CHAPTER FIVE

# Chronological Considerations

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## Introduction

As indicated in chapter 4, the chronological position of each ceramic type can be estimated through the three-site correspondence analysis. We will deal here only with sherds from level/square samples that figured in that analysis and assign to each sherd a sample horizontal-axis CAvalue according to its sample provenience. This procedure will be followed whether or not the sherd is from a type actually included in the CA. This sample horizontal- or x-axis value (CAvalue) serves as an estimate of relative age. The mean and/or median CAvalue by type, then, should, at least ideally, indicate the age of a type relative to other types for which these same CAvalue statistics have also been computed.

## Grater Bowls

Table 5-1 lists grater bowl types, their totaled sample frequencies, their mean and median CAvalues, standard deviations, and skewness statistics.

The bulk of included sherds are of the General Form type (3), and for this type the mean CAvalue (table 5-1) is close to that for all grater bowl sherds (.305). This figure is consistent with the type's high frequency and the probability that nondiagnostic sherds from both early and late types in a sense are included. Setting aside this General Form type, the

Table 5-1: Grater bowl types, summary statistics

| Type Code | Description | Count | Standard Deviation | Mean CAvalue | Median CAvalue | Skewness |
|---|---|---|---|---|---|---|
| 3 | General Form | 1,254 | .847 | .288 | .429 | -.448 |
| 7 | Red and Black on Buff, Complex | 86 | .454 | .982 | .993 | -.151 |
| 8 | Red and Black on Buff, Stripes | 79 | .450 | .752 | .759 | -1.709 |
| 9 | Red and Black on Buff, General | 79 | .612 | .744 | .788 | -.915 |
| 10 | Black Bands | 20 | .825 | .173 | .343 | -1.175 |
| 11 | Red on Buff | 32 | .803 | -.132 | -.152 | -.027 |
| 13 | Fine Ware | 83 | .765 | -.789 | -1.038 | .894 |

statistical significance of these findings can be assessed through several chi-square tests. Table 5-2 compares the three types (7, 8, 9) with the highest mean CAvalues to the three (10, 11, 13) with the lowest. The mean CAvalue for all 379 sherds in these six types combined is approximately .36, and Table 5-2 also groups these sherds according to whether each sherd's CAvalue falls above or below that mean. Viewed in this way, the data are significant; it is highly unlikely that these differences in CAvalue by type grouping are due to random fluctuation.

Strickly speaking, significance levels are only theoretically appropriate for large samples of independent observations. Both assumptions are always only approximately true. To remind the reader of this limitation, we report significance levels in this book using asterisks, replacing traditional $p$ values as follows: probability level = * for $p < .05$, probability level = ** for $p < .01$, and probability level = *** for $p < .001$.

Types 7, 8, and 9 encompass the Huistla Polychrome (i.e., Red and Black on Buff) grater bowl component of the CA. The sherds of these

Table 5-2: Grater bowl types by CAvalue

| CAvalue | Types 7, 8, 9 | Types 10, 11, 13 | Total |
|---|---|---|---|
| > .36 | 206 84.4% | 28 20.7% | 234 |
| < .36 | 38 15.6% | 107 79.3% | 145 |
| **Total** | **244** | **135** | **379** |

Table chi-square = 149.231
Probability level = ***

Table 5-3: Red and Black on Buff Grater Bowl types by CAvalue

| CAvalue | Type 7 | Type 8 | Total |
|---|---|---|---|
| > .87 | 50 58.1% | 25 31.6% | 75 |
| < .87 | 36 41.9% | 54 68.4% | 90 |
| **Total** | **86** | **79** | **165** |

Table chi-square = 11.657
Probability level = ***

three types were lumped together for the CA, but the types can now be considered individually. Clearly, they are closely related, with type 9 containing the more fragmentary sherds that could not be assigned specifically to either type 7 or 8. Table 5-3 compares CAvalue distributions for type 7 (complex zigzag elements) to those of type 8 (simple red and black stripes). The mean CAvalue (.87) for the two types was used to divide sherds into potentially early and late groupings. And again, the difference is highly significant statistically.

Finally, there are the apparently early types (10, 11, 13) included in table 5-4. These also display differing CAvalue distributions by type, and the mean for the three types is -.49. Type 13, Fine Ware Grater Bowls, has more sherds from early contexts than the types Black Banded Grater Bowls (10) and Red on Buff Grater Bowls (11). Differences are highly significant, though we should keep in mind the small sample size for the Black Banded type.

We can hypothesize a sequence of grater bowl types as follows. Fine Ware Grater Bowls are the earliest identified or at least seem to peak during a relatively early period in the sequence. The types Black

Table 5-4: Early grater bowl types by CAvalue

| CAvalue | Type 10 | Type 11 | Type 13 | Total |
|---|---|---|---|---|
| > -.49 | 16 80.0% | 20 62.5% | 26 31.3% | 62 |
| < -.49 | 4 20.0% | 12 37.5% | 57 68.7% | 73 |
| **Total** | **20** | **32** | **83** | **135** |

Table chi-square = 20.014
Probability level = ***

Banded and Red on Buff Grater Bowls follow. Then, during a relatively late period, the Huistla Polychrome types become important, with type 7 showing the latest peak in popularity.

In figure 5-1, a box plot displays the distribution of sherd CAvalues as percentiles by grater bowl type. In these box plots, horizontal bars represent the median CAvalue by type (fiftieth percentile), and each ellipse encompasses the twenty-fifth to the seventy-fifth percentiles of the type observations—what is referred to as the interquartile

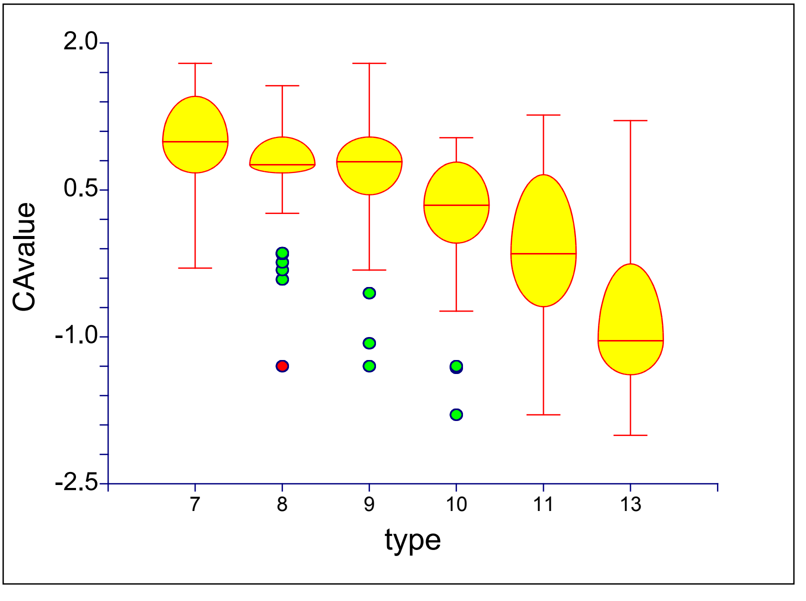


Figure 5-1. Grater bowls, CAvalue distributions by type.

range (IQR). Adjacent values are encompassed by T-shaped drawings above and below the ellipse, extending from the twenty-fifth percentile minus 1.5 times the IQR to the seventy-fifth percentile plus 1.5 times the IQR. Values outside this range are regarded as outliers. This plot provides some idea of the progression and possible overlap of these types through time. (For further details on box plots, see McGill et al. 1978.)

One statistic shown in table 5-1 but not yet discussed is the skewness value included for each type. Skewness is one measure of a distribution's deviation from the normal curve. A negative skewness value indicates a more pronounced tail to the left (i.e., toward negative values) and a positive value, a pronounced tail to the right. The differences can be seen in figure 5-2 in which the distribution for type 7 shows a slight negative skew, and figure 5-3, which depicts a positively skewed distribution for type 13 (cf., figs. 4-11 and 4-12). Grater bowl type skewness values and medians were compared through the correlation coefficient, and the result was a negative correlation not quite significant statistically. That is, skewness values decrease generally as median CAvalues increase.

These findings would seem most compatible with an archaeological sequence involving essentially two components. Early types, introduced suddenly at the onset of occupation, gradually decreased proportionately through time as a result of culture change or a tendency to mix into later deposits containing sherds of the later component. Later types, on the other hand, either were either introduced gradually into the prehistoric community and slowly replaced earlier types, or else they were introduced suddenly but tended to mix through time into deposits containing sherds of the earlier component.

## Other Huistla Polychrome Types (Non–Grater Bowl)

The three Huistla Polychrome (i.e., Red and Black on Buff) types listed in table 5-5 were combined in the CA but are examined here individually in terms of their mean CAvalues. All three types are in a late position (table 5-5) with little difference among them. The Red and Black on Buff, Stripes type (21) has a slightly lower mean than found for the others, paralleling the finding for Red and Black on Buff, Complex (type 7) and Red and Black on Buff, Stripes (type 8; see table 5-3) grater bowls, but here the difference is not statistically significant. It can be seen, however, in the elongated ellipses for types 19 and 20 in figure 5-4.

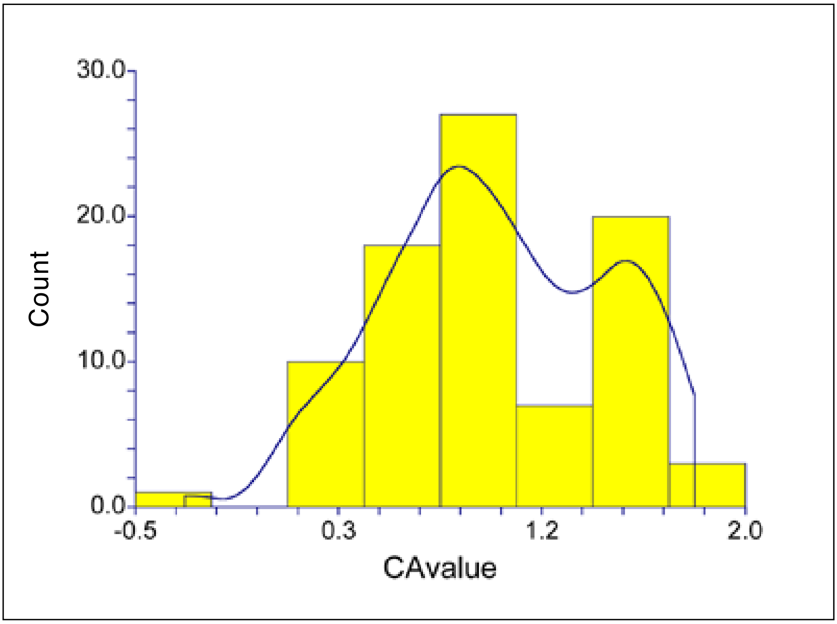


Figure 5-2. CAvalues for type 7, Red and Black on Buff Grater Bowl, Complex.

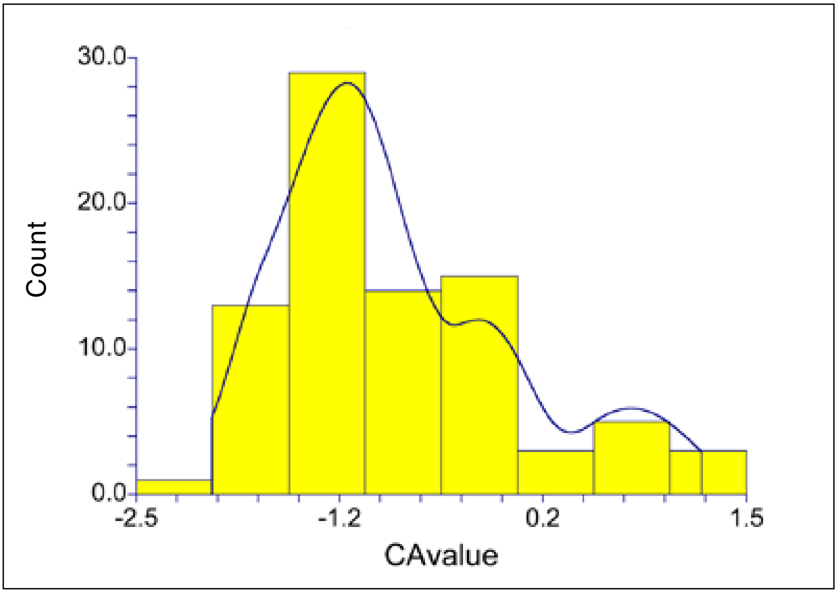


Figure 5-3. CAvalues for type 13, Fine Ware Grater Bowl.

Among the three types, the one with the highest median CAvalue (type 20) also has the lowest skewness value (table 5-5).

## White on Red, Black and White on Red Types

Three of these types, all White on Red, were combined for the CA, while the Black and White on Red types were not included. One of these, Black and White on Red, Slipped and Polished (25), has a high standard deviation combined with a small sample frequency (table 5-6) and probably should be disregarded. This grouping of sherds was hardly homogeneous in the first place (see type descriptions in chapter 3).

The three White on Red types, combined, have a low mean CAvalue (-.573) and as a general class of pottery, count early in the sequence. Yet their distributions, when compared one to another, proved to be dissimilar. Type 16 with simple white lines and type 17 with more complex designs tend to be spread out timewise, as indicated by their high

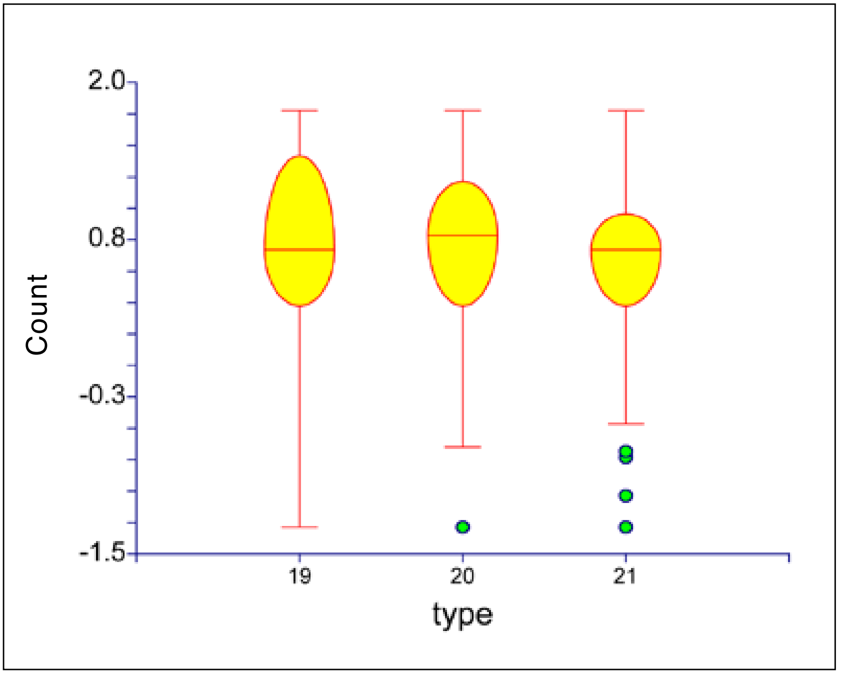


Figure 5-4. Red and Black on Buff, CAvalue distributions by type.

Table 5-5: Red and Black on Buff types, summary statistics

| Type Code | Description | Count | Standard Deviation | Mean CAvalue | Median CAvalue | Skewness |
|---|---|---|---|---|---|---|
| 19 | Red and Black on Buff, Zigzag | 148 | .677 | .797 | .759 | -.664 |
| 20 | Red and Black on Buff, Unique | 78 | .662 | .792 | .865 | -.851 |
| 21 | Red and Black on Buff, Stripes | 245 | .600 | .649 | .759 | -.789 |
| **Total** | | **471** | **.638** | **.719** | **.759** | **-.704** |

Table 5-6: White or Black and White on Red types, summary statistics

| Type Code | Description | Count | Standard Deviation | Mean CAvalue | Median CAvalue | Skewness |
|---|---|---|---|---|---|---|
| 14 | Black and White on Red | 249 | .705 | .556 | .720 | -1.269 |
| 16 | White on Red, Simple | 324 | 1.042 | -.601 | -1.043 | .388 |
| 17 | White on Red, Complex | 257 | 1.014 | -.321 | -.240 | .074 |
| 18 | White on Red, Parallel | 79 | .775 | -.959 | -1.300 | 1.275 |
| 25 | Black and White on Red, SP | 14 | .929 | -.698 | -1.054 | .560 |

Table 5-7: White on Red types by CAvalue

| CAvalue | Type 16 | Type 17 | Type 18 | Total |
|---|---|---|---|---|
| > -.537 | 136 42.0% | 88 56.1% | 17 21.5% | 241 43.0% |
| < -.537 | 188 58.0% | 69 43.9% | 62 78.5% | 319 57.0% |
| **Total** | **324** | **157** | **79** | **560** |

Table chi-square = 25.92
Probability level = ***

Table 5-8: Black and White on Red, White on Red by type and CAvalue

| CAvalue | Types 16–18 | Type 14 | Total |
|---|---|---|---|
| > -.226 | 206 36.8% | 224 90.0% | 430 |
| < -.226 | 354 63.2% | 25 10.0% | 379 |
| **Total** | **560** | **249** | **809** |

Table chi-square = 195.72
Probability level = ***

standard deviations (table 5-6), but the latter type became popular later in the sequence (table 5-7). Type 18, with its very distinctive design, clusters earlier than either of the others, and these differing distributions among the three types are highly significant statistically (table 5-7).

The last type considered here, Black and White on Red (14), is similar to the White on Red types in its lack of polished surfaces, relatively thin vessel walls, and abundant sand temper. Yet the type peaks later in the sequence than any one of the White on Red types or all of them combined, as can be seen in table 5-8, which also is highly significant. The distribution of all these types is displayed graphically in figure 5-5.

Skewness and median values for these five types were compared through a correlation coefficient, as was also done for grater bowl types. Again, the correlation is negative ($r$ = -.960) and in this case statistically significant (probability level = **).

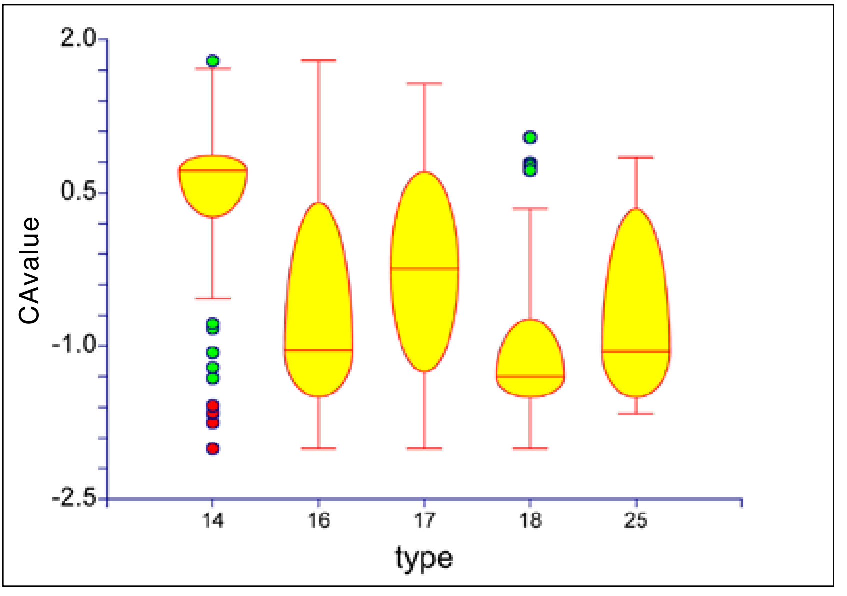


Figure 5-5. White or Black and White on Red, CAvalue distributions by type.

## Red on Cream

At the site of Tiana, two Red on Cream types with single or parallel straight lines (22, 23) were found to be later stratigraphically than those with complex designs (24), as described in chapter 4. In the CA, then, types 22 and 23 were combined, and type 24 functioned separately. In terms of CAvalue distributions by type, this contrasting distribution shows up clearly in figure 5-6. By themselves, however, types 22 and 23 have significantly different distributions when CAvalues are compared (table 5-9). Red on Cream sherds with broad stripes (type 23) tend to be more frequent later in the sequence than the narrow-striped sherds of type 22. (See also table 5-10 for summary statistics.) Sherds of the former type are from larger, thicker-walled vessels compared to the latter, so the shift may have significance beyond discussion of simple ceramic chronology. Altogether and consistent with other type groupings, the three types produced a negative correlation when median and skewness values were compared, although it was not significant statistically.

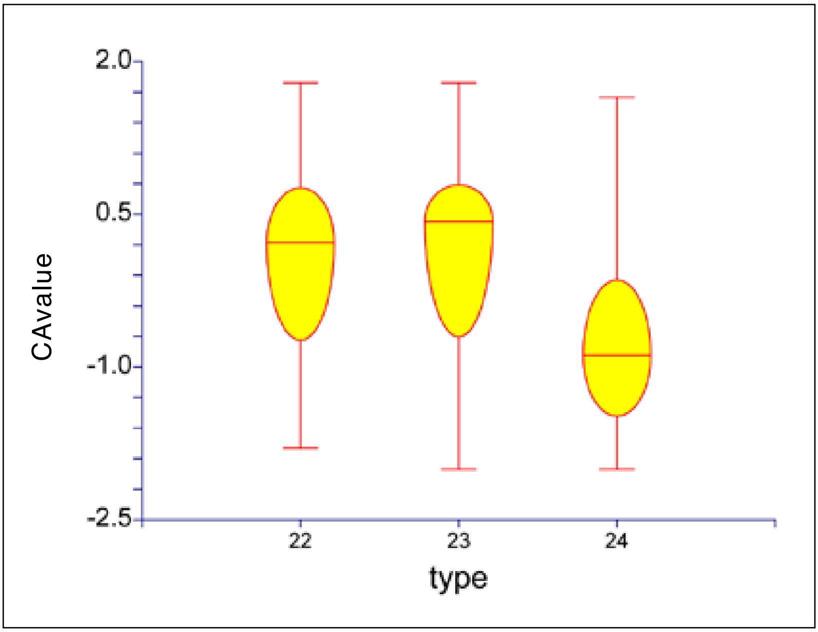


Figure 5-6. Red on Cream, CAvalue distributions by type.

## Major Polychrome Types

One of these types, Incised Polychrome (15), was included in the CA; the other, Polychrome, White Dots (26), was not. Both types are early (table 5-11), but one, type 26, was significantly more so (table 5-12). This latter type for the most part occupied a limited time span but also had significant outliers extending late into the sequence (fig. 5-7). This result probably was due either to the physical mixing of sherds in the deposits or the vagaries of classification. Skewness and median values for these types vary inversely (see table 5-11).

## Incised/Engraved Types

For the thirteen incised/engraved types, and in line with other findings, type skewness varies inversely with median CAvalue. Figure 5-8 depicts the relationship graphically (*r* = -.863, probability level = ***; figs. 5-9, 5-10). The alignment of types in figure 5-8 shows two clusters of incised/engraved types, one near each end of the plot. Table 5-13 compares the

Table 5-9: Two Red on Cream types by CAvalue

| CAvalue | Type 22 | Type 23 | Total |
|---|---|---|---|
| > .046 | 147 51.2% | 224 61.4% | 371 56.9% |
| < .046 | 140 48.8% | 141 38.6% | 281 43.1% |
| **Total** | **287** | **365** | **652** |

Table chi-square = 6.75
Probability level = **

Table 5-10: Red on Cream types, summary statistics

| Type Code | Description | Count | Standard Deviation | Mean CAvalue | Median CAvalue | Skewness |
|---|---|---|---|---|---|---|
| 22 | Red on Cream, Thin Lines | 287 | .876 | -.032 | .221 | -.242 |
| 23 | Red on Cream, Broad Lines | 365 | .946 | .108 | .429 | -.522 |
| 24 | Red on Cream, Complex | 264 | .941 | -.663 | -.884 | .562 |

five types in the early cluster to the six types in the late by the mean CAvalue for all eleven types. The probability is exceedingly low that differences are due to random distribution.

### *Early Incised/Engraved Types*

Turning to examples of the early cluster, we find that type 51, Black Fine Engraved, has a low count coupled with a high standard deviation and appears to have little value as a chronological marker (table 5-14). By contrast, type 50, Red Fine Engraved, appears to be concentrated at the early end of the sequence. It seems possible that this type is from

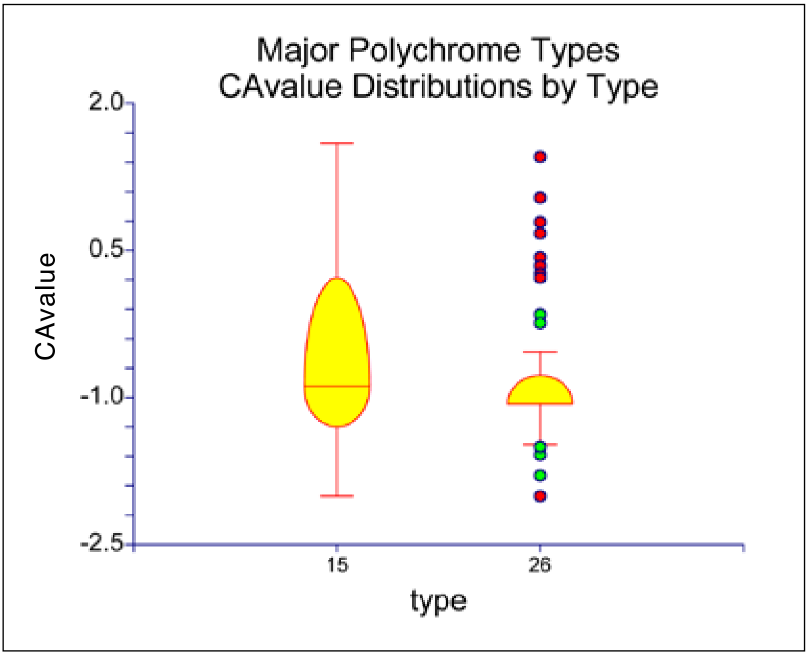


Figure 5-7. Major polychrome types, CAvalue distributions by type.

Table 5-11: Major polychrome types, summary statistics

| Type Code | Description | Count | Standard Deviation | Mean CAvalue | Median CAvalue | Skewness |
|---|---|---|---|---|---|---|
| 15 | Incised Polychrome | 269 | .852 | -.611 | -.884 | .475 |
| 26 | Polychrome, White Dots | 92 | .697 | -.816 | -1.066 | 1.452 |

an earlier period of time than that encompassed by other types in our study. Of the remaining three types (40, 43, 47), type 43, Brushed or Combed Utility, is the earliest, but not significantly so. The distribution of early incised/engraved types can be seen graphically in figure 5-9, and figure 4-12 depicts a histogram of the distribution of type 47, Dark Red to Black Engraved, Complex.

Table 5-12: Major polychrome types by CAvalue

| CAvalue | Type 15 | Type 26 | Total |
|---|---|---|---|
| > -.663 | 113 42.0% | 20 21.7% | 133 36.8% |
| < -.663 | 156 58.0% | 72 78.3% | 228 63.2% |
| **Total** | **269** | **92** | **361** |

Table chi-square = 12.103
Probability level = ***

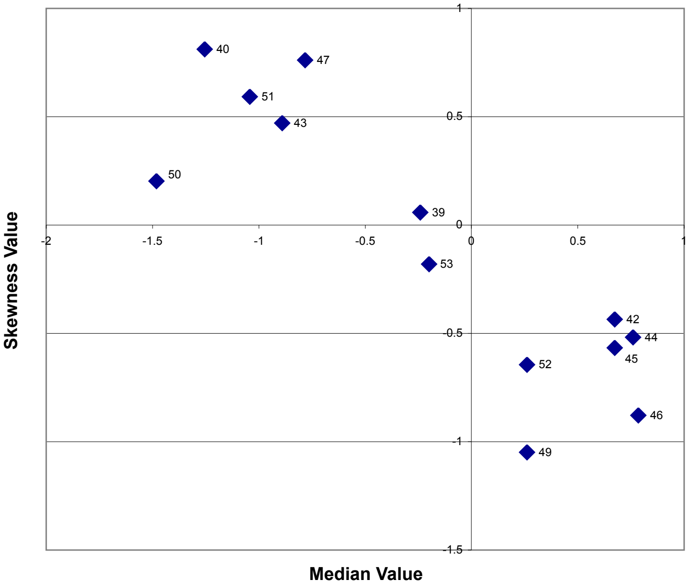


Figure 5-8. Median CAvalue by skewness, incised/engraved types.

Table 5-13: Incised/engraved types, early versus late by CAvalue

| CAvalue | Early Types | Late Types | Total |
|---|---|---|---|
| > -.135 | 43 23.2% | 159 78.7% | 202 52.2% |
| < -.135 | 142 76.8% | 43 21.3% | 185 47.8% |
| **Total** | **185** | **202** | **387** |

Table chi-square = 119.07
Probability level = ***

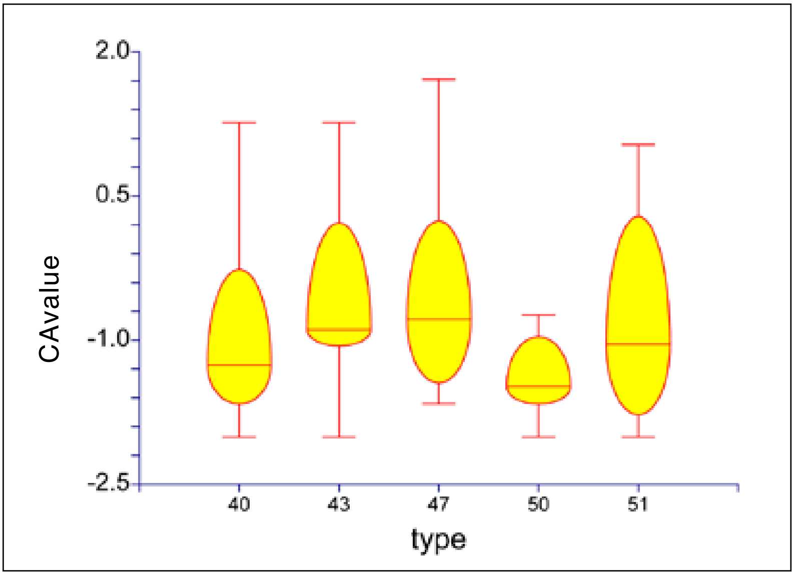


Figure 5-9. Early incised/engraved, CAvalue distributions by type.

Table 5-14: Early incised/engraved types, summary statistics

| Type Code | Description | Count | Standard Deviation | Mean CAvalue | Median CAvalue | Skewness |
|---|---|---|---|---|---|---|
| 40 | Fine Engraved, Arcaded | 58 | .870 | -.982 | -1.255 | .811 |
| 43 | Brushed or Combed Utility | 64 | .836 | -.567 | -.890 | .470 |
| 47 | Red to Black Engraved, Complex | 41 | .920 | -.633 | -.782 | .761 |
| 50 | Red Fine Incised | 13 | .418 | -1.352 | -1.482 | .203 |
| 51 | Black Fine Engraved | 9 | 1.132 | -.825 | -1.043 | .593 |

Table 5-15: Late incised/engraved types, summary statistics

| Type Code | Description | Count | Standard Deviation | Mean CAvalue | Median CAvalue | Skewness |
|---|---|---|---|---|---|---|
| 42 | Washboard Exterior | 38 | .511 | .611 | .674 | -.435 |
| 44 | Hatched from Rim Exterior, Incised | 43 | .515 | .581 | .759 | -.518 |
| 45 | Black Crude Engraved, Complex | 37 | .737 | .309 | .674 | -.566 |
| 46 | Black Crude Engraved, Suspended Triangles | 14 | .500 | .785 | .785 | -.879 |
| 49 | Exterior Incised, Deep Parallel Lines | 21 | .746 | .189 | .260 | -1.049 |
| 52 | Miscellaneous Broad-Line Incised | 49 | .609 | .353 | .262 | -.645 |

Table 5-16: Types 49, 52 versus other late incised/engraved types by CAvalue

| CAvalue | Types 49, 52 | Other Late Types | Total |
|---|---|---|---|
| > .455 | 30 42.9% | 85 64.4% | 115 56.9% |
| < .455 | 40 57.1% | 47 35.6% | 87 43.1% |
| Total | 70 | 132 | 202 |

Table chi-square = 8.653
Probability level = **

## *Late Incised/Engraved Types*

Several of the late types listed in table 5-15 have relatively small standard deviations and are concentrated toward the late end of the sequence. This is especially true of type 46, Black Crude Engraved, Suspended Triangles. Except for the design motif, these sherds are identical to those of type 45, Black Crude Engraved, Complex, and this design motif may be very late in the sequence. The fourteen sherds of type 46 are scattered through nine different lots, so their distribution may not be the misleading product of one or two broken vessels.

Viewing the distribution of all late types in figure 5-10, we see that two of them, types 49 and 52, definitely appear earlier than the others. Figure 4-11 shows, as a histogram, the distribution of type 44, Hatched from Rim Exterior, Incised. The mean CAvalue for all late incised/engraved sherds is .455, and table 5-16 indicates that types 49 and 52 have significantly more sherds with low CAvalues when their combined distribution (above and below the mean) is compared to that for others.

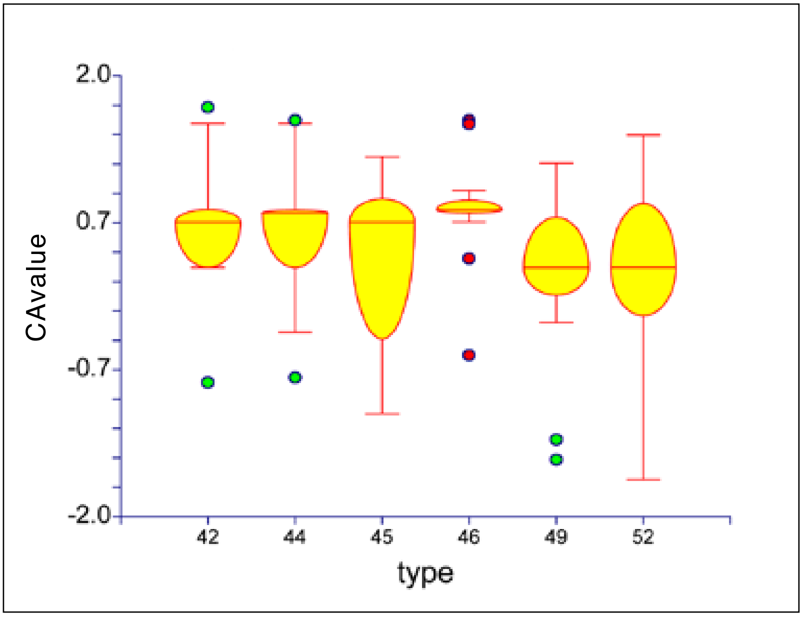


Figure 5-10. Late incised/engraved, CAvalue distributions by type.

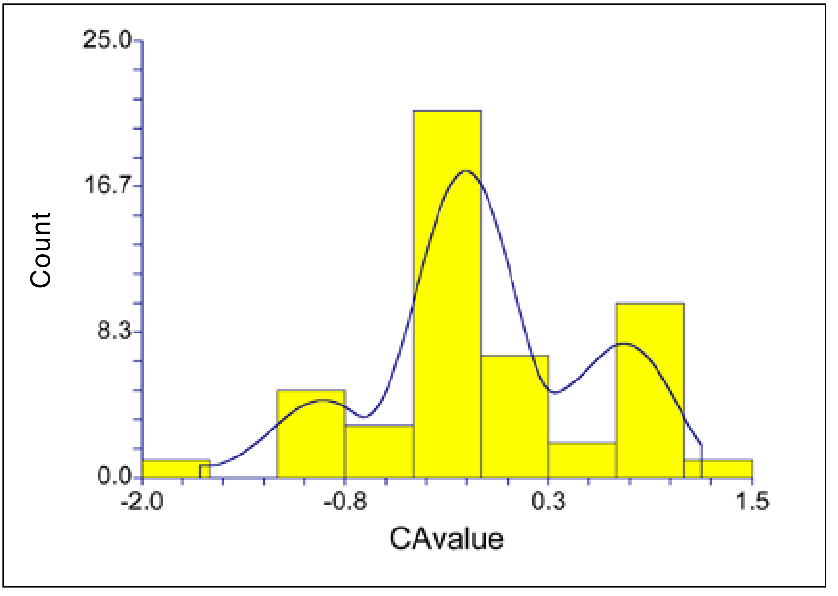


Figure 5-11. CAvalues for type 53, Complex Broad-Line Incised.

### *Intermediate Incised/Engraved Types*

Two types, 39 and 53, fall between the two clusters in figure 5-8. Both their skewness values and median CAvalues are relatively close to 0. Type 39 is a residual type containing small well-finished sherds on which incising or engraving could be identified. The high standard deviation (table 5-17) indicates the presence of both early and late sherds. The distribution for type 53 (fig. 5-11) is more problematic, and with eighteen sherds from one lot, sampling error is a possibility.

## Red Ware Types

While present in great abundance, red ware sherds were difficult to sort into potentially useful types. Sorting criteria did not readily suggest themselves, and many sherds seemed to be intergrades between the categories we did define. In some cases, type assignment seemed somewhat arbitrary. And for this reason, these types were not included in the CA. Yet the four type groupings do sort out chronologically to some extent when CAvalues are assigned to these sherds by lot and type designation.

Table 5-17: Intermediate incised/engraved types, summary statistics

| Type Code | Description | Count | Standard Deviation | Mean CAvalue | Median CAvalue | Skewness |
|---|---|---|---|---|---|---|
| 39 | Miscellaneous Fine Incised/ Engraved | 171 | .977 | -0.63 | -.240 | -.058 |
| 53 | Complex, Broad-Line Incised | 50 | .618 | -.048 | -.199 | -.180 |

This is evident in their widely varying mean CAvalues (table 5-18) and in the graph of their distributions (fig. 5-12). Table 5-19 indicates that these differences in all probability are not the result of random fluctuation. Moreover, when the two early types, Red Fine Ware and Red Utility, are compared to one another, the difference is still significant, and the same is true for the two later types as well. Red ware type skewness values and medians show a significant negative correlation ($r$ = -.99, probability level = **).

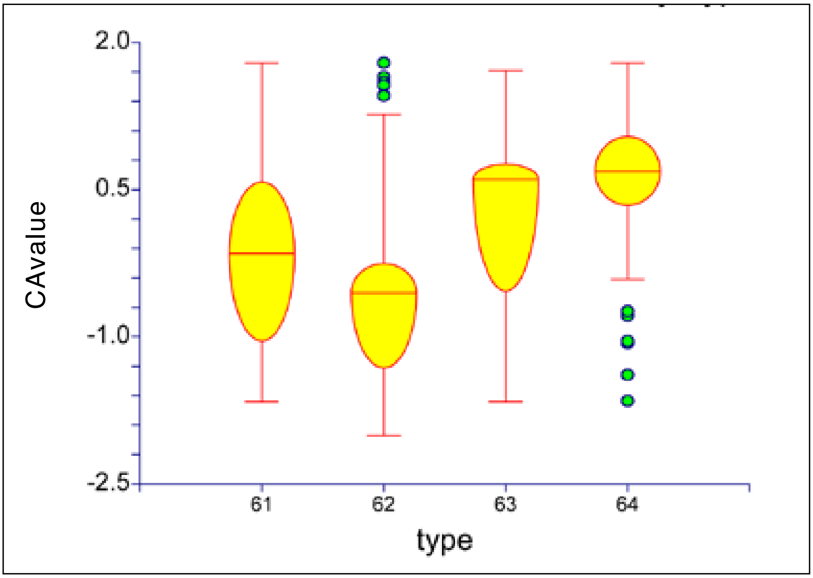


Figure 5-12. Red ware, CAvalue distributions by type.

Table 5-18: Red ware types, summary statistics

| Type Code | Description | Count | Standard Deviation | Mean CAvalue | Median CAvalue | Skewness |
|---|---|---|---|---|---|---|
| 61 | Fine Red Ware | 152 | .868 | -.179 | -.152 | .259 |
| 62 | Red Utility | 680 | .945 | -.595 | -.553 | .522 |
| 63 | Red Streaky-Polish Jars | 360 | .856 | .246 | .605 | -.529 |
| 64 | Red Utility, Very Thick | 208 | .610 | .650 | .686 | -.758 |

Table 5-19: Red ware types by CAvalue

| CAvalue | Type 61 | Type 62 | Type 63 | Type 64 | Total |
|---|---|---|---|---|---|
| > -.149 | 72 47.4% | 152 22.4% | 251 69.7% | 189 90.9% | 664 |
| < -.149 | 80 52.6% | 528 77.6% | 109 30.3% | 19 9.1% | 736 |
| **Total** | **152** | **680** | **360** | **208** | **1400** |

Table chi-square = 400.637
Probability level = ***

## Other Major Plain Ware Types

In contradistinction to red ware types, other major types lacking decoration did figure in the CA. One of these encompassed sherds identified as comal fragments. These appear to have been present throughout the sequence but increased proportionately through time compared to red ware types. Table 5-20 compares Comales (type 2) proportions to red ware types combined (61, 62, 63, 64), on the one hand, and to grater bowl types combined (3, 7, 8, 9, 10, 11, 13), on the other. More than the others, grater bowl sherds tend to concentrate at the late end of the sequence. One can see differences among these major type groupings graphically by comparing figures 5-13, 5-14, and 5-15.

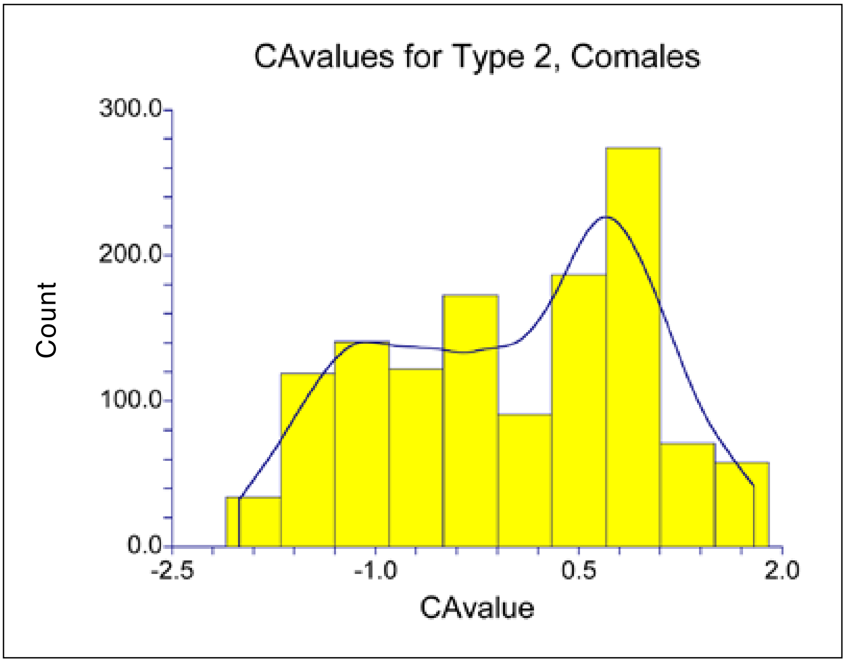


Figure 5-13. CAvalues for type 2, Comales.

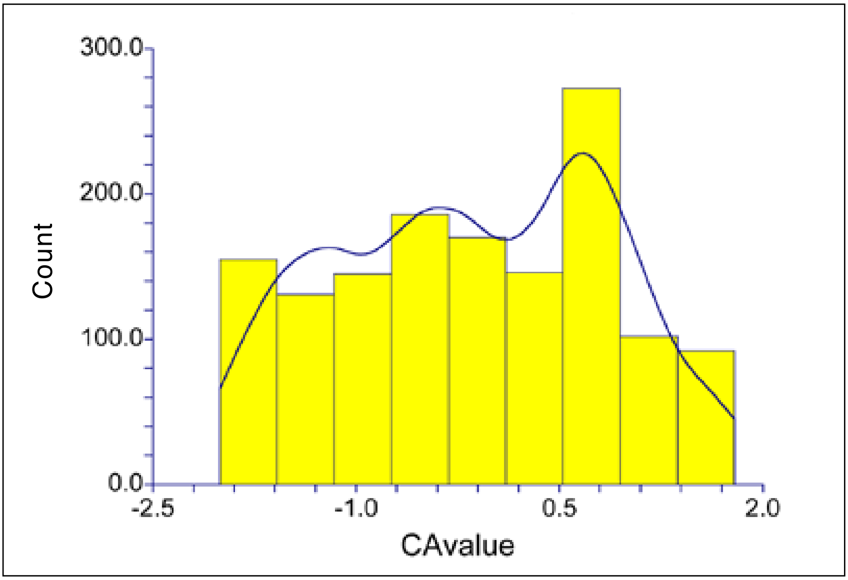


Figure 5-14. CAvalues for red ware types (61–64).

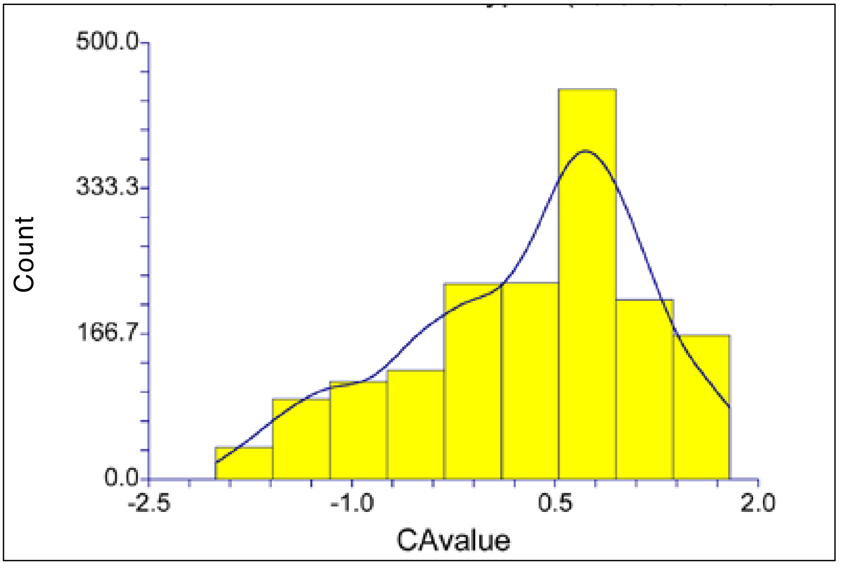


Figure 5-15. CAvalues for grater bowl types (3, 7, 8, 9, 10, 11, 13).

Table 5-20: Major type category by CAvalue

| CAvalue | Comal | Red Ware | Grater Bowl | Total |
|---|---|---|---|---|
| > -.071 | 674 53.1% | 630 45.0% | 1075 65.8% | 2379 |
| < -.071 | 596 46.9% | 770 55.0% | 558 34.2% | 1924 |
| **Total** | **1270** | **1400** | **1633** | **4303** |

Table chi-square = 135.878
Probability level = ***

It must be mentioned that Long and Glassow discarded thousands of excavated potsherds prior to shipping the remainder of the collection to Los Angeles. Presumably, these were plain sherds, which they tabulated by square and level and designated as "red" or "all other" (data archived at the UCLA Fowler Museum). Proportions of red ware versus other types reported here are based only on the extant collection.

Other major plain types are Gray/Buff Slipped and Polished (5) and Black/Brown Slipped and Polished (6). Their distributions along with that for Comales (2) are depicted in figure 5-16. Summary statistics for the same types are included in table 5-21. As indicated in several of the CAs, Black/Brown Slipped and Polished sherds tend to be later than well-finished sherds with lighter surfaces (type 5), and the difference viewed through CAvalues for these sherds is statistically significant (table 5-22).

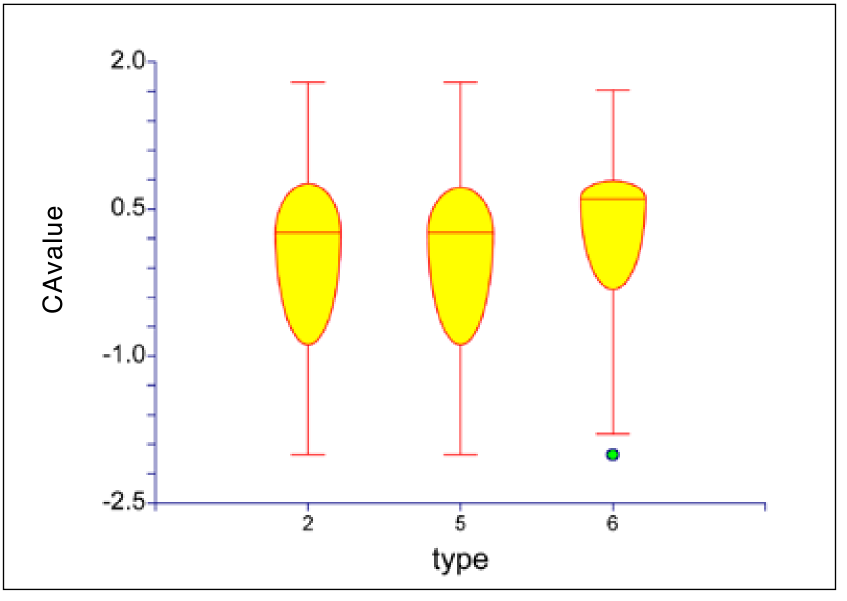


Figure 5-16. Other major plain ware types, CAvalue distributions by type.

Table 5-21: Other major plain types, summary statistics

| Type Code | Description | Count | Standard Deviation | Mean CAvalue | Median CAvalue | Skewness |
|---|---|---|---|---|---|---|
| 2 | Comales | 1270 | .963 | -.014 | .261 | -.225 |
| 5 | Gray/Buff Slipped and Polished | 314 | .976 | -.038 | .261 | -.330 |
| 6 | Black/Brown Slipped and Polished | 325 | .870 | .254 | .606 | -.635 |

Table 5-22: Plain slipped, polished types by CAvalue

| CAvalue | Type 5 | Type 6 | Total |
|---|---|---|---|
| >.11 | 170 54.1% | 215 66.2% | 385 |
| < .11 | 144 45.9% | 110 33.8% | 254 |
| **Total** | **314** | **325** | **639** |

Table chi-square = 9.624
Probability level = **

## Other Low Frequency Types

Most of these types tend to occupy late positions in the sequence (table 5-23). Four types are either Black on Red or Red on Black bichrome. Since it was difficult at times to distinguish among the decorative techniques manifested on sherds of these types, we were not surprised to find them on the same time level (fig. 5-17).

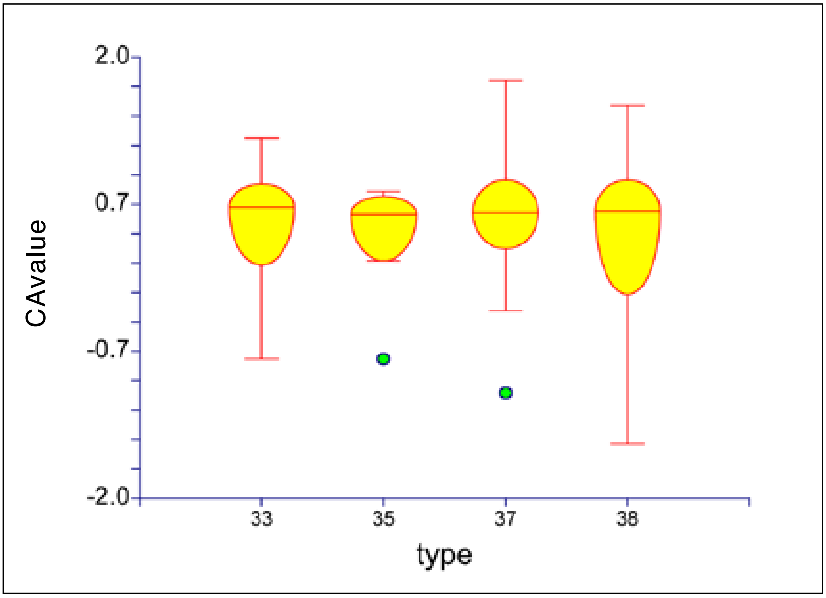


Figure 5-17. Red on Black and Black on Red types, CAvalue distributions by type.

Table 5-23: Other minority types, summary statistics

| Type Code | Description | Count | Standard Deviation | Mean CAvalue | Median CAvalue | Skewness |
|---|---|---|---|---|---|---|
| 27 | Red on White | 11 | .995 | .265 | .343 | -.039 |
| 28 | Thick White Paint | 12 | .651 | .607 | .626 | -1.234 |
| 29 | Negative Painted | 10 | .769 | .884 | .900 | -.627 |
| 30 | Thick White Paint on Red | 2 | 0 | -.738 | -.738 | |
| 31 | White on Black | 35 | 1.153 | .033 | .343 | -.530 |
| 33 | Red on Black | 10 | .606 | .483 | .640 | -.872 |
| 34 | Red on Black (?) | 14 | 1.045 | .132 | .262 | -.092 |
| 35 | Red Wash/ Slip over Black | 10 | .593 | .370 | .579 | -1.386 |
| 36 | Black on Gray/White | 33 | .778 | .466 | .606 | -.667 |
| 37 | Black on Red | 32 | .571 | .595 | .592 | -.327 |
| 38 | Black on Red Striped | 47 | .792 | .423 | .606 | -.422 |
| 41 | Glazed Majolica | 46 | .692 | .471 | .451 | -.248 |
| 48 | Reed Punctate | 25 | .532 | .661 | .604 | .278 |
| 60 | Polished Utility | 26 | .867 | -.748 | -1.066 | 1.075 |
| 70 | Black on Orange | 5 | 1.113 | -.889 | -1.317 | .675 |

Other minority type distributions are depicted in figure 5-18. Of these, one is the historic type Glazed Majolica ware (41), which is very distinctive and datable to the colonial era. Interestingly enough, in the collection at hand these historic sherds show up not as might be predicted at the late end of the sequence, but somewhat earlier (table 5-23). We will discuss this problem in a later chapter.

## Residual Types

Two types are residual, and sherds we could not assign to other types were placed in one or the other. Included sherds either have eroded surfaces or are plain and lack distinctive features of decoration, surface finish, or vessel function. Distributions for the two types are summarized in table 5-24. In some ways, sherds of these two types tend to distribute through the sequence, as does the entire body of sherds where all types are combined (cf., figs. 5-19, 5-20, and 5-21), although for some reason sherds of the type Eroded Fine Ware (4) tend to be more plentiful late in the sequence compared to sherds of Gray/Buff Utility (1). The difference is statistically significant (table 5-25).

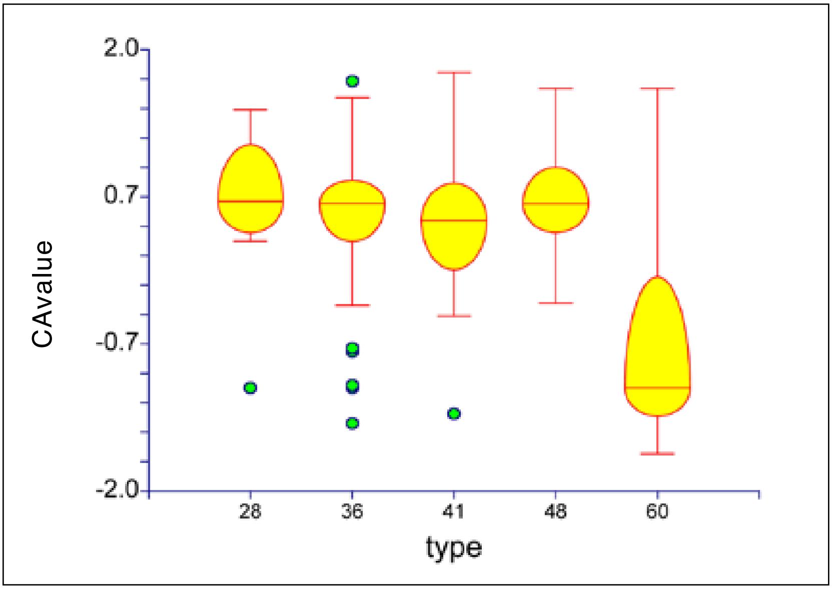


Figure 5-18. Other minority types, CAvalue distributions by type.

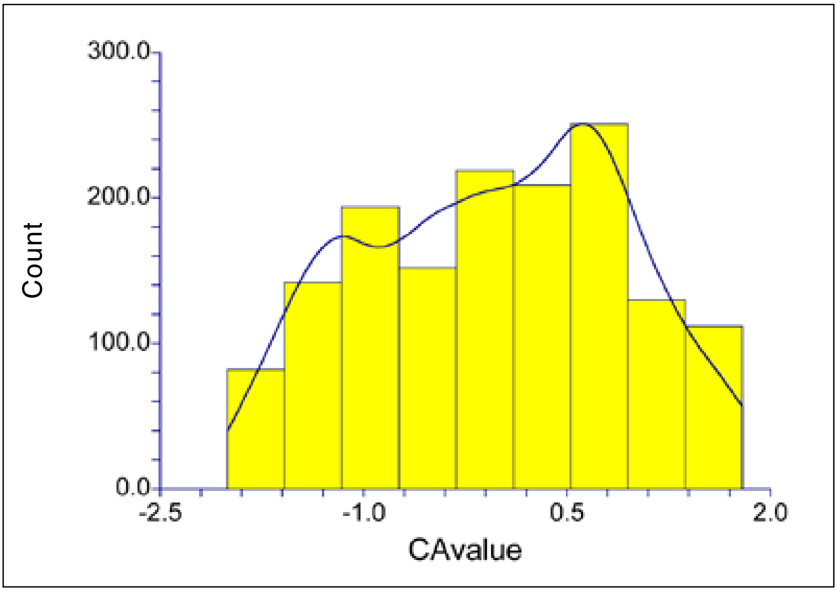


Figure 5-19. CAvalues for type 1, Gray/Buff Utility.

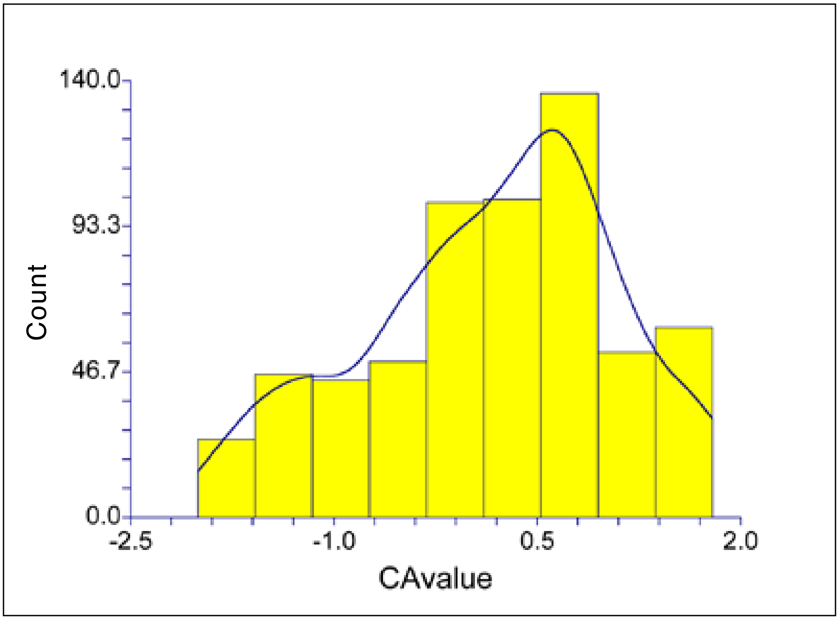


Figure 5-20. CAvalues for type 4, Eroded Fine Ware.

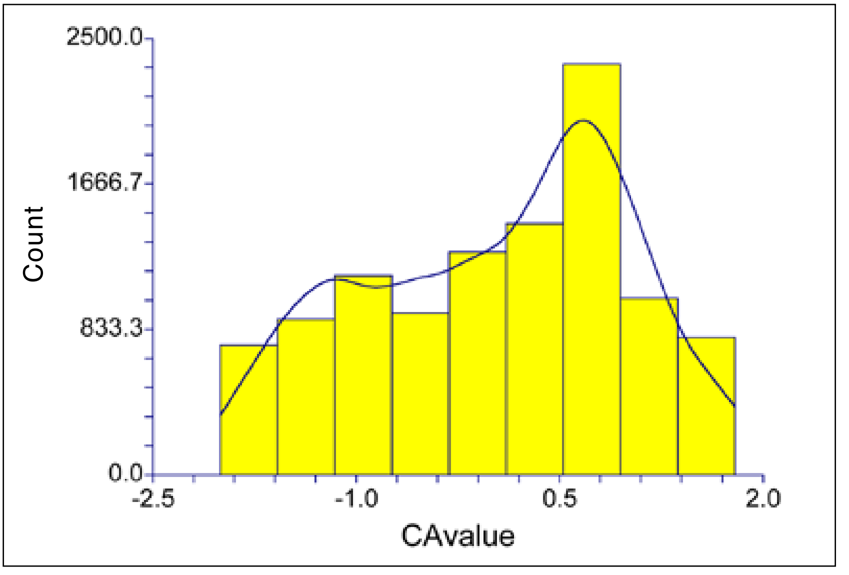


Figure 5-21. CAvalues for all types combined.

Table 5-24: Residual types, summary statistics

| Type Code | Description | Count | Standard Deviation | Mean CAvalue | Median CAvalue | Skewness |
|---|---|---|---|---|---|---|
| 1 | Gray/Buff Utility | 1502 | .952 | -.029 | .005 | -.102 |
| 4 | Eroded Fine Ware | 618 | .923 | .158 | .262 | -.36 |

Table 5-25: Residual types by CAvalue

| CAvalue | Type 1 | Type 4 | Total |
|---|---|---|---|
| > .026 | 741 49.3% | 366 59.2% | 1107 |
| < .026 | 761 50.7% | 252 40.8% | 1013 |
| **Total** | **1502** | **618** | **2120** |

Table chi-square = 17.161
Probability level = ***

Table 5-26: CAvalues for unique sherds

| Designation* | Type Code | Site | CAvalue |
|---|---|---|---|
| A | 57 | Las Cuevas | -.88405 |
| B | 58 | Las Cuevas | 1.03376 |
| C | 70 | Anona | n/a† |
| D | 71 | Tiana | n/a |
| E | 32 | Las Cuevas | -1.66352 |
| F | 32 | Las Cuevas | -.70465 |
| G | 32 | Las Cuevas | 1.02483 |
| H | 32 | Las Cuevas | -.88405 |

*See chapter 3.
†Site not analyzed, that is, CAvalue not calculated.

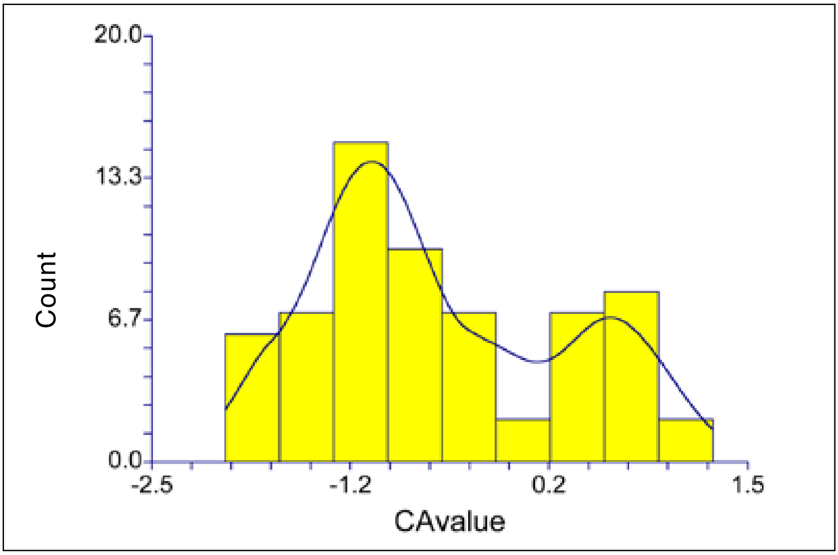


Figure 5-22. CAvalues for ceramic plaques.

Table 5-27: Other ceramic artifacts, summary statistics

| Type Code | Description | Count | Standard Deviation | Mean CAvalue | Median CAvalue | Skewness |
|---|---|---|---|---|---|---|
| 43 | Brushed Plaques | 64 | .836 | -.567 | -.890 | .470 |
| 81 | Cookie-Cutter Figurines | 9 | 1.028 | -.071 | -.298 | .618 |
| 82 | Spindle Whorls | 15 | .891 | -.143 | -.298 | .664 |
| 83 | Modeled Figurine Fragments | 3 | .099 | -.997 | -1.043 | .665 |
| 85 | Stamp | 1 | — | -1.653 | -1.653 | — |
| 86 | Molded Effigy Feet | 13 | .501 | -.750 | -.884 | 1.282 |
| 93 | Whistle Fragment | 1 | — | .785 | .785 | — |
| 94 | Rattle Pellet | 2 | .001 | .262 | .262 | — |
| 95 | Possible Pipe Stem | 1 | — | .262 | .262 | — |
| 97 | Historic Molded Figurine | 1 | — | .262 | .262 | — |
| 98 | Decorative Plaque Fragment | 2 | .412 | .051 | .051 | — |

## Unique Sherds

A few sherds manifest unique designs and may be from low-frequency wares traded into the Etzatlán basin. Table 5-26 lists these sherds and the CAvalues of their square/level samples where they could be calculated, that is, for sherds falling within the three-site CA study sample.

## Other Ceramic Artifacts

Included here are the ceramic Brushed Plaques (type 43) and the few ceramic artifacts not included in the ceramic data sets and described separately in chapter 3. Plaques were included in the ceramic data sets, and CAvalue distributions for the type are summarized in figure 5-22 and table 5-27. These plaques apparently were used through most of the Etzatlán sequence but most commonly in prehistoric times.

For the other artifacts, those that were not included in the ceramic data sets, CAvalues have been assigned where possible but only for the site of Las Cuevas. Results are summarized in table 5-27. Four categories are present in sufficient quantity to allow tentative chronological assessments. Mazatlán figurines and spindle whorls appear to be in the later portion of the prehistoric sequence, but standard deviations are high and the two samples relatively small. While only three modeled figurine fragments can be assessed, they are tightly clustered at a very early position in the sequence. The thirteen molded animal effigy vessel feet also fall into the early portion of the three-site sequence.