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THE ARCHAEOLOGY OF LOWER CAMP SITE, CULEBRA ISLAND: UNDERSTANDING VARIABILITY IN PERIPHERAL ZONES

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ABSTRACT

This paper reports on the archaeological excavations at Lower Camp site, Culebra Island, Puerto Rico. Over 2,000 artifacts and nearly 9,000 faunal elements were recovered from an undisturbed midden. Modal and stratigraphic analysis of the ceramic assemblages indicates that only a single component affiliated to a late Cedrosan Saladoid is represented. A single charcoal assay (Beta-52607) from the lowest midden level yielded a date of cal A.D. 642. The ceramic assemblage is interpreted to be a facies of Cuevas style, which we will tentatively designate as Lower Camp. While at the core area in Eastern Puerto Rico sites had already evolved into a new Elenan subseries by ca 650 A.D., in some peripheral areas like Culebra Island, potters tenaciously clung to the late Cedrosan stylistic vocabulary, albeit a vastly impoverished one. The implications of Lower Camp facies will be discussed in reference to the problems of defining stylistic transitionality and spatial/ethnic borders.

RESUMEN

Este estudio informa acerca de los resultados de las primeras excavaciones controladas que se realizan en la isla de Culebra, en el yacimiento de Lower Camp. Más de 2,000 artefactos y casi 9,000 elementos faunísticos se han recuperado de un depósito vírgen. Mediante el análisis modal y la estratigrafía se ha determinado la presencia de un solo componente afiliado a la subserie Cedrosan (Saladoide). Una muestra de carbón (Beta 52607) arrojó una fecha calibrada de 642 D.C. El conjunto cerámico de Lower Camp se interpreta y define tentativamente como representativo de la facie Cuevas. Mientras que para el 650 D.C. en el oriente de Puerto Rico ya predomina la nueva subserie Elenan (Ostionoid), en algunas áreas marginales como la isla de Culebra los alfareros se aferran al ancestral vocabulario Cedrosan Saladoide, empero uno vastamente empobrecido. Se

discutirán las implicaciones de Lower Camp en términos de los problemas relativos a la definición de fronteras y de la "transicionalidad" de estilos.

RÉSUMÉ

Cette communication concerne les résultats des premières fouilles contrôlées qui ont été réalisées sur l'île de Culebra, au gisement de Lower Camp. Plus de 2000 objets et presque 9000 restes animaux ont été retirés de dépôts archéologiques intouchés. L'analyse modale et la stratigraphie ont permis de déterminer la présence d'une seule composante affiliée à la subsérie Cedrosan (Saladoïde). Une unique datation au ^{14}C (Beta 52607) du niveau le plus profond a fourni la date de cal 642 après J.C. se rattache à un faciès céramique du style Cuevas. Bien que vers 650 après J.C. à l'est de Puerto Rico prédomine déjà la nouvelle subsérie Elenan Ostionoïd dans quelques zones périphériques, comme l'île de Culebra, les potiers s'accrochent avec ténacité à un style tardif Cedrosan Saladoïd, quoique très abâtardi. On discutera des implications du site de Lower Camp en référence aux problèmes de la définition de styles de transition et celle de frontières ethniques.

INTRODUCTION AND BACKGROUND

The purpose of this paper is to provide a brief summary of the results of the investigations at Lower Camp Site, Culebra Island, and to discuss them in the context of current debates on the identification and characterization of stylistic ("archaeo-ethnic") borders and frontiers, both synchronically and diachronically. It will be argued that the analytical and taxonomic unit defined by Rouse (1992:175) as *style* is not optimal for addressing problems of comparing units of variation (as opposed to norms/modes). It is suggested that a different analytical/classificatory tool is required when considering ceramic assemblages that are peripheral (space) or at transitional (time) borders.

The island of Culebra lies 27 km east of Puerto Rico, 19 km west of St. Thomas and 14 km north of Vieques. The total area is roughly 28 km². A number of cays surround the island, with Cayo Luis Peña, Cayo Norte, and Isla Culebrita being the most salient. Culebra is of volcanic origin, with at least 90% of the island dominated by hills with fairly steep slopes. Monte Resaca is the highest, peaking at 195 m above mean sea level (AMSL). The low flat areas (<20-25 m AMSL) are all along the coast. The coast is characterized by brackish lagoons, mangrove stands, swampy zones and sandy or rocky beach fronts. A large bay, Ensenada Honda, provides an excellent protected harbor to the south. The trade winds, small landmass, low orography, and narrowness of the valleys precludes a well developed, sustained riverine network. Unpredictable water resources must have been a major factor in past demographic processes on the island. Its vegetation, particularly on the south, belongs to the Dry Coastal Forest Association (Oliver 1992:1-18). The site of Lower Camp is located in the Culebra Island National Wildlife Refuge (CIWR), at 18° 18' 03" North Latitude and 65° 16' 56" West Longitude. It rests on a saddle-like depression, protected by a promontory that rises over Ensenada Honda, on the south side of the island (Figure 1). Mangrove stands flank the site to the east and west.

Between February and March, 1992 a survey, testing, and limited excavations for data recovery were implemented to mitigate adverse effects of a planned construction of new office and shop facilities for the CIWR. These new constructions were in response to the damage caused by Hurricane Hugo in 1989 to the existing facilities (Oliver 1992).

RESULTS OF THE INVESTIGATIONS, STRATIGRAPHY AND DATING

The Lower Camp site is characterized by a somewhat oval-shaped scatter of both prehistoric and historic artifacts. A series of shovel tests (30 x 30 cm) revealed that most of the site had been previously disturbed by both human and natural causes (Oliver 1992:81-117). One shovel test, however, revealed an undisturbed subsurface deposit, the remnant of what once probably were several prehistoric midden deposits.

A series of seven 1 m² units were excavated in the undisturbed midden, in levels of 10 cm until a culturally sterile layer was encountered at ca 30 cm BS (Oliver 1992:81-88). Two basic strata and an interface between the two strata were defined. *Stratum I* is a very dark grayish brown to dark yellowish brown clayey silt loam. About 29% of its mass consists of gravel; 67% consists of soil; 4% consists of other inclusions, including artifacts and ecofacts (Oliver 1992:126). *Stratum II* is a brown to yellowish brown clay loam. About 55% of its mass consists of gravel, 39% of soil, and 6% of other inclusions. Resting on and embedded within this stratum one also finds occasional large andesite porphyry rocks that typically underlie the area. *Interface I/II* is a thin, discontinuous layer associated with underlying zones of high gravel and rock concentrations. Cultural remains are found only within Stratum I, although some have been pressed upon Interface I/II or the top of Stratum II (Oliver 1992:118-148). In addition, two pit-hearths (A2-1, Y2-1) were detected as oval stains of calcium carbonates (crab claw decomposition), ashes, charcoal, and abundant faunal remains. Lastly, a postmold fill (Unit B0), which may be historical and intrusive, was also found. No internal stratification within the cultural deposit (Stratum I) was detected.

One charcoal sample (Beta-52607) obtained from the very bottom of Stratum I in Test Unit B0 yielded a radiocarbon age of 1410 ± 70 B.P. Using the *Calib* program, Method A, of the University of Washington (Stuiver and Reimer 1993), the assay dates to cal A.D. 642 (Oliver 1992a:139). The range within one sigma is cal A.D. 576-666 (cal A.D. 435-1182, two sigma). The probability distribution (*Calib* program, Method B) at one sigma is cal A.D. 558-673. In sum, the A.D. 640 date suggests the *initial* accumulation of the cultural deposit and, consequently, most of the deposit must date after that time.

SUBSISTENCE PATTERNS AT LOWER CAMP

Nearly 9,000 faunal remains were analyzed by Y. Narganes Storde and this writer (Oliver 1992: Appendices 1 and 2). Excluding shellfish, the vertebrate and invertebrate (Crustacea) sample yielded a total of 553 minimum number of individuals (MNI). Terrestrial vertebrates were extremely rare, amounting to .9% (9 MNI) of all individuals (Figure 3a). Two "hutía" (*Iso-lobodon* or *Heterpsomys* spp.?) teeth, and a few isolated bird (*Zenadia* spp.), snake (Colubridae), and frog bones (*Bufo* cf. *marinus*) are represented. Given the site's proximity to the avian-rich mangroves, it is surprising to find a negligible presence of birds. The only significant terrestrial resource is the "juey de tierra", *Cardisoma guanhumi* (212 MNI), probably captured around the mangroves flanking the site. One other crustacean, *Coenabita clypeatus* (MNI= 3), was also identified, for a total to 215 MNI for Crustaceans, or 38.88% of all the fauna identified (Figure 2a).

Fauna from the coast/estuarine habitat is represented by six MNI (1.08%), while those from the beach habitat amount to 43 MNI (7.78%). The latter is entirely comprised of marine turtles (Cheloniidae), with both young and adult individuals represented (Narganes, in Oliver 1992:236). The largest proportions of faunal remains come from two marine habitats; namely, coral reefs and banks (36.71% or 203 MNI), and multiple marine habitats (14.65% or 81 MNI). Of the itchyofauna, the most frequent is the Stoplight Parrotfish (*Sparisoma viride*), representing 37.27% of all vertebrate MNI. Other bank/coral reef fish include hinds, groupers, snappers, schoolmasters, grunts, wrasses, parrotfish, and hogfish (Narganes in Oliver 1992:234-235). Multiple habitat marine fish include shark (*Carcharhinus* sp.), groupers (*Epinelphus* spp.), snappers, porgies (*Calamus penna*), grunts (*Aniostremus* spp.), and triggerfish (*Balistes vetula*).

The non-crustacean invertebrates are represented by bivalves, gastropods, amphineurans (chitons), and echinoids (starfish). Bivalves and gastropods amount to 1,357 elements, representing 449 MNI. A relatively large number of genera (33) are represented, but each having only a few individuals. Gastropods are somewhat more diverse (20 families) than bivalves (17 families). Many of the species are either incidental, accidental, or a minor, occasional component of the local diet.

Of the gastropods, only two are economically and numerically significant (Figure 2a); namely, the "burgao" or top shell (*Cittarium pica*) and the Strombidae (*S. gigas*, *S. pugilis*, *S. costatus*). The burgao exhibits an overall increase from 19.09% to 53.1% overtime while the Strombidae increases very lightly over time from 9.52% to 11.03% (Figure 2b). The pattern is one of intensification in the use of the burgao and of relative stability in the use of the conch shells. The latter served not only as a food resource but also as raw material for the manufacture of shell beads (only two micro-beads were found), bat-wing pendants, and discoidal shell objects. The burgao, on the other hand, may not only serve as food but also as bait for hunting land crabs, as it is still done in Puerto Rico (Andrés L. Oliver, personal communication 1992).

Bivalves of economic importance and visibility belong to the *Codakia*, *Trachycardium*, *Tivela*, *Asaphis*, *Arca*, *Anadara*, and *Tellina* genera (Figure 2c). In Level 3 only *Codakia* and a few oysters, including the mangrove oyster (*Crassostrea rhizophorae*), are represented, although this may be the result of sample size. In Level 2, all but *Trachycardium* are present in proportions of less than 10%, while *Codakia* is clearly dominant. In Level 1, *Codakia* is not quite as common, and *Trachycardium* appears along with increased numbers of *Tivela* and *Asaphis* (Figure 2c). From Level 2 to Level 1 a slight decrease in the diversity of bivalves is noted, suggesting a higher degree of selectivity (specialization) of species exploitation at this time.

In summary, protein procurement at Lower Camp focused almost entirely on coastal and marine resources: crabs captured in mangrove zones, turtles captured on the beach or in the *Thalassia* grassy/sandy bottoms of Ensenada Honda, and fish obtained from the coral reefs and banks nearby. This maritime emphasis is expected, but not the nearly total rejection of the rich and diverse avian resources found in nearby mangroves—particularly given the higher frequencies noted in other contemporary sites, such as Sorcé, Vieques (Chanlatte Baik and Narganes 1983). Terrestrial vertebrates are rare "treats" in the local diet. Likewise, iguanas (e.g., *Cyclura* sp.) and other reptilians and amphibians are conspicuously absent from the assemblages. Shellfish is not abundant at the site, and probably was a dietary complement to fish, chelonids and crustacea. Perhaps the co-occurrence in high numbers of *Cittarium pica* with *Cardisoma gunahumi* may be related to the use of the latter as bait, in addition to being a human food resource. It would be interesting to test whether a decrease in burgao frequency is simultaneously accompanied by a decrease in crab hunting, in which case it may support the hypothesis of the intensive use of *Cittarium pica* as bait.

While the importance of the maritime subsistence base is unquestioned, it must be noted that the inhabitants of Lower Camp were agricultural peoples. Ceramic vessels and "burenes" (clay griddles) indirectly suggest that bitter manioc (*Manihot esculenta*) and other cultivars probably contributed the lion's share of the total dietary intake.

THE ARTIFACTS OF LOWER CAMP

Artifacts other than ceramics were extremely rare; only six lithics, two micro-shell beads, two shell discs, and one large *Strombus gigas* "bat" pendant were recovered. In addition, there were a number of expedient tools shaped from coral for grinding. Shell debris/shatter—mainly Strombidae—left over from manufacture were also present, suggesting local shell artifact production. Chert materials may be also local; however, no data was gathered on local chert resources for Culebra. On the whole, exotic and prestige items of any kind are nearly non-existent. Only the "bat-wing" pendant qualifies as a "prestige" or "status" item, albeit its raw material is abundant.

The ceramic analysis revealed that the assemblages from various units and levels can be treated as a single component or local ceramic complex of probable short duration (Oliver 1992:153-192). It can be roughly classified in Rouse's (1952, 1992) Cuevas style, or its equivalent in the Virgin Islands. However, Lower Camp seems not to entirely fall within the Cuevas norm, as defined by Rouse. Also, there are some tantalizing temporal trends within the site, but our

inferences are handicapped by a small sample size in some instances. The following describes some of the results of the modal ceramic analysis (consult Figures 3-6).

Temper Class/Size. Five categories of temper class and size are recognized (Figure 3). Sand and grit are the only temper class modes, both of which are further distinguished by particle size (large-small, coarse-fine). Small grit is the prevalent mode in all levels, closely followed by coarse sand. While small grit declines slightly over time, coarse sand increases noticeably. Large grit and fine sand are less common, yet present in all levels. Mixed sand/grit tempered sherds that comprise 4.5% of the sample in Level 3, decline to .8% in Level 1. In sum, temper/size variation is continuous and only their frequency values change over time.

Wall Thickness. The mean wall thickness for all samples from all levels combined is 7.4 mm. The latter value is above the expected mode (mean?) value of 5 mm reported by Rouse (1952:336) for the Cuevas style. Lower Camp's ceramics are generally thicker than Cuevas' mode and, furthermore, the trend is toward an increase in thickness over time. The mean thickness changed from 6.8 mm in Level 3, to 7.5 mm in Level 2, to 7.2 mm in Level 1 (Figure 6).

Temper/Size and Wall Thickness. A sherd's wall thickness varied depending on the temper mode that was used (Figure 6). Sherds tempered with small grit tend to increase in mean wall thickness over time, from $5.5 \pm .39$ mm in Level 3, to 6.65 ± 1.5 mm in Level 2, and to 6.8 ± 1.3 mm in Level 1. Thus, not only are vessel walls becoming thicker, but also there is a wider range of variability allowed over time. Coarse sand also follows the same trend, but the increment in wall thickness is more dramatic in Level 1. Coarse sand tempered sherds begin with thinner walls (5.1 mm) and a low standard deviation ($SD = \pm .31$ mm), becoming somewhat thicker in Level 2 (5.9 mm) and, at the same time, allowing greater variation about the mode ($SD = \pm 1.2$). In Level 1 wall thickness increased to 6.7 mm with an SD of $\pm .97$ (Figure 6). By contrast, fine sand tempered sherds remained fairly stable between 5.9 and 6.0 mm, with a wider SD range in Level 3 that became more restricted in the upper levels (from ± 1.0 to $\pm .84$ mm). Fine sand tempered sherds show a high correlation with simple unrestricted vessels and composite jars/bottles with bulb necks. The rare mixed sand/grit tempered sherds show equal values in Levels 3 and 2 (6.0 ± 1.4 mm) with an increase to 8.4 mm in Level 1.

Large grit sherds show the highest mean wall thickness values of all sherds (Figure 6), and a *general* trend toward increased thickness over time (ca 7-8 mm) coupled with a high SD (over ± 1.0 mm) throughout all levels. Some large grit sherds are associated with the thick-walled clay griddles exhibit thickness values of over 10 mm.

To summarize, there is a trend toward increased wall thickness and coarser pottery over time. Locally, the ceramics gradually changed from thinner to thicker regardless of temper mode. The specific mean values and SD of wall thickness, however, vary significantly according to temper class/particle size: the larger and coarser the particle size, the thicker the sherd.

Surface Color. Thirteen surface colors categories were defined (Oliver 1992:156). These are not meant to be modes in the strict sense, owing to the wide individual variation in color perception by different researchers, but they nevertheless provide a general index that qualifies the assemblage. Exterior and interior surfaces were tabulated separately as well as different exterior/interior combinations. The brown color spectrum (mode combinations 1.1, 2.2, 3.3, 4.4) is the most prevalent, with brown/brown (10YR 4/3, 4/4, 5/3, 5/4) as the most frequent combination (Figure 3: mode 3.3) and it increases over time. The red (2.5YR) color spectrum (mode combinations 5.5 and 7.7) exhibits a peak in Level 2, only to decline in Level 1. Cream-colored surfaces, closely associated with red rim-painted open bowls, increase from 12% in Level 2 to 30% in Level 1. Whitish to pale brown (kaoline) surfaces, associated with composite jars with bulb necks, are found only in Level 2.

Surface Evenness. Another indicator of the trend toward coarser and less well made pottery in Lower Camp can be seen in the evenness of the sherd's surface. Of the various modal combinations present (Oliver 1992:159-161), four predominate (Figure 3). Sherds with even surfaces on both sides are the most frequent in all levels. However, over time, a trend toward a higher frequency of uneven exterior/uneven interior is evident. The potters evidently became more careless about surface evenness over time.

Surface Luster. This dimension of ceramic variability also correlates with the general local trend toward thicker-walled, uneven, more carelessly made pottery over time (Figure 3). Burnished interior/exterior surfaces declined significantly, while opaque interior/exterior surfaces increased from 25% to 43%. All "other" modes, including eroded surfaces (undetermined), consist of rare exterior/interior mode combinations of opaque/burnished and burnished/opaque. The latter includes the rare composite bottle (Vessels 1, 2).

Painted Decoration. Between 97.83% to 96.33% percent of all the ceramics recovered are plain (Figures 4, 5). Red slip or paint is extremely rare, comprising between 1% and 2.2% of all ceramics. The highest relative frequency, unexpectedly, is found in Level 1 and correlates with an increase in the presence of red paint on bevels of triangular rims. Only one specimen has a decorated design; a red circle at the interior bottom of a flat, dimpled base. Red paint extends to geometric labial tabs (Figure 4). Chromatic decoration includes a distinctive thin, orange wash or pseudo-slip, often combined with red painted rim sherds. Again, the higher frequency is found in Level 1 (Figure 5). White-on-red, polychrome paint, black paint, and smudging are absent.

Plastic Decoration. Incision is absent, while appliqué and other plastic techniques of decoration are nearly absent (Figure 4). Lugs are restricted to only seven specimens (.27% of all sherds) and are mostly geometric, tabular labial extensions. One labial lug specimen is biomorphic, exhibiting features that recall a bat face motif, while another, associated with a navicular vessel, appears to be the "limb" of a turtle-like effigy vessel.

Rim/Lip Form. This dimension only considers the *formal* modifications noted at the upper end of the rim regardless of the rim's correct orientation. Fourteen Rim/Lip modes were defined (Oliver 1992:163-179, Tables 3.5a-e). In Figure 4, the most important Rim/Lip modes are arranged in decreasing order of frequency. Rounded, unmodified lips predominated, followed by triangular (interiorly beveled, always red painted) and by slightly bilaterally expanded rims. Other modes included tapered, flat, interior beveled (rounded bevel edge), and rounded rim-outwardly tilted lip.

Rim/Wall Angle. This dimension notes the proper modes of vertical and horizontal orientation of a rim sherd, regardless of the specific Rim/Lip forms. Six modes were present, of which two are of primary interest. The outflaring rim/outflaring wall mode combination shows a high relative frequency in all levels, but tends to decrease from 66% in Level 2 to 58% in Level 1. This decrease is at the expense of an increase in upright to slightly incurved rims with a concave (interior view) wall, from 14% in Level 2 to 19% in Level 3 (Figure 3). The insloping rim/insloping wall (associated with a sharp keel) and the incurving rims/incurving wall (restricted bowls) are rare, and limited to the upper two levels.

Despite the small sample size there is one index that can shed light on ceramic complexity, obtained by cross-tabulating Rim/Lip Form with Rim/Wall Angle modes (Oliver 1992:Tables 3-5a to 3-5e). There is a total of 84 *possible* mode combinations, but only a maximum of 24 were used at any one time. In Level 2, a total of 22 different mode combinations were present, whereas in Level 1 only 12 were present; that is, the richness and diversity of rim/lip from + wall/angle modal combination was reduced by half by the end of the occupation. The potter's range of choices to create various vessel forms was severely curtailed. The local vessel "syntax" became emphatically simplified, when compared to the immediately preceding level. This factor, combined with increased surface unevenness, thicker walls, and less burnished surfaces, speaks for a trend toward technical and artistic impoverishment.

Body Inflections (keels). Pronounced body keels (Figures 3, 4) are infrequent, with only 63 specimens having either rounded ($n=18$) or sharp/angular ($n=45$) corner points at or near the vessel's maximum diameter. The diagnostic composite or stacked-profile vessels of earlier Saladoid components (Roe 1989) is not in evidence at Lower Camp. Concave-convex silhouettes occur in only one instance (Level 2); the remainder are simple inflections.

Base Forms and Handles. Modified vessel bottoms are also rare, with only 25 identified specimens. Plain, flat base forms are the most common ($n=21$), followed by either flat bases

with a discernible external shoulder or by "dimpled" or concave-convex bases (Figure 4). The dominant handle is the D-shaped, vertical strap handle ($n = 24$). Only one specimen exhibits a loop handle, attached to a small navicular vessel (Level 1). All handles are plain, lacking any plastic decoration (Figure 4).

A total of 11 vessel forms were identified. *Vessel Forms 1 and 2* (ca 12-15 cm diam.) belong to necked bottle/jars, always associated with "kaoline white paste" (Oliver 1992:Figure 41). Both are very rare and restricted to Level 2. The first one exhibits an outslipping rim with a constricted neck, while the other exhibits a plain bulb neck. These vessels are holdovers from the early Cedrosan shapes. *Vessel Form 3* is a simple open bowl with upright to slightly incurved rims, present in Levels 1 and 2. *Vessel Form 4* (20-36 cm diameter) is characterized by upright, straight rims, long or short shoulders, a sharp "L" shaped body inflection, and may have a pair of D-shaped strap handles. It is present in all levels. *Vessel Form 5* is identical to Form 4, but its horizontal cross-section is oval (i.e., navicular, boat-shaped). D-shaped vertical strap handles are also associated. *Vessel Form 6* is a simple unrestricted (open) bowl, with an outflaring rim/wall. It is the most frequent shape in all levels, and has the widest range of rim/lip modes. *Vessel Form 7* (31-20? cm diam.) is an open mouthed, yet simple restricted bowl with incurved rims and rounded keels. *Vessel Form 8* (ca 18-36 cm diam.) is identical to vessel Form 4 except that the rim is sharply insloping, resulting in wide-mouthed but restricted vessel. This form is present in Levels 1 and 2. Unique vessel types include a possible turtle (?) effigy vessel (Form 9) and restricted (18 cm diam.) jar with an upright, short rim (Form 10). *Vessel Form 11* comprises clay griddles (*burén*) with thickened, raised rims, a smooth interior, and coarse base, except in one case where both surfaces are rough. With a larger rim sample size, finer vessel type distinctions are likely.

The open bowl (Form 6) with a triangular rim with either a sharp or a rounded interior bevel is of particular importance. The bevel is red painted rims and some include labial lug extensions. The surface is burnished and either plain cream-colored or exhibits an orange wash/slip. All dimpled base forms also belong to this vessel type, including the only specimen with a red-on-buff painted (circular) design. This vessel, instead of declining over time as expected, increased in popularity.

DISCUSSION

Combining the above summary with the more detailed technical analysis presented elsewhere (Oliver 1992), several conclusions can be reached. Lower Camp was occupied no earlier than A.D. 600 by a community that produced a ceramic complex derived from the Cedrosan subseries. All the Lower Camp vessel forms have their antecedents in Cuevas style (Rouse 1952, Rodríguez López 1983). However, it is eminently clear that the number of different vessel types, the number modes and the diversity of mode combinations that are normative in Cuevas style were greatly reduced or discontinued in Lower Camp. For example, the diagnostic inverted bell-shaped vessel with white on red paint typical of Cuevas in Puerto Rico (Roe et al. 1990), and elsewhere, was no longer manufactured in Lower Camp. Indeed, within Lower Camp, the local ceramic complex became even more impoverished over time, with an increasingly limited range of formal and decorative options available to the potters. Yet, despite such progressive loss in Cuevas traits, new elements of style were neither adopted nor locally developed. Instead, Lower Camp potters held on to a more limited and impoverished range of Cuevas modes.

The loss of various "classic" Cuevas vessel forms and decoration was "compensated" by an overproduction of a few existing Cuevas vessels, most notably the open bowl with interiorly beveled rims painted in red over a cream colored paste. Given all of the above, it is evident that Lower Camp's ceramics lie at the extreme, or perhaps beyond the extreme, of the norms that characterize Cuevas style. The issue is, therefore, what to do with Lower Camp. Is it or not a Cuevas style component? More to the point, is this a useful or a misguided question? Looking

beyond such classificatory issues, what hypotheses can one propose to explain (and test) Lower Camp's simultaneous Saladoid conservatism and rejection of Ostionoid innovations taking place elsewhere?

CORE, PERIPHERY, CULTURAL VARIATION & THE CONCEPT OF FACIES

A style, by definition, is normative. It only includes, as the necessary and sufficient qualifications for membership, those sets of modes that are shared from site to site and component to component (Rouse 1952:324-330; Rouse 1972:78-94). All those attributes that are not systematically shared, by definition, cannot be part of the stylistic norms that define Cuevas. Consequently, the concept of style has little room for variability precisely because the objective is to define normality and, hence, to enable one to demarcate the formal, temporal and spatial (area) distributions of a "core" culture. It so happens that Lower Camp's modal complex does *not* conform to Cuevas style; it is at the periphery in terms of time, spatial location and in terms of the mode complex.

The single most outstanding stumbling block in dealing with components like Lower Camp is that most researchers still have trouble in applying one of the principal lessons of Processual/New Archaeology, *that variability cannot be studied by classifying to produce norms* (e.g., Green and Perlman 1985:4-6; Oliver 1992:74-80). It follows that the study of variability must be done at a different analytical level than that of style (norms). In his review of the Lower Camp monograph (Oliver 1992), Rouse synthesized the problem so clearly that I can do no better than cite it *in extenso*:

Your phrase 'core area' has inspired me to think further about the contrast between the typical form of a culture [and style] in the center of its distribution and the variants on its peripheries. I overlooked this distinction when preparing the table of strategy in my *Migrations in Prehistory* [Rouse 1986: Fig. 30]. There, I implicitly placed the study of both the culture of the core and its peripheral variants in my Level 3, on the assumption that both are normative, and I contrasted them with the study of variability in Level 4. Your [Lower Camp] monograph has made me realize that this was a mistake. I would now say that level 3 is limited to the study of cores, that is, to the identification of ceramic styles and their cultures and to [the] reconstruction of their development. On Level 4, we examine all the variations from the situation in the cores, including the transitional forms of culture in frontier zones as well as the differences in activity that occur throughout the culture.

To put it in another way, on Level 3 we do classification in order to form the normative units that we call peoples and cultures and to study their history. On Level 4, we abandon the procedure of [normative] classification in order to investigate the variations within and among the normative units. It is because of these differences that I have rejected attempts to classify transitional cultures as separate cultures [as] for example, in the case of the Epi-Saladoid period in the Virgin Islands" (Irving Rouse, personal communication, February 1, 1992; clarifications in brackets mine).

Rouse's reasoning echoes my own. The whole problem of "transitionality" (see Lundberg et al. 1992) in time and/or space is a question of level of analysis. In order to understand and identify the processes involved in cultural change we must first know as accurately as possible what are the norms and the acceptable range of variation about the norms so as to define its core, both in time and in space. Once the norms (modes) are identified and their distributions are plotted, then it is possible to identify what constitute acceptable deviant or divergent components and to outline the margins or borders where they occur. This allows developing and testing hypotheses about the nature and character of the variant components. We would be able to entertain explanations about border vs. core interaction and variability, as well as frontier phenomena. It is crucial to note that notions of core-periphery involve a consideration of both space and time (e.g., components at the border between eastern and western Puerto Rico, or

the border/transition between two temporally different core styles such as between Cuevas and Monserrate, or between Cuevas and early Ostiones).

It is quite probable that this argument is what Gary Vescelius had in mind when he brought forth the concept of *facies* (but unfortunately did not elaborate or publish). I propose that we adopt this unit to refer to border and peripheral phenomena or, if you will, "transitional" components. Analysis of frontier phenomena requires a distinct classificatory unit than that of style. Style, as already noted, is a taxonomic unit based on classifying norms. *Facies*, on the other hand, is a kind of taxonomic unit that is based on shared variability. A *facies*—like Lower Camp and possibly some Epi-Saladoid components in the Virgin Islands—is defined only with reference to (1) the *differences* (variability) between the core and peripheral areas and (2) the variations in activity from site to site. In addition, *facies* can never be understood or even recognized without a simultaneous consideration of the temporal dimension. For example, one would expect that the peripheral *facies* of a style/culture to have survived for a longer period than the style/culture in the core.

One may disagree with my adoption and elaboration of Vescelius' concept of *facies* and, certainly, this idea needs much more refinement. What is undeniable is that those of us working with frontier societies and subcultures (rather than core peoples and cultures) can no longer cling to style as the unit of classification and analysis and expect to understand the nature of sociocultural variation.

LOWER CAMP: A REGIONAL PERSPECTIVE

Let us examine briefly the developments taking place in Puerto Rico around A.D. 650, when Lower Camp was occupied. By this time in Eastern Puerto Rico, the divergence from Cuevas to Monserrate was well on its way (if not already accomplished), especially in the northeast (Rodríguez López 1990, 1992; Oliver 1990). Most archaeologists are in agreement that the core area of Monserrate style is in Eastern Puerto Rico, and most likely centered along the northeastern coastal plains and Río Grande Basin (e.g., Vacía Talega, Loíza-23). Despite the proximity of Culebra Island to Eastern Puerto Rico, the modal complex known for the few well described Monserrate style sites was never adopted by the Lower Camp's potters. Resist painting, smudging, black on red painted designs, incision and appliqué decoration, red painted curvilinear designs, and a wide range of vessel forms are entirely absent in Lower Camp.

In short, while in Eastern Puerto Rico most of the communities (components) had jumped into the new Elenan Ostionoid bandwagon, the Lower Camp inhabitants continued the "devolutionary" process of loosing a vast array of Cuevas style modes, of simplifying and limiting the range of variation of an already impoverished local Cuevas ceramic "vocabulary", and yet compensating the loss by overemphasizing a few of the traditional Cuevas vessel forms and surface treatments.

Any hypothesis that attempts to explain the persistence of a Cuevas background in Lower Camp must consider the marginal position—both geographic and ecological—of Culebra Island vis-a-vis Eastern Puerto Rico and the somewhat more bountiful, larger Virgin Islands (St. Thomas, St. Croix). The rejection of Elenan ceramic traits can only imply that Lower Camp's inhabitants did not interact strongly (if at all) with Elenans in Eastern Puerto Rico. The ensuing isolation prevented a convergence toward Elenan cultural patterns in Lower Camp. The Cuevas *facies*/society of Lower Camp was essentially a fishing town, marginal—by choice or circumstance—to the developments of Puerto Rico. This phenomenon is not unlike what one sees today in western nations, between conservatives and liberals, between rightist and leftists, and in modern Puerto Rico, between mountain *jibaros* and coastal/urban dwellers.

If Lower Camp inhabitants did not maintain a strong interaction with Elenans in Puerto Rico, then it is possible, perhaps likely, that a more intense interaction was sustained with other such "conservative" peripheral communities. If so, several Lower Camp-like peripheral compo-

nents would have far more in common as a group than with the communities and people of the core area (and style). That this is likely to be the case is hinted by the possible presence of Cuevas facies components in marginal areas such as Vieques Island. Chanlatte and Narganes have reported (but must yet describe and publish) impoverished Lower Camp-like components surviving as late as A.D. 800 in Vieques Island and in Guayanilla in Southwestern Puerto Rico (Narganes 1991).

By grouping these peripheral (space) and transitional or terminal (time) components as a *facies of Cuevas style*, we will have arrived at some sort of understanding of what are some essential features of frontier societies, and of what the nature of the periphery is both in terms of content and in terms of the possible processes that generated these variations from the cores. In sum we would have a way to identify the unit needed to address issues about sociocultural phenomena in peripheries and borders. I do not expect a facies to be a neatly packaged, closed system (as a style is) since its very existence is based on variation. Further, a facies cannot be construed only as a trait list of variations, but rather it must be based on interrelationships of variations among peripheral components and between borders and cores. At the very least, by grouping peripheral and transitional components with similar kinds of interrelationships to each other and to cores, we shall recognize the "beast" by an agreed-upon name.

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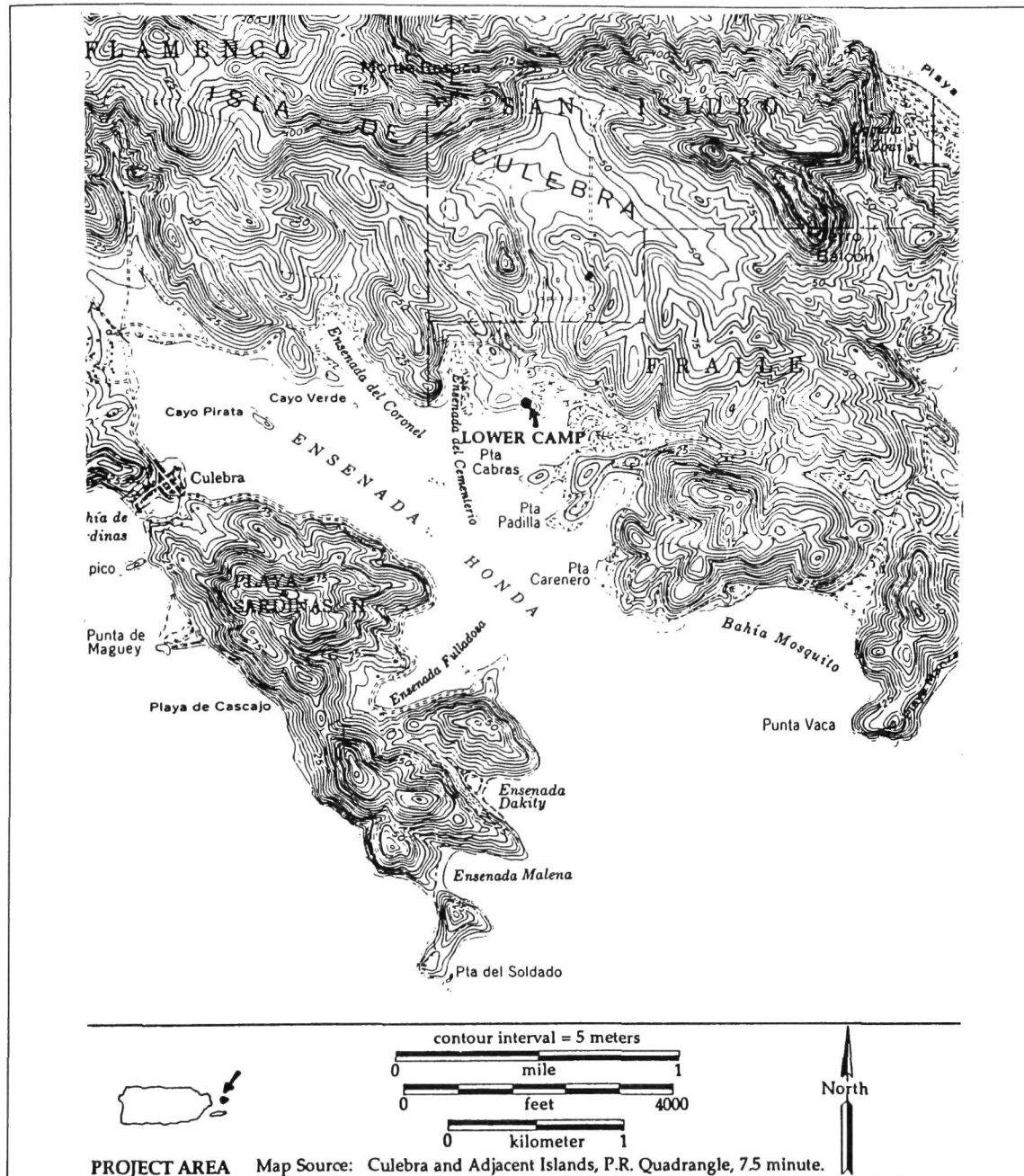


Fig. 1. Topographic Map Showing the Location of Lower Camp Site.

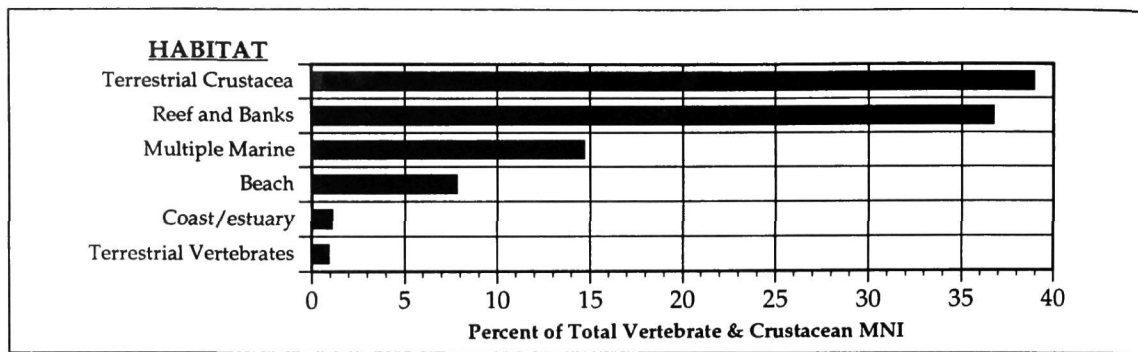


Fig. 2a. Percent of Total MNI Faunal Remains by Habitat.

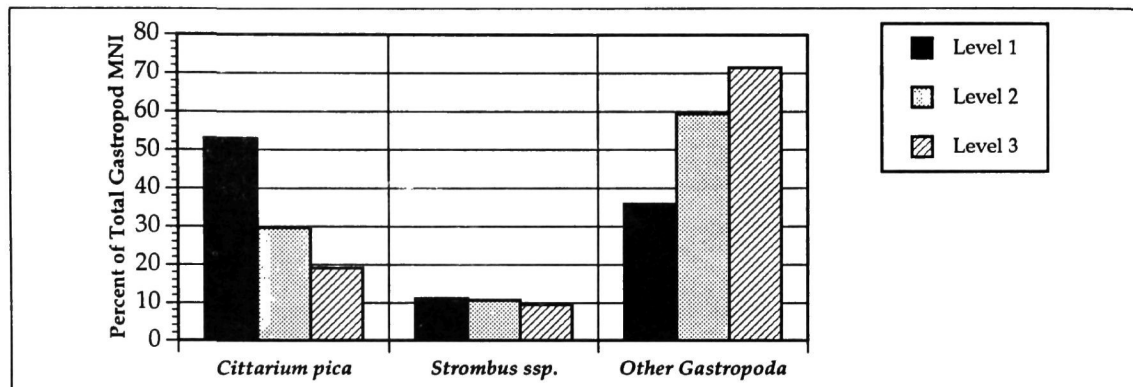


Fig. 2b. Percent of Selected MNI Gastropods by Level.

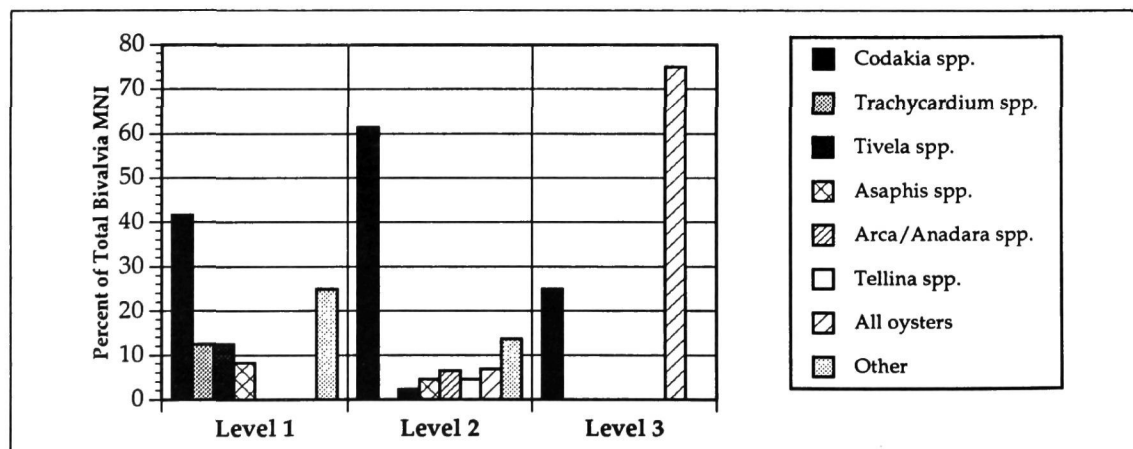


Fig. 2c. Percent of Selected MNI Bivalves by Level.

Dimension	Code	Mode/Mode combination	COUNT			Total Count	PERCENT (%)			PERCENT
			Level 1	Level 2	Level 3		Level 1	Level 2	Level 3	All Levels
1. Temper/Size	1	Large Grit	24	61	5	90	3.92	6.12	4.55	5.24
	2	Small Grit	274	453	54	781	44.77	45.48	49.09	45.46
	3	Coarse Sand	273	416	39	728	44.61	41.77	35.45	42.37
	4	Fine Sand	36	49	7	92	5.88	4.92	6.36	5.36
	5	Sand /Grit	5	17	5	27	0.82	1.71	4.55	1.57
	TOTAL		612	996	110	1718	100.00	100.00	100.00	100.00
2. Rims/Lip	1	Rounded	33	84	5	122	54.10	64.12	41.67	59.80
	9	Triangular, thick, interior bevel	7	12	5	24	11.48	9.16	41.67	11.76
	4	Slightly expanded, bilateral	7	10	0	17	11.48	7.63		8.33
	3	Tapered	3	7	1	11	4.92	5.34	8.33	5.39
	2	Flat	2	6	1	9	3.28	4.58	8.33	4.41
	8	Interior bevel, simple, rounded	4	2	0	6	6.56	1.53		2.94
	11	Round lip, outward lip tilt	1	5	0	6	1.64	3.82	-	2.94
	14	Griddle, thick raised rim, round lip	1	1	0	2	1.64	0.76		0.98
	X	all other modes	3	4	0	7	4.92	3.05	-	3.43
	TOTAL		61	131	12	204	100.00	100.00	100.00	100.00
3. Rim/Wall Angle	1	Outsloping rim/convex wall	2	7	0	9	6.45	9.86	0.00	8.26
	2	Upright/concave wall	6	10	1	17	19.35	14.08	14.29	15.60
	3	Outflaring rim/outflaring wall	18	47	6	71	58.06	66.20	85.71	65.14
	4	Insloping rim/insloping wall	1	5	0	6	3.23	7.04	-	5.50
	5	Incurving rim/incurving wall	2	1	0	3	6.45	1.41		2.75
	6	Raised rim/zero wall (griddle)	2	1	0	3	6.45	1.41	-	2.75
	TOTAL		31	71	7	109	100.00	100.00	100.00	100.00
4. Body Inflection	1	Rounded	7	9	2	18	43.75	23.08	25.00	28.57
	2	Sharp	9	30	6	45	56.25	76.92	75.00	71.43
	TOTAL		16	39	8	63	100.00	100.00	100.00	100.00
5. Bases	1	Flat, simple	11	8	2	21	100.00	66.67	100.00	84.00
	2	Flat, with exterior shoulder	0	1	0	1		8.33		4.00
	2	Flat, dimpled	0	3	0	3	-	25.00	-	12.00
	TOTAL		11	12	2	25	100.00	100.00	100.00	100.00
6. Surface Luster	Exterior/Interior									
	1	Burnished/burnished	14	51	8	73	22.22	38.06	66.67	34.93
	2	Opaque/opaque	27	45	3	75	42.86	33.58	25.00	35.89
	3	Burnished/opaque	1	3	0	4	1.59	2.24		1.91
	4	Opaque/burnished	1	3	0	4	1.59	2.24		1.91
	5	All other modes	20	32	1	53	31.75	23.88	8.33	25.36
	TOTAL		63	134	12	209	100.00	100.00	100.00	100.00
7. Surface Color	Exterior/Interior									
	1.1	Light brown/light brown	4	8	0	12	6.35	5.97		5.74
	2.2	Brown/brown	19	36	1	56	30.16	26.87	8.33	26.79
	3.3	Dark brown/dark brown	8	16	3	27	12.70	11.94	25.00	12.92
	4.4	Very dark brown/very dark brown	0	1	0	1		0.75		0.48
	5.5	Red brown/red brown	7	34	2	43	11.11	25.37	16.67	20.57
	7.7	Dark red brown/dark red brown	2	3	0	5	3.17	2.24		2.39
	8.8	Cream/cream	19	16	5	40	30.16	11.94	41.67	19.14
	9.9	Kaolin white/kaolin white	0	2	0	2		1.49		0.96
	8.11	Kaoline white/gray	0	1	0	1		0.75		0.48
	X	Other mode combinations	4	17	1	22	6.35	12.69	8.33	10.53
	TOTAL		63	134	12	209	100.00	100.00	100.00	100.00
8. Surface Evenness	Exterior/Interior									
	1.1	Even/even	42	86	10	138	66.67	64.18	83.33	66.03
	2.2	Uneven/uneven	10	15	1	26	15.87	11.19	8.33	12.44
	1.2	Even/uneven	2	4	0	6	3.17	2.99		2.87
	2.1	Uneven/even	5	14	0	19	7.94	10.45		9.09
	X	All other mode combinations	4	15	1	20	6.35	11.19	8.33	9.57
	TOTAL		63	134	12	209	100.00	100.00	100.00	100.00

Note: All calculations based on totals after mending ceramic fragments.

Fig. 3. Absolute & Relative Frequency of Selected Modes and Mode Combinations.

Vessel Segment	COUNT			Total Count	PERCENT (%)			PERCENT All Levels
	Level 1	Level 2	Level 3		Level 1	Level 2	Level 3	
Rims, vessels	63	134	12	209	10.50	8.29	2.97	7.98
Rims, griddle	2	1	0	3	0.33	0.06		0.11
Keels (inflections)	16	39	8	63	2.67	2.41	1.98	2.40
Handles	9	13	3	25	1.50	0.80	0.74	0.95
Negative Handles	1	4	0	5	0.17	0.25		0.19
Labial tabs	1	5	1	7	0.17	0.31	0.25	0.27
Ceramic disc	0	1	0	1		0.06		0.04
Bases	11	12	2	25	1.83	0.74	0.50	0.95
Body, bottleneck	1	3	1	5	0.17	0.19	0.25	0.19
Body, drilled	0	0	1	1			0.25	0.04
Body, griddle	10	23	3	36	1.67	1.42	0.74	1.37
Body, other	486	966	221	1673	81.00	59.78	54.70	63.85
Residual sherdllets	0	415	152	567	-	25.68	37.62	21.64
TOTAL	600	1616	404	2620	100.00	100.00	100.00	100.00

Fig. 4. Absolute & Relative Frequency of Ceramics by Vessel Segment.

DECORATION	COUNT			Total Count	PERCENT (%)			PERCENT All Levels
	Level 1	Level 2	Level 3		Level 1	Level 2	Level 3	
Unpainted/unslipped	578	1581	395	2554	96.33	97.83	97.77	97.48
Red slip/paint	13	16	5	34	2.17	0.99	1.24	1.30
Orange wash	8	14	3	25	1.33	0.87	0.74	0.95
Geometric labial tabs	1	5	1	7	0.17	0.31	0.25	0.27
White; white-on-red paint	0	0	0	0			-	0.00
TOTAL	600	1616	404	2620	100.00	100.00	100.00	100.00

Fig. 5. Absolute & Relative Frequency of Decorated & Plain Ceramics.

Temper/Size	UNIT Y1 Mean Wall Thickness (mm)				UNIT Y1 SD (\pm) of Mean Thickness (mm)			
	Level 1	Level 2	Level 3	Average All Levels	Level 1	Level 2	Level 3	Average All Levels
Small Grit	6.79	6.65	5.50	6.72	1.35	1.54	0.39	1.46
Coarse Sand	6.67	5.92	5.13	6.04	0.97	1.25	0.31	1.19
Fine sand	5.90	5.90	6.00	5.90	1.00	0.84	1.41	0.89
Sand/Grit	8.20	6.00	6.00	6.44		1.41	1.41	1.40
Large Grit	8.40	7.00	7.20	7.41	1.93	1.09	1.69	1.47
Large Grit, griddle	-	13.80	10.97	12.10		1.13	0.64	1.70
Sample Size	61	172	49	282				

Fig. 6. Mean Wall Thickness and Standard Deviation by Temper.