Appendix B

Ceramic style definitions and illustrations

Algodonal Early Ceramic

This style is defined by excavated collections from El Algodonal and Loreto Viejo. I have previously referred to it as "olla sin cuello", but this is a general, descriptive term that should not be tied to a particular ceramic style. Algodonal Early Ceramic is the preferred name.

*Paste and firing:* The paste is variable, fairly hard, with coarse sand temper, similar to and often indistinguishable from the typical Chiribaya paste I term "local paste". The fracture is often flaky or gritty. Inspection at up to 45 X magnification under a stereo microscope reveals minor porosity, but no voids attributable to plant or animal fiber inclusions. Visible temper inclusions are generally angular to subangular and are largely quartz, often with smaller amounts of white to pink or red feldspar which are the most visually apparent due to their light colors. Some sherds have occasional to predominating black biotite or hornblende grains. In a typical 5 mm square area, there are 0-3 grains ≥ 1.0 mm, 0-7 grains between .5 mm and 1.0 mm, and many more grains in the .1 to .5 mm range. Firing is generally uniformly reducing across the entire thickness of the sherd, although some examples are slightly lighter in color near the core. Paste colors are mostly reddish browns ranging from 7.5YR5/6 to 5YR3-5/2-6 to 2.5YR3/0.

*Forms:* Almost all examples are globular neckless ollas (*ollas sin cuello*), although a few sherds have very slight hints of upturned rims or small, thick-sectioned handles. Some examples of these more complex forms could conceivably be plainwares from other traditions mixed into the assemblage, as in the illustrated
Figure B-1. Algodonal Early Ceramic sherds from El Algodonal.
Figure B-2. Algodonal Early Ceramic sherds from Loreto Viejo.
example from the redeposited overburden layer AD 366-2-1. Rim forms vary (Figures B-1, B-2). No carinations or distinguishable bases have been found, and the one complete example from El Algodonal is smoothly curved and uniformly finished over the entire outer surface, including the bottom (see inset in Figure A-6). Sizes tend to be large, with maximum body diameters estimated from 30 to 55 cm, and volumes estimated from 10 to over 40 liters. Body sherd thickness is typically from 6.8 to 7.4 mm, with occasional examples as thin as 4.1 to 4.5 mm or as thick as 7.5 to 10.1 mm.

Surface finish: The great bulk of the sherds are sooted and blackened on the exterior and less often on the interior, often with adhering black, carbonized crusts. Exterior surfaces are pebble burnished with varying degrees of care, from widely spaced casual streaks to near total coverage of the surface. Interior surfaces appear to have been wiped with a damp rag, leaving a fine grained smooth but not compacted surface without clear working marks. Surface contours are smoothly curved, not bumpy, and generally uniformly finished.

Slip and paints: Most of the sherds were apparently either slipped or self-slipped through the application of water to the body paste itself or the mechanical action of pebble polishing. The slip is difficult to distinguish from the compacted surface of the paste. Some sherds may have been slipped with a reddish brown slip on the rim and generally all over the exterior and possibly interior surfaces, although the color difference may be due simply to irregularities in firing. Surface, possibly slipped, colors range from 2.5YR4/4 to 5YR3-4/2-6 to 7.5YR5/6 to 10R4/4 on exterior burnished and burned surfaces to 2.5YR3/2 on interior wiped surfaces. There are no additional paints of any kind.

Motifs and design organization: There is no painted nor plastic decoration.
Comparisons and contrasts: These sherds are difficult or impossible to separate from Chiribaya domestic wares except by the nearly exclusive neckless olla form and the absence of Chiribaya slips, burnishing, decoration, strap handles, etc. The neckless olla form is known, albeit rare, in Chiribaya assemblages, so a reasonable sample of sherds is necessary to determine an Algodonal Early Ceramic assemblage. The neckless olla forms of this style are similar to those of the Carrizal style from a coastal spring drainage slightly north of the mouth of the Osmore (Bolaños 1987), but the Carrizal style includes open forms that are not found in the Algodonal Early Ceramic assemblages, and the pastes described by Bolaños appear to be different. The Huaracane style from the middle valley (Feldman 1989; Goldstein 1989a) features neckless ollas, but is marked by fiber temper, two distinct pastes, and a variety of forms and painted decoration that are not found in the coastal Osmore.

Occurrence, associations, dating: Algodonal Early Ceramic assemblages were excavated from pure contexts at El Algodonal and Loreto Viejo, and were noted in survey sites along the entire length of the coastal Osmore valley. Many of these sites are severely buried and eroded, often appearing as horizontal strata eroding out of what are now steep gravelly slopes with no surface indications of occupation. The El Algodonal material came principally from intact habitation deposits stratigraphically far below an Ilo-Tumilaca/Cabuza cemetery. Three calibrated radiocarbon dates from these contexts range from about 100 BC to 380 AD, including the one sigma error bars (appendix C).

BR Early Ceramic

This style was discovered during surface survey and is known only from field observations; no collections were made. For this reason the description is preliminary.
I have previously referred to this style as "late formative", but this is a general chronological term that should not be tied to a particular ceramic style. BR Early Ceramic is the preferred name.

**Paste and firing:** There are several pastes in this style. One is similar to the Chiribaya "local paste" and the paste of the Algodonal Early Ceramic style, although some examples may be even coarser and seem to have a redder overall color, largely due to pink to red feldspar inclusions. Another is a sandy, lighter tan colored paste similar to the Ilo-Tumilaca/Cabuza "fine paste" but a bit coarser in texture. Another is similar but has a few large inclusions. The latter two pastes are generally not burned, and have a uniform light oxidized color throughout.

**Forms:** Globular neckless ollas very similar to those of the Algodonal Early Ceramic style comprise part of the assemblage, with occasional rudimentary upturned lips. Less restricted, more nearly vertical-sided open pots are also present, sometimes with thick-sectioned vertically oriented handles either slightly below the rim or projecting a bit above it. There are small jars or wide-mouthed bottles with short tubular necks and slightly everted rims. An odd apparently globular form with a wide, bowl-like neck was represented by two sherds from separate sites. The open ollas range up to 55 cm in rim diameter, and some of the constricted ones are estimated to have reached that size at their maximum body diameter. See Figures B-3 and B-4.

**Surface finish:** The sherds with paste similar to the Algodonal Early Ceramic paste are generally finished in a similar way, as well. The lighter colored, finer pastes are generally casually pebble burnished with widely separated strokes on a surface that was probably smoothed by hand or with a damp cloth.

**Slip and paints:** The sherds with paste similar to the Algodonal Early Ceramic paste have a similar possible reddish to brown slip or self-slip. The lighter colored,
Figure B-3. IBR Early Ceramic rims from the Burgess-Reinhard site (109).
Figure B-4. BR Early Ceramic rims from site 113.
finer pastes often have a lighter brown to reddish brown slip, sometimes only on the outside and sometimes inside and out. One of the odd bowl-necked sherds was not slipped overall, but the natural tan surface was decorated with a pale, washy red paint or slip in a wide band around the outside of the rim and in vertical, radial stripes on the inside of the bowl-like neck.

**Motifs and design organization:** The only decorative motifs are the washy bands described above.

**Comparisons and contrasts:** This style might be comparable to the Wawakiki ceramics reported by Bawden (1989) in its incipient use of painted decoration, but the designs are quite different. It is also similar to the Algodonal Early Ceramic, Carrizal, and Huaracane styles discussed above, but again the forms and decoration are distinct. An additional possible parallel is to material from the El Atajo surface scatter recently reported by M. Garcia (pers. com.) in the vicinity of Tacna.

**Occurrence, associations, dating:** This material is known only from surface scatters at a few sites, especially the Burgess-Reinhard site (109) and a possible cemetery associated with it (113). No other known ceramic styles have been identified in association with this style. On typological grounds, I suspect that it falls in the radiocarbon date gap of around 400 AD to 950 AD, between the Algodonal Early Ceramic and the beginning of the Late Intermediate Period (appendix C).

**Ilo-Tumilaca**

The Ilo-Tumilaca and Ilo-Cabuza styles were defined on the basis of intact vessels recovered from the cemetery at El Algodonal and some related fragmentary material from El Algodonal and Loreto Alto. The names derive from close analogies to ceramics of the Tumilaca phase in the middle Osmore valley as described by Goldstein
(1989a), Pari (1980), and García (1988) (García uses the term "Maria Cupina" style), and the Cabuza style in the Azapa region as described by Santoro (1980a), Santoro and Ulloa (1985), and Dauelsberg (1985). Only two undecorated, utilitarian vessels are known from burials, and since they were not found with other diagnostic vessels, their attribution to the style is not positive. The utilitarian ware sherds from Ilo-Tumilaca/Cabuza domestic contexts are too fragmentary to allow for much useful reconstruction, and they look extremely similar to those of Chiribaya contexts, so they are not very useful as cultural markers. Numerous vessels in the El Algodonal cemetery assemblage could not be simply classified into Ilo-Tumilaca versus Ilo-Cabuza style, suggesting that the two styles actually form endpoints of a continuum. The description that follows focuses on the Ilo-Tumilaca endpoint of that continuum. The entire, unfortunately small, Ilo-Tumilaca/Cabuza mortuary assemblage except for some sherds from the looter's backdirt and habitation areas is illustrated and categorized, and vessels of intermediate style are labeled as such.

*Paste and firing:* The paste is variable, but the most characteristic one I term "fine paste". "Fine paste" is a relatively uniform, fine grained sandy paste with fine inclusions, mostly subangular to subrounded white, grey, pink, and occasionally red feldspar, some angular quartz, very occasional golden muscovite, and some probable black hornblende and/or biotite. In a typical 5 mm square area, there are 0-2 grains > 1 mm, and 0-5 grains between .5 and 1.0 mm. Many areas have no grains at all > .5 mm. The fracture tends to be clean and smooth. Although many sherds appear to be fairly hard, others are not, and "fine paste" sherds from midden contexts are often notably more eroded than "local paste" sherds, frequently lacking one or both original surfaces and having rounded breaks and shapes. The firing ranges from a uniform 5YR5-6/4-6 to slightly cored, with colors ranging from grey cores of 7.5YR4/0 to pink
outer edges of 7.5YR5/4 to 10R6/4. A few of these decorated vessels show minor
evidence of sooting or blackening, but most were evidently kept away from fires.

Forms: Characteristic forms are tazones, or everted straight to flaring sided, flat-
bottomed bowls; handled pitchers or jars with flaring necks; and keros, or drinking
cups in several varieties including Goldstein's (1989a) "coke glass" shape (AD 388-2-
1/1), a simple, smoothly flaring shape, a similar shape with a single raised horizontal
band around the waist pressed out from the inside, and a similar shape with a small
protuberance on one side rising above the rim (see Figures B-5 through B-12). One
probably Ilo-Tumilaca vessel is in the form of a stylized camelid. Unlike the Ilo-
Cabuza style, there are no curved bowls in the pure style, although one curved bowl
with intermediate designs is known.

Surface finish: External surfaces are generally thoroughly pebble burnished, with
near-total coverage except around handle attachments and other difficult areas.
Internal burnishing is generally restricted to the inside of the rim. Burnishing strokes
tend to be parallel by zones, such as horizontal on the body of a jar and vertical on the
neck. Some examples may have been burnished twice, possibly once before and once
after slipping, such that a smooth but slightly matte surface is visible between the more
compact glossy strokes of a slightly less careful later burnishing. In a few examples,
the secondary burnishing is casual, covering only 50% to 70% of the surface in streaks.
In almost every case, it is clear that at least the black paint was applied before the final
burnishing, which often smudges the paint slightly. Interior surfaces often show
striations suggestive of wiping with a damp cloth, and on some examples are not well
smoothed, leaving laps and globs on the surface.
**Slip and paints:** Most of the vessels are slipped red to tan on the exterior except for the flat base, and in a band around the inside of the rim. The red slip ranges from 10R3-4/6-8 to 2.5YR4-5/4-8 to 5YR4-5/4-6, while the tans run on to 7.5YR5/6. Although most vessels give the impression of being strong red, washy red, or tan, in fact there is considerable variation within individual vessels, and the colors cannot be rigorously separated.

Monochrome decorated vessels are always painted in black, which varies from strong and opaque to quite fugitive, and runs from 10R2.5-3/1-2 to 5YR2.5-3/1-2 to 2.5YR2.5-3/0-4. Two additional paint colors, orange and cream or white, are used for details, often in contrasting roles on a single vessel. The orange ranges from 10R5/6-8 to 2.5YR5/6 to 5YR5/6. The cream or white ranges from 10YR7/3-4 to 5YR6/2. The white paint is often especially fugitive, raised above the surface of the vessel, and is generally not streaked by burnishing, even when the black is; it may be applied at a different stage in the manufacturing process, possibly post-firing.

**Motifs and design organization:** See Figures B-5 to B-12. Designs are typically constrained to one or two horizontal band covering the main body areas of the vessel and demarcated by horizontal black lines running around the entire circumference of the vessel. These bands are generally divided into repeating, roughly rectangular panels by vertical or inclined crossing lines, such that a single panel composition is repeated two to four times around the circumference of the vessel, occasionally with minor variations. Major bounding lines and filled spaces are usually black, sometimes with white boundaries or accenting. Typical motifs include zig-zag or sinuous lines between straight lines, broken lines between straight lines (the "pista" or "highway" motif), and various combinations of these. Two-stepped black stairsteps, sometimes solid with white outlining and sometimes simply outlined in black, occasionally have
details suggesting eyes and mouths that evidently derive from Tiwanaku profile head motifs. One example, AD 379-1-1/4, clearly shows the Tiwanaku profile head motif. Small circles or ellipses with central dots, usually in orange or cream, probably derive from puma spots and eyes in Tiwanaku designs. One tazon, AD 391, has a distinctive black outlined design ("crab") that Goldstein (1985) noted as typical of the Tumilaca phase at Omo. A few examples use white dots to fill bounded areas, but not along black lines as is common in the Chiribaya tradition.

Comparisons and contrasts: Most of the Ilo-Tumilaca motifs can be found in the rollouts of two vessels in Goldstein's (1985) Figure 47a and b, which he classifies at Tiwanaku VI (now called Tumilaca phase). Some of the forms and motifs are echoed in his Chen Chen phase illustrations (1989a: Figures 22d, 24d,e, 26d, 78), but overall the fit is better with his Tumilaca phase (1985, 1989a:Figures 32, 84), Pari's (1980) vessels from the site of Tumilaca, and García's "Maria Cupina" style vessels from La Yaral in the middle valley, which are included in Goldstein's (1989a) Tumilaca phase. Nevertheless, none of these styles match perfectly, which is appropriate for local variants at a time thought to be characterized by small scale political and cultural fragmentation. The "Loreto Viejo" style of the Azapa valley (Dauelsberg 1985) is also similar but distinct.

Occurrence, associations, dating: Ilo-Tumilaca ceramics are dated to around 950 AD to 1050 AD in calibrated years (appendix C), and appear to be contemporary with Algarrobal phase Chiribaya ceramics in the coastal Osmore valley. Ilo-Tumilaca ceramics are probably found along the entire length of the coastal Osmore valley, although it is often difficult to distinguish them from transitional or Ilo-Cabuza sherds in surface scatters.
Figure B-5. Ilo-Tumilaca (Tiwanaku V?) kero.

AD 387-1-1 and AD 388-2-1: Ilo-Tumilaca (Tiwanaku V?) kero
Figure B-6. Ilo-Tumilaca keros.
Figure B-7. Ilo-Tumilaca keros.
Figure B-8. Ilo-Tumilaca flaring kero and "coke-glass" kero.
Figure B-9. Ilo-Tumilaca tazones.
Figure B-10. Ilo-Tumilaca tazon and jar.
Figure B-11. Ilo-Tumilaca jar and tazon.
Figure B-12. Ilo-Tumilaca jar, tazon, and sherd.
Ilo-Cabuza

The Ilo-Cabuza style is the other extreme of the Ilo-Tumilaca to Ilo-Cabuza stylistic continuum described above. It was defined on the basis of intact vessels recovered from the cemetery at El Algodonal, some related fragmentary material from El Algodonal and Loreto Alto, and close analogies to the Cabuza style in the Azapa region as described by Santoro (1980a), Santoro and Ulloa (1985), and Dauelsberg (1985).

Paste and firing: The paste is variable, but is always different from the typically Chiribaya "local paste," and only rare examples are made of the typically Ilo-Tumilaca "fine paste". Inclusions are subangular, generally derived from granite, with occasional composite grains of quartz or feldspar and biotite or hornblende. Grains include grey to white feldspar, black hornblende, relatively frequent golden muscovite, and occasional angular quartz. Many examples have small flecks of muscovite and/or biotite flakes visible on the vessel's surface, either included in the slip or in the paste where the thin slip has spalled off over such grains. In a typical 5 mm square area, there are 0-1 grains > 2 mm, 0-2 grains between 1 and 2 mm, and 0-2 grains between .5 and 1.0 mm. Another, coarser paste has 0-3 grains between 1 and 2 mm, and 2-8 grains between .5 and 1.0 mm. Paste color ranges from 2.5YR5/6 to 5YR5-6/4 to 7.5YR5-6/4 to 10YR6/4.

Forms: Typical forms are rounded bowls, handled jars, and keros. One tazon is known with definite Ilo-Cabuza designs; it may be transitional from the Ilo-Tumilaca style in which tazones are the standard open form. Forms are often irregular, with wavy rims, oval rather than round plans, and so on. See Figures B-13 to B-18.
**Surface finish:** Surfaces are casually pebble burnished, leaving streaks and areas unburnished. Burnishing is generally restricted to the outside and the area immediately inside the rim, and is generally horizontal in some areas and vertical in others, as in the body and neck of jars. In most, but not all examples, burnishing seems to have been done before painting, since designs are not smeared or streaked by burnishing lines as in Ilo-Tumilaca vessels. Surfaces are often irregular, with rough depressions, lumpy contours, and visible laps and gouges in the clay. The burnishing compacts the surface in streaks but does not leave as glossy a finish as in most Ilo-Tumilaca examples. Surfaces have a dusty, matte look.

**Slip and paints:** Slip is generally washy, transparent red, clearly casually wiped on with a cloth or similar material such that parts of the lower body areas and random angular patches are sometimes missed, leaving the paste color to show through. Slip is typically applied only to the outside and in a sloppy band around the inside of the rim on jars and some bowls, while other bowls are completely slipped inside and out. Some vessels are not slipped at all. The red slip ranges from 10R3-5/6-8 to 2.5YR4-5/4-6 to 5YR4-5/6-4 to 7.5YR5/6.

Decorative motifs are painted exclusively in a weak, transparent black, which is often extremely fugitive. The black ranges from 10R3/1-2 to 5YR2.5-5/2-4 to 2.5YR2.5-4/0-2.

**Motifs and design organization:** All designs are done in black lines, without solid filled areas nor filling techniques such as dots or hatching (see Figures B-13 to B-18). The principal design element is a tall, narrow panel bounded by straight lines and containing one to three vertically oriented sinuous lines or numerous horizontally oriented sinuous lines. On jars, these panels generally connect horizontal circumferential lines. Bowls are generally decorated on the exterior with the same
type of panels, but they are pendant from the rim, which may or may not have a black line along it, and there is no lower demarcating line. The inside rims of bowls and jars are often decorated with pendant arcs or squiggles. One bowl has an extremely fugitive complex interior design with numerous long sinuous lines. A few variants occur in which the sinuous lines are not bounded by straight lines, the pendant arcs are on the outside of a bowl, or the motifs are reduced to nearly unrecognizable cursory scrawls.

*Comparisons and contrasts:* The Ilo-Cabuza style is very similar to the Cabuza style of the Azapa area (Dauelsberg 1985), as noted above.

*Occurrence, associations, dating:* Ilo-Cabuza ceramics are dated to around 1000 AD to 1250 AD in calibrated years (appendix C), and appear to be contemporary with post-Algarrobal phase Chiribaya ceramics in the coastal Osmore valley. Ilo-Cabuza ceramics are probably found along the entire length of the coastal Osmore valley, although it is often difficult to distinguish them from transitional or Ilo-Tumilaca sherds in surface scatters.

**Ilo-Tumilaca/Cabuza**

The term Ilo-Tumilaca/Cabuza is used for pieces in the same tradition as the Ilo-Tumilaca and Ilo-Cabuza styles, but which cannot be classified as one or the other either because they have a mixture of traits such as decoration typical of one on a form typical of the other, intermediate traits, or are insufficiently complete to determine which style is represented. The same term also describes the entire continuum, including the endpoint styles. The excavated vessels from El Algodonal are illustrated here in Figures B-19 to B-21 to show that the apparently distinct Ilo-Tumilaca and Ilo-Cabuza styles in fact are connected by a range of intermediate examples.
Figure B-13. Ilo-Cabuza bowls.
Figure B-14. Ilo-Cabuza bowls.
Figure B-15. Ilo-Cabuza bowl and jar.
Figure B-16. Ilo-Cabuza jars.
Figure B-17. Ilo-Cabuza bowl and jar.
Figure B-18. Ilo-Cabuza keros.
Figure B-19. Ilo-Tumilaca/Cabuza keros
Figure B-20. Ilo-Tumilaca/Cabuza tazones.
Figure B-21. Ilo-Tumilaca/Cabuza tazon and bowl.
Figure B-22. Ilo-Tumilaca/Cabuza camelid-shaped bottle.
Figure B-23. Ilo-Tumilaca/Cabuza (?) cooking pot and Ilo-Tumilaca jar with Chiribaya-like motifs.
Figure B-24. Ilo-Tumilaca/Cabuza deep plates.
Figure B-25. Possibly Ilo-Tumilaca/Cabuza bottle.
Viboras

The Viboras style was discovered and described based on looted whole and fragmentary mortuary material at a single site (214), on a single visit during the valley survey. No surface collections were made during the survey, so the description that follows is preliminary and incomplete.

*Paste and firing:* Pastes are variable, but tend to orange-brown colors. One vessel has more and larger inclusions than "fine paste", while another has few, fine light and dark colored inclusions.

*Forms:* Typical forms include *tazones*, wide flaring *tazones* or deep straight-sided plates, globular jars, small-necked jars or handled bottles, and *incensarios* (Figure B-26).

*Surface finish:* Surfaces are irregular, contours are lumpy, and both interiors and exteriors are generally wiped but not burnished.

*Slip and paints:* The thin, red, washy slip is similar to the Ilo-Cabuza slip but generally a bit darker in color. Slip is sloppily applied on exteriors and in some cases also on a band around the inside of the rim. Most painted designs are in a washy black, similar to Ilo-Cabuza, but an *incensario* fragment and possibly a *tazon* also have a white or cream paint.

*Motifs and design organization:* The black line design motifs are variants of Tumilaca phase crosshatching and figures. They were recognized as aberrant Tumilaca designs in the field, but unfortunately only one was sketched (Figure B-26).

*Comparisons and contrasts:* One similar open *tazon* or deep plate was recovered from Ilo-Tumilaca/Cabuza habitation debris at Loreto Alto. The normal *tazon* form and the absence of rounded bowls most resembles the Ilo-Tumilaca style, as do the
Figure B-26. Viboras tazon and Ilo Multicolor offering.
black line motifs and the occasional use of white or cream paint. The pastes, slips, paints, and finishing are closer to Ilo-Cabuza examples. The Viboras material could be shoehorned into the Ilo-Tumilaca style, but even with such a small collection it was recognized as aberrant and would clearly widen the definition of the style significantly.

*Occurrence, associations, dating:* The Viboras style was noted at only a single site on the northern margin of the central part of the coastal valley. On purely stylistic grounds, I would guess that the Viboras style was contemporary with the end of the Ilo-Tumilaca style and the early Ilo-Cabuza style.

**Chiribaya in general**

The Chiribaya style, first isolated and named by Gherzi (1956), has recently been subdivided by Garcia (1988) and subsequently and more rigorously by Jessup (1990b, 1991), who studied hundreds of vessels from mortuary contexts he excavated at San Geronimo and from Jane Buikstra's Chiribaya Project mortuary excavations at Chiribaya Alta. Jessup's seriation appears to be sound, and I have used it throughout this analysis. Jessup defined three Chiribaya stylistic and chronological "phases", starting with the Algarrobal phase, running through the Yaral phase, and concluding with the San Geronimo phase. I found that although some pieces can definitely be assigned to the Yaral phase, in practice the Yaral phase tended to be a residual category for pieces that did not clearly fall in the San Geronimo category. Because I was uncertain of the reliability of this distinction, for my purposes I have lumped the possibly distinct Yaral and San Geronimo phases together as the "Post-Algarrobal" phase.

The stylistic descriptions that follow are largely cribbed and condensed from Jessup's excellent but unpublished reports and illustrations (1990b, 1991), although the
illustrations here are a substantial sampling of the Chiribaya vessels excavated by PCCT. The descriptions differ slightly from Jessup's in emphasis, reflecting my understanding of the features and which ones I found most useful in dealing with my much smaller sample of vessels. I did not do an independent analysis of Chiribaya ceramics and do not claim to have improved on his seriation; Jessup's papers are still the most complete authoritative treatment of Chiribaya ceramics available.

Jessup (1990b) notes that all the phases of the Chiribaya tradition share features in common. Except for *incensarios* (conical-footed incense burners), virtually all vessels have flat, round bases. The most common forms are handled jars, rounded bowls, and *cantaros*, or large restricted vessels analogous to Inka arybaloids. Less common forms include *chombas* or open pots, *tazones* or straight-sided everted bowls, *keros* or drinking cups, and small jars with long tubular spouts. Strap handles are common. Jar handles run from the rim to the shoulder. Rims are simple and rounded. All shapes are regular, symmetrical, and straight. Overall slip is red, and a defining feature on many decorated vessels is a black line along the edge of the rim marked by white dots. The diagnostic white dot treatment is most often absent from Algarrobal phase vessels. Many designs, especially on jars, consist of trapezoidal panels, often with semi-circles on one edge; the combination of these panels and semi-circles yields additional effects. The panels are often outlined and detailed with parallel lines of different colors, often with a row of white dots, and often enclose stairstep patterns similar to those in the Ilo-Tumilaca style. Paint colors are black, white, orange, and brown, and there appear to have been fairly strict conventions for their appropriate use and oppositions.
Algarrobal phase Chiribaya

Paste and firing: Decorated examples, at least, are generally made of "fine paste", as described under the Ilo-Tumilaca style. Jessup notes that the paste colors range from 7.5YR4.5/6 to 5YR6/6 with the pinker color outside and the more orange in the center.

Forms: Common forms are rounded bowls and handled jars with a rim protuberance above the handle. Less common forms include tazones, cantaros, and others (see Figures B-27 and B-28).

Surface finish: Contours are smoothly curved but surfaces are generally not obviously pebble burnished. Burnishing may have been done before the slip was applied, or the surfaces may have been smoothed with a damp cloth or some other method. Most pieces have a dry, dusty, matte surface.

Slip and paints: Exteriors are slipped with a thin, transparent, washy red slip of about 10R3-4/6-8. Bowls are entirely slipped inside, but often only partway down on the outside. Jars, cantaros, and tazones are slipped outside and on a band inside the rim. Paints include black, white, orange, and brown, but bowls have only black and white.

Motifs and design organization: Many vessels feature the black line with white dots as a rim and/or design border element. All designs are on the outside of the vessels. Bowls most often have a flattened eight-pointed star around a central rectangle. Other bowl motifs include pendant semicircles, pendant chevrons, "butterflies" or "bowties", and a vertical sawtooth pattern. Jars most often have trapezoidal panel decorations with variants of the usual stairstep pattern that are more vertical and have more steps than later phases. See Figures B-27 and B-28.
Figure B-27. Algarrobal phase Chiribaya jar.
Figure B-28. Algarrobal phase Chiribaya bowls.
Comparisons and contrasts: Algarrobal phase Chiribaya vessels are similar in some respects to the Maitas-Chiribaya style of the Azapa valley (Dauelsberg 1985).

Occurrence, associations, dating: Jessup says that Algarrobal phase Chiribaya vessels are known only from Chiribaya Alta, but PCCT encountered examples in the cemetery at Loreto Viejo, and I noted others in the Chiribaya Project mortuary collections from La Yaral in the middle valley. The PCCT site survey found numerous sites along the length of the coastal valley with Algarrobal phase Chiribaya sherds on the surface. Radiocarbon dates for the Algarrobal phase should be forthcoming from the Chiribaya Project, but as of now the dating is somewhat circumstantial. I estimate that the phase lasted from about 975 AD to 1125 AD (see appendix C). Algarrobal phase Chiribaya ceramics are consistently associated with Osmore Multicolor and Ilo Multicolor (see below) in Jessup's mortuary lots, and on the surface of surveyed sites in the coastal valley (appendix F).

Post-Algarrobal phase Chiribaya

Since this category is a combination of Jessup's Yaral and San Geronimo styles, it does not have a tight definition. Rather, it is operationally defined here as anything Chiribaya that is not Algarrobal phase.

Paste and firing: Virtually all decorated vessels are made of what I term "local paste", discussed above under Algodonal Early Ceramic. This is a coarse, sandy paste with highly visible large white inclusions up to 1 or 2 mm across. According to Jessup, the color is brown, 7.5YR5/6 with minor variations, and the core often retains a dark grey, reduced appearance.

Forms: Common forms are rounded bowls and handled jars. Other forms are added in the San Geronimo phase, including handled bowls, handled cylindrical or
slightly everted keros, some with rim protuberances opposite the handle, cantaros, chombas, and incensarios with hollow conical pedestal bases. The rim protuberance over jar handles and the tazon form are both absent. See Figures B-29 to B-33.

**Surface finish:** Surface finish ranges from smooth but unburnished in some Yaral phase vessels to extremely thoroughly and regularly pebble burnished in San Geronimo phase vessels. All examples have smooth, round contours.

**Slip and paints:** The slip is a strong, opaque red, 10R3/6. Bowls are slipped on the inside and partway down on the outside. The paints are black, white, orange, and brown, all strong, opaque colors with little variation within or between vessels.

**Motifs and design organization:** Virtually all vessels have the black rim with white dots, and virtually none have designs on the handle. Yaral phase bowls have only exterior decorations, with pendant half-stars of 2, 3 or 4 points, and butterflies or bowties. Yaral phase jars and other forms are decorated with trapezoidal panel motifs. Yaral phase stairstep patterns have no more than 3 steps. San Geronimo phase bowls are decorated only on the inside, with pendant three-pointed half-stars, pendant semicircles, and two bands of motifs that cross the entire diameter of the bowl to form an X. San Geronimo phase jars and other forms have fewer trapezoidal panels and more simpler horizontal or zigzag band designs. A common San Geronimo motif is a band with alternating semicircles. San Geronimo stairstep patterns also have only 3 steps, and the steps are not sharper than about 90 degrees. See Figures B-29 to B-33.

**Comparisons and contrasts:** Post-Algarrobal phase Chiribaya pottery was produced in much greater quantity than Algarrobal phase vessels, so it is what is usually illustrated or displayed as Chiribaya in the few publications and museums that deal with the style at all.
Figure B-29. Post-Algarrobal phase Chiribaya keros.
Figure B-30. Post-Algarrobal phase Chiribaya cantaro.
Figure B-31. Post-Algarrobal phase Chiribaya jar and bowl.
Figure B-32. Post-Algarrobal phase Chiribaya bowl.
Figure B-33. Post-Algarrobal phase Chiribaya bowl.
**Occurrence, associations, dating:** Post-Algarrobal phase Chiribaya ceramics are found all along the entire coastal Osmore valley (appendix F), in numerous sites in the middle Osmore valley (Garcia 1988; Goldstein pers. com.) and up into at least one of its high tributary valleys, the Otora (Stanish 1992a). The Chiribaya and Maitas-Chiribaya material from the Azapa area is similar but distinguishable (Dauelsberg 1985; Santoro and Ulloa 1985).

**Osmore Multicolor**

This variant of the Chiribaya tradition was tentatively identified and named by Jessup (1990b, 1991) based on a small number of vessels. I continue with his usage here, and what follows paraphrases his reports and illustrations. The illustrations here are large sherds from the surface of sites visited by the PCCT site survey. See Figure B-34.

*Paste and firing:* Paste is variable, but often resembles that of Algarrobal phase Chiribaya (what I call "fine paste").

*Forms:* Forms are primarily jars and cantaros.

*Surface finish:* Surfaces are similar to Algarrobal phase Chiribaya.

*Slip and paints:* The red exterior slip is about 10R3-4/6-8. Only black and white paints are used.

*Motifs and design organization:* Motifs are sometimes chaotic variations of Algarrobal phase Chiribaya designs, with the diagnostic addition of chains of black outlined rhomboids touching at diagonally opposite corners and filled with black crosshatching. Many rims are plain, but a few have the Chiribaya black line with white dots. Vertical stairsteps, S-scrolls, up and down pointing arrows or "umbrellas", and the *pista* or "highway" design described under the Ilo-Tumilaca style also appear.
Figure B-34. Osmore Multicolor sherds.
*Comparisons and contrasts:* Jessup notes that this style has features in common with some examples of the broadly defined Churajón style of Arequipa. It also shares features with Algarrobal phase Chiribaya, Ilo-Tumilaca, and Chiribaya vessels from the Azapa valley.

*Occurrence, associations, dating:* Osmore Multicolor is consistently associated with Algarrobal phase Chiribaya in mortuary contexts and on surveyed sites, and its stylistic similarities to that style and to Ilo-Tumilaca also suggest that it is probably contemporary with them. If so, Osmore Multicolor falls in the Early Late Intermediate Period.

**Ilo Multicolor**

This variant of the Chiribaya tradition was tentatively identified and named by Jessup (1990b, 1991). I continue with his usage here, and what follows paraphrases his reports and illustrations. The illustration here is a single miniature vessel found in situ as an offering at site 231 during the PCCT site survey. See Figure B-26.

*Paste and firing:* Paste is generally similar to the "fine paste" used in Ilo-Tumilaca and Algarrobal phase Chiribaya wares.

*Forms:* Forms include rounded bowls, jars, *keros*, and *cantaros*, including one with protuberances suggesting the head, wings, and tail of a bird. None of the vessels have rim protuberances.

*Surface finish:* Surfaces are similar to Algarrobal phase Chiribaya.

*Slip and paints:* Jessup lists a variety of colors for the variable red slip (10R4/6-8, 5YR4/4, and 2.5YR4/4). On bowls, slip covers the inside but only goes partway down
the outside; on other forms. Paints are mostly black and white, although jars may have some orange elements.

Motifs and design organization: Rims may be plain, decorated with the typical Chiribaya white dots on black ground, or decorated with alternating black and white dots. Bowls most often have pendant shallow semicircles or V designs made up of multiple parallel black and white lines. Small jars have bands of horizontal or vertical parallel black and white lines. Jars and cantaros have staiastep designs.

Comparisons and contrasts: No likely similar style is known other than Chiribaya itself, of which Ilo Multicolor is a simplification.

Occurrence, associations, dating: Ilo Multicolor is associated with Algarrobal phase Chiribaya in the cemeteries at Chiribaya Alta, and the one surveyed site at which it was definitely recognized also had a marked Algarrobal phase Chiribaya and Osmore Multicolor component, as well as a few Ilo-Tumilaca sherds. These associations and the technical similarities to Algarrobal phase Chiribaya suggest that Ilo Multicolor probably dates to the Early Late Intermediate Period.