century.

Type A Jars

Figure 4.55 shows comparisons of actual Type A jars recovered from wrecks from the sixteenth century to the eighteenth century. All jars appear to have been manufactured in the same general fashion. But while they may look similar to the unpracticed eye, subtle variations make temporal identifications possible. Many of the jars' characteristics overlap time

TABLE 4.2 Olive Jar Temporal Attributes

Type A: Botijas peruleras					
<i>Date</i>	<i>Rim type</i>	<i>Marks</i>	<i>Glaze</i>	<i>Av. vol</i>	<i>Characteristics</i>
early 16th c.	3	No	No	19.78	assoc. with Type 1 rims, only one jar recorded
mid-16th c.	NR	NR	NR	NR	NR
late 16th c.	3	incised	No	17.85l	rounded shoulders, less tapered, more smoothed, only 1 incised mark if any
early 17th c.	3	Yes	No	17.08l	more tapered shoulders, incised shoulder marks, stamped & incised rim marks*
mid-17th c.	3	Yes	No	16.98l	a little less tapered shoulders, stamped marks on rims
late 17th c.	3 w/lip defined	No	No	13.7l	tapered and smaller, dated sample is not concrete
early 18th c.	4 only	No	Yes	18.3l	larger with broader shoulders, less tapered, more compact paste
mid-18th c.	6 & 4	NR	NR	NR	Goggin's Late style C may have replaced it using 1766 wreck finds
late 18th c.	NA	NA	NA	NA	
early 19th c.	6	NR	No	NR	Goggin's Late style D reported on wreck from 1839

*Flat-bottomed olive jar-type botijas with Type 5 rims occur only in the early 17th century

Type B: 1/2 Arroba botijas

<i>Date</i>	<i>Rim type</i>	<i>Marks</i>	<i>Glaze</i>	<i>Av. vol</i>	<i>Characteristics</i>
early 16th c.	NA	NA	NA	NA	
mid-16th c.	2 possibly	No	Yes	NA	only one rim was recorded; it was reported that Type I rims were present
late 16th c.	3	No	Yes	6.67l	sloping shoulders, rims are more semitriangular, one poss. Type I rim
early 17th c.	3	No	No	5.65l	rounded shoulders, one almost globular, one rim semicircular
mid-17th c.	3	No	No	6.11l	rounded shoulders, one with slight shoulder angle
late 17th c.	3	No	No	5.43l	semicircular rims, one with rounded shoulders and one with a sharper angle
early 18th c.	3	No	Yes	5.10l	all semicircular rims, sharper angles on shoulders
mid-18th c.	NR	NR	NR	NR	
late 18th c.	NR	NR	NR	NR	
early 19th c.	NR	NR	NR	NR	

(continued)

TABLE 4.2 (continued)

Type C: Conical botijas					
<i>Date</i>	<i>Rim type</i>	<i>Marks</i>	<i>Glaze</i>	<i>Av. vol</i>	<i>Characteristics</i>
early 16th c.	NA	NA	NA	NA	
mid-16th c.	NR	NR	NR	NR	
late 16th c.	NR	NR	NR	NR	
early 17th c.	3	No	No	2.18l	small cone shape with distinguishable shoulders curving in to narrow base
mid-17th c.	NR	NR	NR	NR	
late 17th c.	NR	NR	NR	NR	
early 18th c.	4	No	Yes	3.53l	large cone shape angling to a narrow base
mid-18th c.	NR	NR	NR	NR	
late 18th c.	NA	NA	NA	NA	
early 19th c.	6	NR	No	NR	may have been replaced by Goggin's Late style D

NA = No collection available, NR = None recorded

periods, and it has been established that dating criteria are more accurate when several factors are used to qualify the jars.

Sixteenth Century

In comparing known forms from datable wrecks, the one example possibly from the early sixteenth century is the most crudely fashioned. The rim is a semicircular Type 3, which differs from the later Type A jars, which have a definite semitriangular Type 3 rim style. The early sixteenth-century jar is also directly associated with Type 1 and Type 2 rims. The Type A jars from the late sixteenth-century context appear more squat than the later jars and are more smooth. The two examples recovered from a single context make generalizations of the forms during this time period unsafe. Specific lack of Type A examples from the Padre Island wrecks of 1554 and the Spanish Armada of 1588 may imply that Type A jars were not utilized in as great quantities in the sixteenth century as in later times. Of the jars recovered, the rims of the early and mid-sixteenth century differ from those recovered from the late sixteenth century. The late sixteenth-century examples are similar to those of the early seventeenth century, all exhibiting Type 3 semitriangular rim construction. The early sixteenth-century examples did not show evidence of glazing, as do the other two late sixteenth-century Type A jars; however, the Type B jars from the Armada of 1588 do include glazed sherds. Capacities

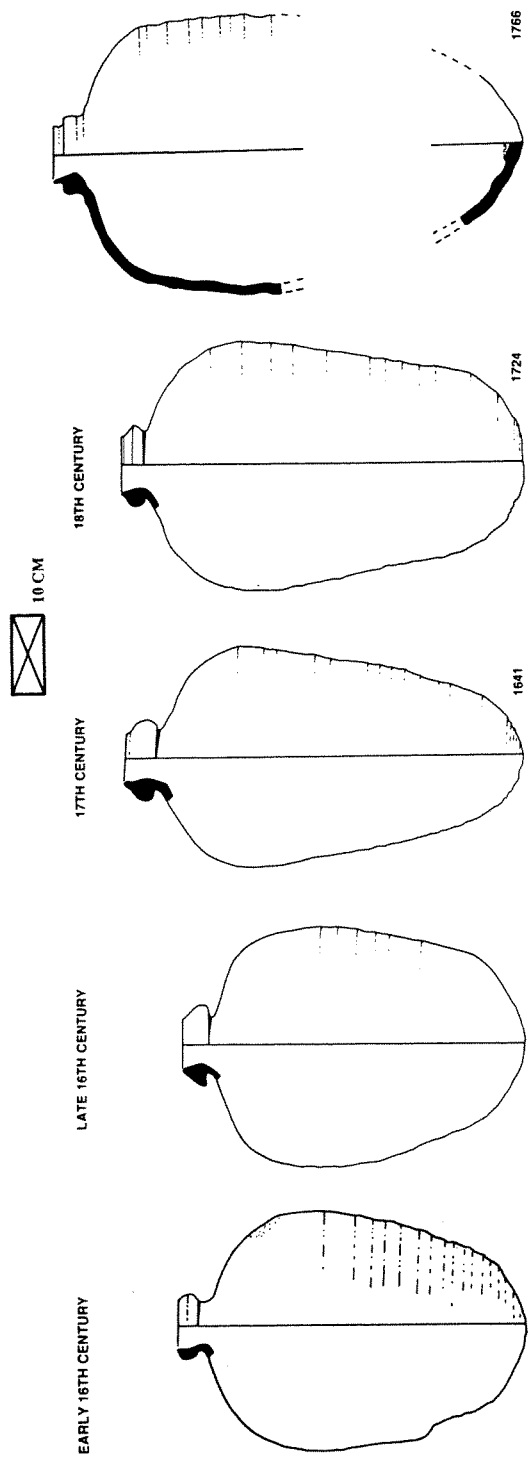


FIG. 4-55 Type A olive jar form changes from the sixteenth through the eighteenth centuries.

average more than the Castilian wine arroba of 16.133 liters, with the one example possibly from the early part of the century at 19.78 liters and the average of the two from the late sixteenth-century jars at 17.85 liters.

Seventeenth Century

Type A jars of the early seventeenth century are more numerous and generalizations can be made about recurring characteristics. They are more tapered than the earlier and later jars and bear semitriangular Type 3 rim construction. No examples were recorded with glazes of any kind, and most exhibit a "white slip" appearance. The interiors are often coated with pitch, and several examples appeared to be filled with pitch. Pitch in conjunction with natural corks is used as the method of sealing. This practice is evident throughout the period in question. Clay preparation is often inadequate, with jars frequently revealing bubbles and deformities. Care and attention to detail in the manufacturing process is often disregarded and the jars are generally more sloppily constructed compared to eighteenth-century examples.

Rim markings have only been encountered on jars from a pre-1650 context and seem to be an important temporal indicator. Because collections from wrecks dating to the last half of the seventeenth century are not yet available for study, it is not known when the practice died out. The large collections from wrecks of the early eighteenth century are devoid of any markings. Shoulder markings, incised as opposed to stamped, also occur on jars from the early seventeenth century. Capacities from securely dated wrecks average 17.04 liters and are large enough to accommodate the Castilian wine arroba of 16.133 liters. Also included in early seventeenth-century contexts is a new form identified as a flat-bottomed olive jar.

Eighteenth Century

The jars studied from the eighteenth century are also represented by a sample large enough to generalize and validate conclusions. The Type A jars are slightly larger than earlier examples and have a broader shoulder appearance with less of a tapered shape than jars from the early seventeenth century. Glazing is frequent and the clay is better prepared, resulting in fewer aberrations. Paste is similar, although it generally appears denser. Manufacturing processes are the same as earlier, with the exception of the technique applied to the rims.

All Type A jars observed from eighteenth century contexts display the Type 4 rim construction technique with normal variations that one might expect from handmade pottery. Although there is still little attention paid to detail, the jars exhibit a more uniform appearance and look more similar to each other than jars from earlier contexts. The Type A jars recovered from the wrecks of the *Tolosá* and *Guadalupe* (1724) are not as numerous as the Type

B jars, which appears to be the opposite case in early seventeenth-century contexts. Because of the nature of the recoveries, however, quantifications of this nature may only coincidentally reflect the actual occurrences. A notable missing factor for eighteenth-century jars is the absence of marks on the jars. Glazing occurs on jars from late sixteenth-century contexts and in early eighteenth-century examples, but is noticeably absent on all seventeenth-century finds.

The jar form seems to have changed by the middle of the eighteenth century, as examples from the wreck of *El Nuevo Constante* (1766) clearly exhibit a previously unrecorded rim style, called Type 6. The form's shoulder is decidedly more sloped, giving the vessel a more conical appearance. The Type A jars, as described here, are also not found on the early nineteenth-century wreck of the *Elizabeth* (1812) (Henderson, 1973). Omission from the collection of the *Constante* and the *Elizabeth* suggests that the type was phased out around the middle of the eighteenth century.

Type B jars

Figure 4.56 shows actual examples of Type B jars recovered from the end of the sixteenth century to the early eighteenth century. Type B is the most similar in form and casual observation might suggest that there is little or no form change throughout the period in question. The jars from the sixteenth-century and early seventeenth-century contexts bear a remarkable similarity, although a primary difference is the presence of glaze observed only on jars from the sixteenth and eighteenth centuries.

Sixteenth Century

The rim forms are both Type 3, with the earlier examples showing a slightly more semitriangular form than in the later examples. Semitriangular forms exist in the early seventeenth-century assemblages, although there are also examples with a more circular smoothed appearance. Average capacity for the late sixteenth-century examples is 6.67 liters, which can hold the Castilian oil measure of $1/2$ arroba at around 6.25 liters. Jars from the early seventeenth century, however, average 5.9 liters, with few capable of holding the $1/2$ arroba measure. The average from the sixteenth-century may not be representative of the jars due to the relatively small sample (two jars) but it has been suggested that since the jars were recovered from the Spanish Armada of 1588 that they may be "official" jars associated with the official supplying of the Armada (Martin, 1979).

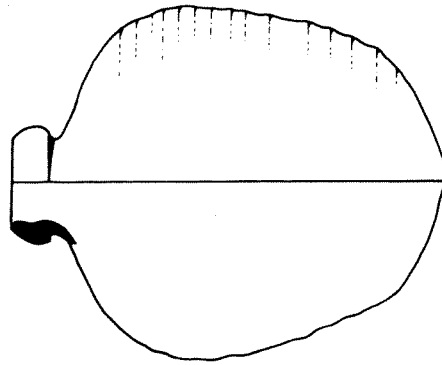
Seventeenth through the Eighteenth Centuries

Beginning with the wreck of the *Concepción* (1641) the Type B jars appear a bit smaller and have a more exaggerated sloping of the shoulder. The rims,

□ = 20 cm

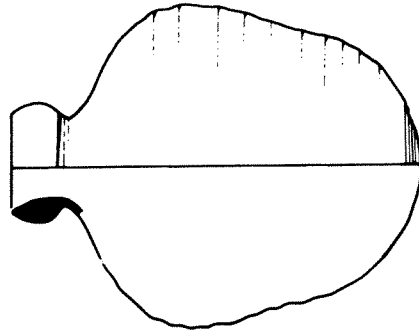
LATE 16TH CENTURY

1588

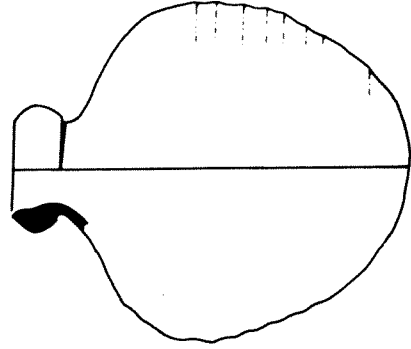


17TH CENTURY

1621



1641



18TH CENTURY

1724

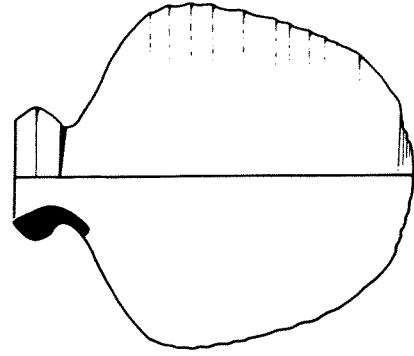
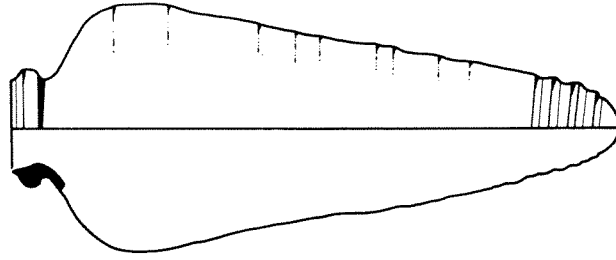


FIG. 4.56 Type B olive jar form changes from the sixteenth through the eighteenth centuries.

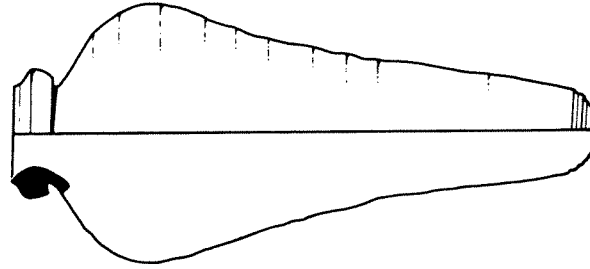
18TH CENTURY

 = 20 cm

1724

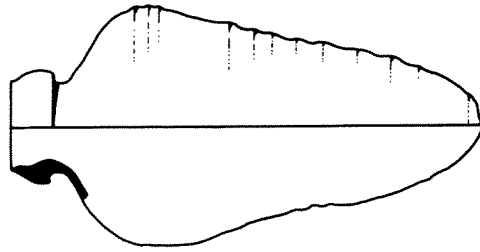


1724

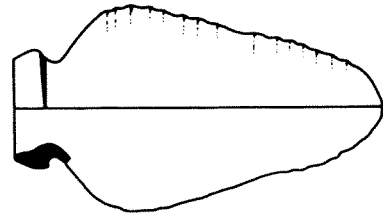


17TH CENTURY

1622



1622



1621

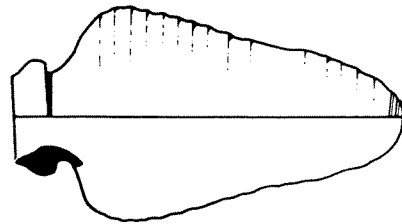


FIG. 4.57 Type C olive jar form changes from the sixteenth through the eighteenth centuries.

although still Type 3, have a more definitive smoothed semicircular form. Glazing is still not apparent on any jars from seventeenth-century contexts. Jars from the eighteenth century also exhibit a more sloped shoulder appearance. The rims, however, show a more defined semicircular form, with evidence of a ridge in the middle of the half circle. The jars from the eighteenth century also have a high incidence of glazing (see James, 1988).

A Type B jar recovered from the Rance River and recorded by Langouet (1973: 2; ex. C1), however, was recovered with an assemblage of Type A jars that clearly exhibit characteristics of early eighteenth-century jars, yet the Type B example lacks the sharp sloping shoulder one would normally associate with jars from an early eighteenth-century context. Although the Rance assemblage lacks a secure date, caution is advised in attempting to assign dates to Type B forms alone. Combining the attributes of the sloping shoulder and the ridged half-circle, Type 3 rims may prove to be an aid in differentiating time periods. Another possible clue is the smaller average capacity of the eighteenth-century jars at 5.10 liters, which may indicate a change in the jar's intended measure.

As discussed previously, the concave-bottomed small olive jar with a Type 4 rim has only been recorded in early eighteenth-century contexts (see James, 1988).

Type C Jars

Figure 4.57 shows the dramatic evolution of the conical jars called Type C. The first recorded examples are from two securely dated early seventeenth-century wrecks. The small jars of the seventeenth century have Type 3 rims and have not been recorded with any glaze. Suggested uses have been for honey and possibly torches, although the rims are all fashioned for cork closures. Type C jars are relatively sparse in the early seventeenth century. Their average capacity (of the three recorded) is 2.18 liters.

Jars from the early eighteenth century are decidedly larger and are often glazed. The rims are Type 4, with some evidence of tooling. The body form is a much more exaggerated cone with sides curving inwards, sharply in some instances and fairly straight sides in others. Differentiating the early seventeenth-century examples from the early eighteenth-century examples can be easily achieved using rim form, body size, shape, and glaze.

Late Eighteenth-Century Olive Jar Forms

The Type A and Type B jars may have been phased out by the second half of the eighteenth century, being replaced by later styles, as evidenced by finds from the *El Nuevo Constante* (1766). The addition of a new rim form, Type 6, also commences with one example from the 1766 wreck and is also present on the jars from the 1839 wreck of the *Elizabeth*. The Type C form

seems to have changed dramatically in the nineteenth century, when it has a shape that corresponds to Goggin's Late Style shape D (1960: 18), adopting an exaggerated wider shoulder sharply curving into a narrow base.

Although many questions remain unanswered, the finds from securely dated wrecks spaced throughout an important time in Spain's colonial history have opened a window on one of man's oldest and most enduring traditions. Olive jars brought the luxuries and necessities of home to a growing society dependent on the homeland. The jars were a continuance of a tradition that had existed for centuries. They changed as the needs, tastes, and requirements of colonization evolved. A slow bureaucratic process and a resistance to change can be seen in some of the forms, while others exhibit features of adaptive evolution.