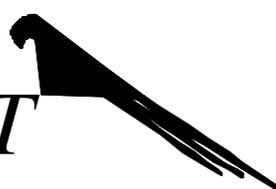




POTTERY SOUTHWEST



Volume 26, No. 3
Fall 2007 (\$3.00)

November, 2007
ISSN 0738-8020

In This Issue: Hayward Franklin and David Snow provide an in-depth look at the Ceramics from LA 5 (Los Aguajes) and Meade Kemrer presents a fresh perspective on Chupadero Black-on-White and Red-on-Terracotta Ware in South Central New Mexico. Ongoing features include "On the Shelf", and "On View".

Finally, we provide some technical tips on submissions. An electronic publication creates formatting challenges beyond those of conventional printing or photocopying. These tips make publishing in *Pottery Southwest* easier for our contributors. We hope you will take advantage of them and send in your submissions (see Page 33 for how-to).

CONTENTS

| | <u>Page</u> |
|--|-------------|
| Ceramics from LA 5 (Los Aguajes) by Hayward Franklin and David Snow..... | 2-18 |
| The Appearance of Chupadero Black-on-White and Red-on-Terracotta Ware in South Central New Mexico by Meade F. Kemrer | 19-25 |
| On the Shelf: Recent Publications of Interest..... | 26-30 |
| On View: Exhibits—In the Museums and on the World Wide Web..... | 31 |
| Mission Statement | 32 |
| How to Submit Papers and Inquiries | 33 |
| Order Form for Archival CD of Pottery Southwest | 34 |

Editorial Board:

David R. Abbott, Leslie Cohen, Patricia L. Crown,
Kelly Hays-Gilpin, Donna Glowacki, Hayward Franklin, M. Patricia Lee,
Peter J. McKenna, David Phillips and Christine S. VanPool.

Pottery Southwest is a non-profit journal of the Albuquerque Archaeological Society

Ceramics From LA 5 (Los Aguajes) **Hayward H. Franklin and David H. Snow**

A. Introduction

LA 5 (Los Aguajes) is a Pueblo IV glazeware site located on the basalt plain southwest of Santa Fe. Situated on the Caja del Rio near Tetilla Peak, the site's nearest modern Pueblo neighbors are Santo Domingo and Cochiti Pueblos. As such, it lies in the northern part of the Rio Grande glazeware production sphere, not far from other large PIV pueblos, LA 70 (Pueblo del Encierro), La Bajada (LA 7), and La Cieneguilla (LA 16).

Previous work includes early investigations by Nels Nelson who formulated the first chronology of the area. His excavations, reported in "The Chronology of the Tano Ruins, New Mexico" (1916), and in the "Pueblo of Aguajes" (1915) included the collection of ceramics. In an effort to acquire datable tree ring specimens, the site was excavated by Trumbull and Stubbs in 1933 and 1934. This program succeeded in the collection and dating of 65 tree ring specimens (Smiley, Stubbs and Bannister 1953; Robinson, Harrell and Hannah 1972). Many of the dates were outer ring dates, and the site was thus firmly assigned to a period of approximately A.D. 1392 to 1478. Indeed, the strong suite of clustered dates makes LA 5 one of the most reliably-dated of the PIV period. Stubbs and Gwinn Vivian also studied the pottery that came from the 1930's excavations. Although not formally published, the manuscript by Vivian (1959) forms the foundation for this discussion. More recently, James Snead, in conjunction with the U.S. Forest Service, has conducted field research at and around the site, including survey and mapping. (Snead 1997). Also included in his research was ceramic analysis of some of Nelson's collection.

The ceramics of a sample of Nelson's larger collection were examined by the authors in July 2007, for the purpose of identifying types and tempers from this important and well-dated PIV context. We wanted to determine exactly which types, rim forms, and constituent materials were in use at this important glazeware town. In doing so, we would extend and amplify the previous work of Stubbs and Vivian. Nelson's collection was made available through the courtesy of Lori Pendelton (Director, Nels Nelson North American Archaeology Laboratory), and David H. Thomas, (Curator of North American Archaeology) of the American Museum of Natural History.

B. The Sample

The sample consists of 170 potsherds, which may be considered a somewhat random sample of the site's pottery, although the small sample size does not guarantee that it is completely representative of every type found there. Nor does the small sample lend itself to any detailed numerical manipulation. However, it may be suitable for a look at the typology, rim forms, and tempers of the glazeware in a qualitative manner. It consists of material from the AMNH catalog numbers 4232, 4233, 4234, 4235, comprised of mainly glazeware pottery. There are restorable vessels from Nelson's excavations in the museum collection, but these were not examined. Figures 1 - 6 illustrate some sherds from our sample.

Almost all the sherds are large rim sherds, enabling correct identification of rim profiles.

The number of sherds coming from the same original vessel is minimal. None of the sherds matched physically, although several sherds of a glaze/red jar might have been from one vessel. In all, only five sherds were seen to possibly be redundant with any of the other sherds. The count (Table 1) shows all sherds tallied individually. Each example was identified to type and rim form using the standard classification (Kidder and Shepard 1936, Mera 1933, 1940, Honea 1966). Essential agreement between the authors occurred on almost every specimen. A couple of rims might be borderline Glaze C-D in shape, and were the only disparity between observers. All sherds were clipped, and a fresh section examined by Franklin under a binocular microscope, providing the temper assessment.

Table 1. Rio Grande Glazeware from LA 5.
(diagnostic rim sherds only)

| Type | Bowls | Jars | Total |
|------------------------|-------|------|------------|
| Agua Fria G/r | 11 | 5 | 16 |
| Cieneguilla G/y | 23 | 1 | 24 |
| Cieneguilla G/p | 1 | 3 | 4 |
| San Clemente G/p | 9 | 3 | 11 |
| Total Glaze A | 43 | 12 | 55 (55%) |
| Largo G/r | 1 | | 1 |
| Largo G/y | 13 | | 13 |
| Largo G/p | 6 | | 6 |
| Medio G/p | 2 | | 2 |
| Medio G/p with C-D rim | 1 | | 1 |
| Total Glaze B | 23 | | 23 (23%) |
| Espinoso G/p | 12 | 3 | 15 |
| Espinoso "G/y" | 4 | 1 | 5 |
| Espinoso G/p w/D rim | 1 | | 1 |
| Espinoso G/p w/C-D rim | 1 | | 1 |
| Total Glaze C: | 18 | 4 | 22 (22%) |
| Total R.G. Glazeware: | 84 | 16 | 100 (100%) |

C. The Pottery Types and Trends

Assignment of the 100 diagnostic glazeware rim sherds to pottery type resulted in the data shown in Table 1; all sherds including non-glazeware are shown as a separate analysis in the temper table (Table 4). Glazeware types follow definitions set out by the Eighth Ceramic Seminar (Honea 1966). Clearly, the assemblage is typical of the period of Glaze A through Glaze C, in general. Glaze A types of Agua Fria Glaze-on-red (G/r), San Clemente Glaze-polychrome (G/p) with red slip, are accompanied by Cieneguilla Glaze-on-yellow (G/y) and Cieneguilla Glaze-polychrome(G/p). Glaze B is represented by Largo G/y and its polychrome variant Largo G/p. Also present in minor amounts is "Medio" G/p, defined as San Clemente G/p with a B rim. Glaze A rims tend to be direct and round-lipped. Typically, the B rim is bulbous,

thickened and either flat or rounded at the lip. Glaze C is represented by one basic type, Espinoso G/p. These rims show a variety of treatments at this time, ranging from beveled, to S-shaped. Glaze D modified the S-shape into a longer "raised" rim, in which the rim area is thickened for a distance down the vessel wall.

The assemblage is seen to span the typological and rim-form period of Glaze A types and rims to Glaze C. The change from Glaze A bichromy (Agua Fria G/r and Cieneguilla G/y) to polychromy on separate sides (San Clemente and Medio G/p) occurred here at LA 5. Black glaze paint against a red or yellow or white slip is characteristic of these Glaze A thru B types. Overlapping in time with and succeeding these styles, was the development of polychromy on a single surface, as seen first in late Glaze A with Cieneguilla G/p, then into Glaze B with Largo G/p, and culminating in Espinoso G/p, where it becomes the universal polychrome style standard during Glaze C. In this polychrome design-style, crossing several "pottery types", the slip is typically yellow, and black glaze paint is used for the bowl interior. Bowl and jar exteriors use broad red-painted frets outlined by black glaze paint. In Glaze D, San Lazaro G/p continued the same polychrome theme, but with slip color changes. Slips in San Lazaro are often not yellow, but buff, tan, or fawn.

While almost all sherds fell into one of these recognized categories, there were some exceptions. In addition to the standard types, Snow recognized a "contrasting slip" version within Espinoso, as well as a few pieces which are glaze-on-yellow instead of polychrome. Also, two Espinoso bowl sherds have rims that are borderline Glaze C-D in style, being thickened and elongated in the style of San Lazaro G/p. However, no "true" San Lazaro G/p Glaze D was identified at this site, as typified by fawn, pink or buff slips (in contrast to Espinoso's yellow slip). Perhaps the change to "D" rims preceded the slip color alterations that marked true San Lazaro G/p.

The quantities of the various types are given for all sherds (Table 1). As shown in Table 1, Glaze A types are numerically dominant. Approximately 55% of the glazeware rims belong to this phase. Within this period, Cieneguilla G/y is the most numerous, whereas Agua Fria G/r is somewhat less common. Least common in the Glaze A group is San Clemente G/p. Continuing into Glaze B (23%), the yellow-slipped Largo G/y and G/p remain the most popular. Glaze-on-red pottery declines and becomes extinct in this phase. San Clemente style survives only as a few Medio G/p. In Glaze C (22%), the dominance of yellow slips becomes complete; essentially all pottery is yellow slipped and polychrome in style. This phenomenon is typical of the northern range of Rio Grande glazeware; yellow-slipped types outnumber red-slipped types in Glaze A, B, and C time periods. In the southern part of its range, Rio Grande Glazeware tends to emphasize red rather than yellow slips.

In viewing the design-style changes on one hand, and the rim form changes on the other, it must be concluded that although both aspects changed with time, the rim form evolution was not exactly synchronized with design/style changes. Thus, for example, Glaze A rims include mostly the bichrome glaze/red and glaze/yellow styles (Agua Fria and Cieneguilla). However, 2-sided polychromy appears in San Clemente, and polychromy all on a single side in the rarer Cieneguilla Glaze/poly, both with "A" rims. Continuing into the Glaze B rim profiles with time, the Largo series continues the bichrome glaze/red and glaze/yellow traditions, but polychromes become more prominent. The yellow-slipped polychrome becomes Largo G/p, while the San

Clemente style of alternating white and red slips continues in declining amounts as Medio G/p. Finally, in Glaze C, three-color polychromy on a single side based on yellow slips becomes the norm, at least in the LA 5 area, and all other design-styles disappear in Glaze C. Some potters then began using the Glaze D rim prior to the complete transition to San Lazaro design-style. It can be seen, therefore, that separate and often "parallel" design styles co-existed at times, and that they persisted across the "horizons" of changes in rim treatment as rim fashions waxed and waned from the A through the D rim forms (Mera 1933). Again, changes in design-style and the evolution of rim forms were not synchronous in time.

Another trend is the change toward increased frequency of jar sherds thru time (not necessarily finished vessels, perhaps). Table 4 shows that among bowls, only about 10% are Glaze C (Espinoso); but in the jar form, 49% are Espinoso. Clearly, the jar form gained in popularity (based on sherds) through time. This bowl-to-jar trend has been noted elsewhere, and may be a glazeware-wide phenomenon.

Along with the glazeware sherds, there appeared several other types. A small but consistent Biscuitware presence is evident at LA 5, as with many of the other sites in this district. Twelve Biscuit sherds mark it as a minor, and perhaps intrusive ware at the glazeware-dominated LA 5. Of the 12, most (10) are Biscuit B (Bandelier B/w). The remaining two are Biscuit A (Abiquiu B/w). Geographically, LA 5 is near the Biscuitware production area, but it is doubtful that any was made here.

Five sherds of plain gray utility (ie. totally obliterated) and a fragment of a small vessel or ladle also turned up in the sample. The collection was oriented toward the glazewares, but the few plainware illustrate a complete lack of corrugation at this time, as well as a large globular jar form with straight or slightly outcurving rims. This utility ware is typical of the type throughout the glazeware realm.

D. Comparison to earlier work

Comparing the types and amounts to those of Vivian and Stubbs (Vivian 1959), the same general percentages appear (Table 2). Although sets of data are different in nature and size, and are thus not completely compatible, the trends are the same. The range of pottery types, and rims forms, spanning the Glaze A to Glaze C-D, remains the same for both analyses. The predominance of Glaze A, amounting to 55-65% of the glazeware is notable. Glaze B types range from 12 to 20% in the various tallies. Glaze C and C-D Espinoso G/p occupies about 22 % of glazeware in our Table 1, and Vivian's total is 12.3%. Part of this discrepancy may be that our sample is smaller, and confined to the most diagnostic rims. Overall, however, the three data sets confirm that Glaze A pottery was the majority at LA 5, followed by smaller and about equal amounts of Glaze B and C pottery.

Table 2. LA 5 Glazeware Type Totals from Vivian (1959)

| | | |
|----------------------------|-----|--------|
| Agua Fria Glaze/red | 175 | 36.1% |
| San Clemente4 Glaze/poly | 25 | 5.2 |
| Cieneguilla Glaze/yellow | 165 | 34.0 |
| Largo Glaze/yellow and G/p | 60 | 12.4 |
| Espinoso Glaze/poly | 40 | 8.2 |
| Glaze IV (D) | 20 | 4.1 |
| | 485 | 100.0% |

Also notable in all three tables is the dominance of yellow-slipped pottery at all times, a salient characteristic of the northern glazeware district. In our tally, 69% of the glazeware is yellow-slipped; in Vivian's the percentage is 58.7%. Clearly, the Cieneguilla, Largo and Espinoso types having yellow slip are the most popular in this area, whereas in the south yellow slips are rarer at sites such as Tijeras Pueblo.

Vivian's totals also include 20 Glaze D sherds, although he does not call them "San Lazaro". We also found several Espinoso pieces having Glaze D rims (Table 1). Together, this suggests that some late Espinoso was starting to use a glaze D rim prior to the full-blown change to the San Lazaro design-style and slip changes. True San Lazaro G/p does not appear at LA 5, evidently, as the occupation did not last that long.

Regarding the Biscuit sherds at the site, Vivian (1959: 20) also interprets the Biscuit as non-local. The relationship of glaze-producing pueblos with the Biscuit-dominated pueblos to the west and north was clearly a close one, but is beyond our scope here.

E. Tree Ring Dates for LA 5

Los Aguajes is one of those fortunate archaeological sites that is well-dated. A total of 65 dates were obtained by dendrochronology in the 1930's. Almost all were obtained from apparent construction vigas, and most were outer ring dates (Smiley Stubbs and Bannister 1953). Thus, not only are there many dates, but their reliability is very high. Only 12 were non-cutting dates. Our ceramic sample is only taken as typical of the site as a whole, so detailed comparisons of the pottery associated with each of these dated loci within the site is not possible at this time. However, the entire assemblage may be dated by reference to the excellent series of dendro dates.

Table 3 plots the 65 tree-ring dates on a time scale. Clearly, they form a tight cluster within the range of A.D. 1392vv to 1478r, a total span of about 80 years. (The vv on the 1392 date means that an unknown number of outer rings were missing; thus the 1392 date is not a cutting-construction date.). Construction began around 1400, and increased thru the 1420s and 1430s. Major construction continued from the 1440s into the 1470s. No construction occurred after the 1470s, and thus stopped abruptly by 1480. A clear pattern of increasing construction during the early 1400s was followed by major construction for about 50 years thereafter. A continuous occupation is inferred.

Table 3. Tree-ring dates from LA 5.

| A.D. | Dates |
|------|-----------------|
| 1550 | |
| 1500 | |
| | 1470s (10) |
| 1475 | |
| | 1460s (13) |
| | 1450s (10) |
| 1450 | |
| | 1440s (22) |
| | 1430s (4) |
| | 1420s (3) |
| 1425 | |
| | 1414r |
| | 1407r |
| 1400 | |
| | 1392vv |
| 1350 | |
| 1300 | |
| | Total: 65 dates |

F. Integration of Ceramics with Dendrochronological Dates

How do the ceramic dates fit into this well-dated construction sequence? The "traditional literature" dates, as given by the Eighth Ceramic Seminar (Honea 1966) are:

| | |
|-------------------------|-------------|
| Agua Fria G/r | 1315 - 1425 |
| Cieneguilla G/y and G/p | 1325 - 1425 |
| San Clemente G/p | 1315 - 1425 |
| Largo G/r, G/y, G/p | 1400 - 1450 |
| Espinoso G/p | 1425 - 1500 |
| San Lazaro G/p | 1490 - 1515 |

It must be emphasized, however, that these dates are not entirely fixed, and that much variation undoubtedly occurs by site and region.

Overall, these dates conform to the dendrodates at LA 5 rather well. If the site began about 1400, that coincided with the predominant use of Glaze A pottery which is evident from the analyses. Although the construction of Los Aguajes does not begin until the early 1400s, late Glaze A should be here. It is, and in large quantities, including the Agua Fria, Cieneguilla, and San Clemente types. The site was occupied during the entire span of Glaze B, typified by the Largo and Medio types. These are also here in large numbers, and offer a good glimpse of the Glaze B expression, which is often lacking at other glazeware sites to the south. Construction and ceramic production continued into the Glaze C period until the 1470's. Predictably, the major type at this time is Espinoso G/p. The few late Glaze C rims that border on Glaze D in profile must belong to the end of the occupation, at about 1470. Given that San Lazaro G/p is stated to

have started in the late 15th century, it is expectable that some late Espinoso rims should appear "D-like". However, no true San Lazaro G/p was identified in our analysis, despite some marginal C-D rims on Espinoso G/p. This is what might be expected on the "cusp" between adjacent type ranges.

Biscuitware A and B both fit within this time span. The predominance of Biscuit B, which started at about 1425, indicates an increased import of Biscuitware thru time.

Thus, the ceramics found, their traditional dates, and the dendrodates from LA 5 seem to match quite well. A couple of observations can be made, regarding the "fit" of ceramics and dates. At the early end, Glaze A types comprise the majority of the glazeware pottery (ca.55 to 65%) by all counts. However, building dates are actually few up until 1420, almost the end of Glaze A (defined as 1425). Construction was non-existent prior to 1400, and the major episode began only in the 1420's when Glaze A pottery should have been waning. This suggests that Glaze A types may have been produced, or at least still used, after the traditional "end" of Glaze A at 1425.

At the late end, the appearance of Glaze D rims on a few Espinoso sherds indicates that they were being altered toward the Glaze D profile, which is understandable. Vivian (1959: 20) also noted a small amount of Glaze IV (D) rims, but did not refer to them as San Lazaro. However, the lack of true San Lazaro G/p shows that this type was not fully in production by the 1470s, when LA 5 was abandoned. It may be that San Lazaro was not in full bloom until 1480 or 1490. Even if it were obtained by trade from the Galisteo pueblos, this type surely would have appeared at LA 5 by trade if it were still occupied. Glaze D was estimated to begin at 1490 by the Eighth Ceramic Seminar (Honea 1966), and this would seem to fit the LA 5 data better than 1470, as given by Oppelt (2002:51). As it stands, Espinoso was the last major type produced and used at LA5.

G. Tempering Materials

Constituent materials, particularly paste clays and tempering ingredients, are a critical factor in determining the origin of manufacture. Since basic body clays and inert tempering materials are readily found in the vicinity of most Southwestern villages, they tend to be obtained expediently and locally. Unlike slip clays and paint materials, which are of a more restricted and localized occurrence, most potters were able to collect adequate paste clays and tempers within a convenient distance from the village.

Examination of all 170 sherds for tempering materials was part of this project, as it was for the Vivian-Stubbs analysis (Vivian 1959). Our sample revealed four basic tempers, all of a volcanic rock category. Occasional potsherd "temper" is probably only random bits of hardened clay within the paste. There are two kinds of basalts; one is a dark crystalline basalt having a shiny appearance. Essentially all the grains are black, and are not vesicular or pumice-like. The parent rock is probably a dense basalt, perhaps a diabase having abundant amphiboles and pyroxene. This rock temper was also recognized by Vivian (1959: 11), who describes its origin as from the area of Zia Pueblo, following Shepard (1942). Therefore, this crystalline basalt is sometimes referred to as "Zia basalt". Pottery at LA 5 tempered with this material is interpreted

by Vivian to be traded (intrusive) from the Zia area. It is invariably found in sherds with a brick-red paste.

The second rock is a vitric basalt (scoria) of dull red, gray, or black color. It is uniform in appearance, and often has small vesicles or "bubbles" in it. This vitric, or vesicular, basalt was described by Shepard (1942) and Vivian (1959:12). It appears as fine "scoria or cinders" under the microscope (Shepard 1942: 243). Vivian found basalt of this type as a common natural occurrence in the vicinity of the site, and was seen to match that of the vitric basalt as used in LA 5 pottery. Present analysis corroborates this; LA 5 is sitting on a vast basaltic plateau containing this type of material. Further, the few plainware sherds in our sample are all tempered with this material, usually a sign of local temper preferences. It is also associated with red-colored paste clays.

The third temper is an "intermediate" (on the igneous rock classification scale) igneous rock. With the binocular scope it appears to contain abundant plagioclase feldspar. Small black flecks are probably hornblende or augite; a small amount of biotite may be present. The material is ground well, and exact identification is not possible without a petrographic scope. It could be an andesite or diorite. Vivian (1959: 12) also used the term "andesite", but apparently his term includes this temper as well as the hornblende latite, mentioned below. Sherds with this temper also have a red-firing paste. The location of this parent rock is not certain, but it may be in the Santo Domingo vicinity, or perhaps it corresponds to the San Marcos monzonite identified by Schleher (Schleher and Boyd 2005:8).

The fourth temper is similar to the preceding, but differs in detail. Also an intermediate volcanic extrusive rock, the latite is notable for its prominent inclusions of hornblende. The black laths of hornblende are common, and are seen adhering to the feldspar granules. Virtually no other minerals are present. This "hornblende latite" has been the object of previous study (eg. Warren 1969, 1970, 1979; Shepard 1942) and has been associated with glazeware from the Galisteo Basin, especially Tonque Pueblo. Vivian(1959: 12) uses the term "andesite" in speaking of this material.. Thus, Vivian's "andesite" probably included both our "intermediate igneous rock", and "hornblende latite" in the present study. The hornblende latite is invariably found in light yellow pastes. Indeed, this combination of temper and paste color identifies pottery from the Galisteo pueblos no matter where it may be found. In trade contexts it traveled widely, being found as far away as Pottery Mound (Franklin 2007). As such, its presence at LA 5, definitely marks a non-local glazeware, quite certainly derived from the Galisteo Basin or Tonque settlements.

The frequency of these four tempers in the glazeware of LA 5 is shown in Table 4.

Percentages are given only for glazewares as a whole, due to small samples sizes. The two most common tempers are crushed intermediate igneous rock (andesite-diorite) (46.7%) and vitric (vesicular) basalt (23.7%). Both are associated with red-firing clays. Vitric basalt is of direct local occurrence, and the intermediate igneous rock is probably located at no great distance, although the exact origin is not known. Thus, the vitric basalt pottery is locally-made, and that with intermediate igneous rock is probably also made within the local area. The use of Zia basalt (crystalline basalt) is thought to signify an intrusive product from the Zia vicinity. Here, 10.5% of the glazeware contains this material, so considerable contact with that district must have

transpired. Considerable trade with the Galisteo is evidenced by the strong showing of hornblende latite temper (19.1% of glazeware). Together, the Zia basalt and the latite suggest that imported glazeware comprised at least 30% of the glazeware at LA 5.

Table 4. Pottery Types and Tempers at LA 5

| | Glaze Type (bowls) | Vesicular (vitric) basalt red paste | andesite (standard) red paste | crystalline (zia) basalt red paste | hornblende latite yellow paste | tuff, sand buff paste | Type Totals | Type Percent |
|---|---|--|--|---|---|----------------------------------|------------------------|-------------------------|
| Glaze A | Agua Fria Glaze/red | 8 | 4 | 2 | | | 14 | 13.6% |
| | Cieneguilla Glaze/yellow | 10 | 20 | 4 | | | 34 | 33.0% |
| | Cieneguilla Glaze/poly | | 3 | 2 | 2 | | 7 | 6.8% |
| | San Clemente Glaze/poly (incl.1 B rim and 1 C rim) | 3 | 3 | 3 | | | 9 | 8.7% |
| Glaze B | Largo Glaze/red | | | 2 | | | 2 | 1.9% |
| | Largo Glaze/yellow | 4 | 16 | | | | 20 | 19.4% |
| | Largo Glaze/poly | 1 | 6 | | | | 7 | 6.8% |
| Glaze C | Espinoso Glaze/poly | | 2 | 1 | 7 | | 10 | 9.7% |
| Bowl totals | | 26 | 54 | 14 | 9 | | 103 | 100.0% |
| Glaze Type (jars) | | | | | | | | |
| Early Bichromes | Agua Fria Glaze/red | | 5 | 1 | 9 | | 15 | 30.6% |
| | Cieneguilla Glaze/yellow | 3 | 7 | | | | 10 | 20.4% |
| Intermediate Polychrome | Espinoso Glaze/poly | 7 | 5 | 1 | 11 | | 24 | 49.0% |
| Jar totals | | 10 | 17 | 2 | 20 | | 49 | 100.0% |
| Glazeware totals | | 36 | 71 | 16 | 29 | | 152 | |
| Temper percent | | 23.7% | 46.7% | 10.5% | 19.1% | | 100.0% | |
| Biscuitware A bowls | | | | | | 2 | 2 | |
| Biscuitware B bowls | | | | | | 10 | 10 | |
| Plain utility (plain gray jar & ladle frag) | | | | | | 5 | 6 | |
| Grand Totals | | 41 | 72 | 16 | 29 | 12 | 170 | |

Temporal trends in temper are hard to see in the limited sample, but two are apparent. First, the Zia basalt is confined almost totally to Glaze A types. Twelve of the 16 sherds with this

temper are Glaze A types. Trade with Zia was most common during this time. On the other hand, the majority of sherds having hornblende latite and yellow paste are late (Glaze C Espinosa). Trade with the Galisteo pueblos and Tonque increased thru time, as exchange with the Zia area declined.

Vivian's results were similar, although not directly comparable due to differences in the andesite-latite identification. Vivian's tabulated data for Early and Intermediate glaze periods (1959: 57, 59) do show trends comparable to our results. Zia basalt declined from 24% to 8%, while "andesite" (ie. hornblende latite) increased from 17% to 54% through time. The broad trend found by Vivian is therefore the same as noted here; trade from the south decreased while yellow wares, especially those tempered with hornblende latite, increased. This region-wide shift was also mentioned by Shepard (1942) and Warren (1969, 1970, 1979).

Recent work on small field sites in the vicinity of LA 5 on the Caja del Rio plateau included petrographic results by Schleher and Boyd (2005). These small outlying sites were probably utilized in various ways by members of some of the several large pueblos in the general area, including LA 5, LA 7, and La 16. Petrographic results indicated that glazeware frequently contained temper typical of San Marcos (Latite/monzonite), the Tonque (hornblende latite) and Galisteo (Galisteo latite) centers (Schleher and Boyd 2005:13) Their data tend to confirm our binocular microscope results regarding strong connections to the Galisteo, Tonque, and probably San Marcos. Their results, however, make no mention of the "crystalline basalt" seen by us, and by Shepard and Vivian earlier, and assigned to the Zia area. Whether this is culturally significant, or just a terminological discrepancy is presently unknown.

Detailed temper comparison to all glazeware sites in the area is beyond the scope of this paper. By brief reference, however, additional temper studies in sites of the vicinity were carried out at LA 7, LA 70, LA 249, LA 6455, and LA 9154 during the course of investigations for the Cochiti Dam project (cf. Snow 1971, 1976). Warren (1976, 1979) provided data on the glazeware tempers from those sites, which generally spanned the same time frame as LA 5 (Glaze A thru early Glaze D). Many of the same tempers she identified probably correlate with our results and those of Schleher and Boyd (2005). These include Warren's basalt scoria, augite latite, and "Tunque" latite (hornblende latite). Warren's work with tempers at Tonque (1969, 1970), clearly identified a connection between a site and a specific rock temper. At Cochiti pueblo, Dodge (1981) reported temper materials, including scoria basalt, pumice, hornblende latite and rhyolite tuff. Geological descriptions of glazeware rock tempers for this general area are provided by Nelson and Habicht-Mauche (2006:204) and Schleher and Boyd (2005:8). However, correlating these with previous descriptions, e.g. Shepard (1942) and Vivian (1959), at LA 5 is a daunting task. It seems that additional work will be needed to integrate the findings of various investigators.

The major non-glazed type at LA 5, Biscuitware, typically has a buff-colored paste with almost invisible fragments of volcanic tuff. The present sample conforms to this, but with the addition of some quartz sand. All 12 pieces have the typical Biscuitware paste/temper but also show the presence of fine sand as well. The few plain utility wares in the sample contain vitric basalt exclusively. As pointed out, this temper is interpreted to be "local" to the LA 5 environment. A larger sample of non-glazeware pottery from the site needs to be studied for a full assessment.

H. Summary

To summarize our findings, Los Aguajes was a large well populated glazeware town during the fifteenth century. The many construction dates range between approximately 1400 and 1480. Construction increased throughout the 1400's but ceased abruptly by 1480. The populace was gone by 1490 at the latest. Pottery types identified by us, as well as by previous investigators, belong almost entirely to the Rio Grande glazeware, although a few Biscuitware are present as well. These types, as dated in the general region, fall into the late Glaze A through Glaze C time period. This agrees well with the tightly clustered series of 65 tree-ring dates.

Temper studies by Vivian (1959) indicate that the majority of pottery was made locally, using vitric (vesicular) basalt. Other glazeware, tempered with an intermediate igneous rock, is presumed to be of a local source, but might come from San Marcos, and more work is need to trace its source. Of more definite origin is the Zia (crystalline) basalt, demarking tradeware from the Zia (Puname) area to the south. The most distinctive temper is found along with yellow-paste in Largo G/y, Largo G/p, and Espinosa G/p. This temper, recognized by Shepard (1942), and then geologically identified by Warren (1969) as hornblende latite, points to an origin in the Galisteo basin, or from Tonque Pueblo. In all, at least 30% of the glazeware sherds were from vessels not made at Los Aguajes.

Over time, trade from the south, typified by sherd-tempered Agua Fria glaze/red or San Clemente G/p, diminished in quantity as yellow-slipped glazeware increased in frequency. Biscuitware increased in frequency also with time. Certain southern types, such as Pottery Mound G/p or Kuaua G/p, popular at Pottery Mound (Franklin 2007) never appear at all at LA 5 or other northern glazeware sites. Thus, a general trend is seen, from an orientation toward the southern glazeware range, toward the northern Rio Grande district through time. Re-orientation toward Tonque, San Marcos, and perhaps other pueblos can be surmised, as well as trade with the Biscuitware producing regions of Bandelier and the Chama Valley.

Finally, the demise of the Los Aguajes settlement at about 1480-1490 coincides with abandonments at many other pueblos in the Rio Grande glazeware area. Numerous other thriving glazeware towns were abandoned during the last quarter of the 15th century. Glazeware sites after that were often in new locations, and the overall population appears to be substantially reduced from its peak in Glaze A thru C times. It seems that the general downturn in climatic conditions in the late 1400s, together with the situation of Los Aguajes on a volcanic plateau away from a major permanent river, created intolerable conditions which contributed to the abandonment of the pueblo.



Figure 1. Agua Fria G/r (top), Cieneguilla G/y, G/p (bottom).



Figure 2. Glaze B bowl rims (interior). Largo G/y (top), Largo G/p (bottom).



Figure 3. Glaze B bowl rims (exterior of Figure 2).



Figure 4. Glaze C bowl rims (interior), Espinoso G/p.



Figure 5. Glaze C bowl rims (exterior of Figure 4).



Figure 6. Glazeware jars.

References Cited

Dodge, William A.

- 1981 Archaeological Investigations at Cochiti Pueblo, New Mexico: A study of cultural materials recovered from waterline trenches. U.S. Department of Health and Human Services, Public Health Service, Health Services Administration, Indian Health Service, Environment Health Branch.

Franklin, Hayward H.

- 2007 Rio Grande Glazeware Classification at Pottery Mound, New Mexico. *Pottery Southwest*, Vol. 25, No. 4, January 2007.

Honea, Kenneth H. (compiler)

- 1966 Eighth Southwestern Ceramic Seminar, Rio Grande Glazes. Santa Fe, New Mexico.

Kidder, Alfred V., and Anna O. Shepard

- 1936 *The Pottery of Pecos*, Volume II. Yale University Press.

Mera, Harry P.

- 1933 A Proposed Revision of the Rio Grande Glaze-Paint Sequence. *Technical Series Bulletin No. 5*. Laboratory of Anthropology, Santa Fe.

- 1940 Population Changes in the Rio Grande Glaze-Paint Area.

Technical Series Bulletin No. 9. Laboratory of Anthropology Santa Fe.

Nelson, Kit, and Judith A. Habicht-Mauche

- 2006 Lead, Paint, and Pots. In, *The Social Life of Pots: Glaze Wares and Cultural Dynamics in the Southwest, A.D. 1250 - 1680*, edited by Judith A. Habicht-Mauche, Suzanne L. Eckert, and Deborah L. Huntley, pp.197-231.

Nelson, Nels

- 1915 Field Notes, "Pueblo Los Aguajes, Situated on the Mesa about 5 miles north of La Bajada". Ms. on file, Nels C. Nelson North American Archaeology Laboratory, Department of Anthropology, American Museum of Natural History, New York.

- 1916 Chronology of the Tano Ruins, New Mexico. *American Anthropologist* (n.s.) Vol 18, No. 2 (April-June), pp. 159-180.

Oppelt, Norman T.

- 2002 *List of Southwestern Pottery Types and Wares*. Oppelt Publications, Greeley, Colorado

Robinson, William J., John W. Hannah, and Bruce G. Harrill

- 1972 Tree-Ring Dates from New Mexico I, O, U, Central Rio Grande Area. Laboratory of Tree-ring Research. University of Arizona. Tucson.

Shepard, Anna O.

1942 Rio Grande Glaze Paint Ware: A Study Illustrating the Place of Ceramic Technological Analysis in Archaeological Research. *Contributions to American Anthropology and History* 7(39): 129-262. Publication 528. Carnegie Institution of Washington, Washington, D.C.

Schleher, Kari L. and Jennifer E. Boyd

2005 Petrographic Analysis of Glaze-Painted Ceramics. In, *Across the Caja del Rio Plateau III: Hunters and Farmers in the Northern Rio Grande*. Edited by Peggy A. Gerow and Patrick Hogan. Office of Contract Archaeology, University of New Mexico, pp. 153-165.

Smiley, Terah L., Stanley A. Stubbs, and Bryant Bannister

1953 A Foundation for the Dating of Some Late Archaeological Sites in the Rio Grande Area, New Mexico, Based on Studies in Tree-Ring Methods and Pottery Analyses. University of Arizona Bulletin (Vol. XXIV, No. 2) *Laboratory of Tree-Ring Research Bulletin No. 6*. Tucson.

Snead, James E.

1997 The Ancestral Pueblo Community Study: Archaeological Survey at Los Aguajes, Santa Fe County, NM: Final Report of the 1995 Season. Ms. on file, Office of the Forest Archaeologist, Santa Fe National Forest, Santa Fe.

Snow, David H.

1971 Excavations at Cochiti Dam, New Mexico: 1964-1966 Seasons, Vol. I, LA 272, LA 9154, LA 34. Museum of New Mexico, *Laboratory of Anthropology Notes No. 79*. Santa Fe.

1976 Archaeological Excavations at Pueblo del Encierro, LA 70, Cochiti Dam Salvage Project, Cochiti, New Mexico: Final Report, 1964-1965 Field Seasons (assembled and edited by David H. Snow). Museum of New Mexico, *Laboratory of Anthropology Notes No. 78*. Santa Fe.

Vivian, R. Gwinn

1959 Los Aguajes (LA 5). Ms. Laboratory of Anthropology, Museum of New Mexico, Santa Fe.

Warren, A. Helene

1969 Tonque: One Pueblo's Glaze Pottery Industry Dominated Middle Rio Grande Commerce. *El Palacio* 76(2):36-42.

1970 Notes on Manufacture and Trade of Rio Grande Glazes. *The Artifact* 8(4):1-7.

- 1976 The Pottery of Pueblo del Encierro. In, *Archaeological Excavations at Pueblo del Encierro, LA 70, Cochiti Dam Salvage Project, Cochiti, New Mexico: Final Report, 1964-1965 Field Seasons* (assembled and edited by David H. Snow). *Laboratory of Anthropology Notes*, No. 78. Santa Fe.
- 1979 The Glaze Paint Wares of the Upper Middle Rio Grande. In *Archaeological Investigations in Cochiti Reservoir, New Mexico*, Vol. 4, edited by Jan V. Biella and Richard C. Chapman. Office of Contract Archaeology, University of New Mexico, Albuquerque.

The Appearance of Chupadero Black-on-White and Red-on-Terracotta Ware in South Central New Mexico

Meade F. Kemrer

The Cedar Well site (LA 35392, LA 72852) is a large Jornada Mogollon village, located on the west slope of the southern San Andres Mountains approximately 50 km northeast from Las Cruces in south central New Mexico. The residences contain jacal and adobe walled structures with associated individual middens. High frequencies of temporally diagnostic ceramics occur in many of the middens, particularly Mimbres Black-on-White. The decorated Mimbres whiteware stylistic series, tied to tree-ring dates from the Mimbres Valley NAN site excavations (Shafer and Brewington 1995), was initially applied to analyze village occupational development. The considerable range of associated pottery types and varieties warranted a refined ceramic crossdating analysis, the topic of this article.

The site exhibits characteristics necessary for crossdating analysis. It has a restricted temporal span, with estimated dating to the A.D. 900-1130/1140 interval. Most important for this study, pottery types dating immediately after A.D. 1130-1140 are absent in the village (in this area, St. Johns Polychrome, Tularosa Black-on-White and Tularosa Corrugated). The site contains 58 middens, a large number of independent observations essential for analysis. Ceramic types found in the trash deposits include: all styles of Mimbres Black-and-White, Mimbres Polychrome, Mimbres Corrugated, Chupadero Black-on-White, Three Rivers and San Andres Red-on-Terracotta, Red Mesa Black-on-White, Playas Red Incised, Wingate Black-on-Red, western Mogollon corrugated, and El Paso brownware including the early Bichrome and Polychrome decorated styles.

Pottery types occurring in sufficient frequencies for analysis include: Mimbres Black-on-White, Mimbres Corrugated, Chupadero Black-on-White and the Red-on-Terracotta Three Rivers and San Andres types. Early El Paso decorated varieties occur in most of the middens. Their occurrence falls within the estimated age of the site, a fact well established in the Jornada area (Miller 1995; Way 1979; Whalen 1980), and so they are not examined here. Red-on-Terracotta decoration fields are usually sparse. Consequently most of the terracotta sherds are undecorated and the varieties were analyzed at the ware level.

There is good reason to submit Chupadero Black-on-White and the Red-on-Terracotta ware to crossdating analysis. Both types occur with Mimbres Black-on-White in this region, but their initial appearances have not been formally correlated with the Shafer and Brewington (1995) calendrical Mimbres Black-on-White stylistic scheme. Crossdating results would produce both refined and consistent age estimates for previous and future Jornada and Mimbres Mogollon studies.

Crossdating analysis utilized the pottery content of 48 intact middens of the 58 trash concentrations identified (Table 1). The tree-ring dated decorated styles and corrugated Mimbres pottery represent the chronological control, and their distribution with Chupadero Black-on-White and Red-on-Terracotta ware among the middens represents the independent dimension.

Table 1. Pottery Types in the Cedar Well Middens.

ID = Midden No., I = Mimbres Black-on-White Style I,

EII = Early Style II,

L II = Late Style II,

II/III = Style II/III,

EIII = Early Style III,

MIII = Middle Style III,

LIII = Late Style III,

Mcorr = Mimbres Corrugated,

Chup = Chupadero Black-on-White,

R/T = Red-on-Terracotta. (both Three Rivers and San Andres varieties).

| ID | I | EII | LII | II/III | EIII | MIII | LIII | Mcorr | Chup | R/T | ID | I | EII | LII | II/III | EIII | MIII | LIII | Mcorr | Chup | R/T |
|----|---|-----|-----|--------|------|------|------|-------|------|-----|----|---|-----|-----|--------|------|------|------|-------|------|-----|
| 1 | | | | | | | X | | X | X | 25 | | | X | | | X | X | X | X | X |
| 2 | | | | | | X | | | | | 26 | | | | | | X | X | | X | X |
| 3 | | | | | | X | | X | | | 27 | | | | | | X | | X | X | |
| 4 | | | | | | X | | | | | 28 | | | | | | X | | X | X | |
| 5 | | | X | | | | X | X | X | X | 29 | | | | | | X | | | X | |
| 6 | | | | | | X | | | | | 30 | | | X | | X | X | X | | X | |
| 7 | | | | | | X | | X | X | X | 31 | | | | | | X | | | X | X |
| 8 | | | | | | X | | | | X | 32 | | | | | | X | | | | |
| 9 | | X | | | | X | | X | | | 33 | | | X | | | X | | | | X |
| 10 | | | | | | X | | | | X | 34 | | | | X | | X | | | X | X |
| 11 | | | X | | | X | | | X | X | 35 | | | | | | X | | | X | X |
| 12 | | | X | | | X | | | | | 36 | | | | | | X | X | | X | X |
| 13 | | | | | X | X | X | X | X | X | 37 | | | | | | X | | | X | X |
| 14 | | X | | | | X | | | X | X | 38 | | | | | | X | | X | X | X |
| 15 | | X | | | X | X | | X | X | | 39 | | | | | X | X | | | X | X |
| 16 | | | X | X | | X | | | | X | 40 | X | | | | | | X | X | X | X |
| 17 | | | | | | X | | X | | | 41 | | | | | | X | | X | X | X |
| 18 | | | X | | X | | | | | | 42 | | | | | | X | | X | X | X |
| 19 | | X | | | | | | | | | 43 | | | X | | | X | | X | X | |
| 20 | | | | | | X | | X | | | 44 | | | | | | | X | | X | X |
| 21 | | | | | | X | | | | | 45 | | | X | | | | | | | |
| 22 | | | X | | | X | | | X | X | 46 | | | | | | X | X | | X | X |
| 23 | | | | | | X | | | X | X | 47 | | | X | | X | X | | | | X |
| 24 | | | | | | X | | | X | X | 48 | X | | | | | X | | X | X | X |

Interaction between the types and styles in a two-way matrix (Table2) contains a number of chronologically related patterns. The table includes the Shafer and Brewington (1995) estimated production calendrical range for the Mimbres Black-on-White styles and Mimbres Corrugated.

Table 2.

Two-Way Matrix Between the Pottery Types and Mimbres Black-on-White Styles in the 48 Middens. Bold Numbers Represent the Frequency of Middens for Each Pottery Type or Style. Mimbres Black-on-White Styles and Mimbres Corrugated Production Spans Are Below.

| | I | EII | LII | II/III | EIII | MIII | LIII | MCorr | Chup | R/T |
|---------------|----------|------------|------------|---------------|-------------|-------------|-------------|--------------|-------------|------------|
| I | 2 | - | - | - | - | - | - | - | - | - |
| EII | 0 | 4 | - | - | - | - | - | - | - | - |
| LII | 0 | 0 | 12 | - | - | - | - | - | - | - |
| II/III | 0 | 0 | 1 | 2 | - | - | - | - | - | - |
| EIII | 0 | 1 | 3 | 0 | 6 | - | - | - | - | - |
| MIII | 1 | 3 | 9 | 2 | 5 | 41 | - | - | - | - |
| LIII | 1 | 0 | 3 | 0 | 2 | 6 | 10 | - | - | - |
| MCorr | 2 | 2 | 3 | 0 | 2 | 14 | 4 | 15 | - | - |
| Chup | 2 | 2 | 6 | 1 | 4 | 26 | 10 | 13 | 30 | - |
| R/T | 2 | 1 | 7 | 2 | 3 | 25 | 9 | 9 | 24 | 29 |

Mimbres B/W I (A.D. 750-900), EII (880-980), LII (970-1020), II/III (970-1020), EIII (1010-1080), MIII (1060-1110) LIII (1110-1130), MCorr (1020-1130) from Shafer and Brewington (1995).

Both Chupadero Black-on-White and the Red-on-Terracotta ware are strongly associated with Late Style III Mimbres Black-on-White at the 90-100% level (Table 2). Secondly, a positive 86-87% occurs with Middle Style III. Interaction with Mimbres Corrugated is more variable with 87% with Chupadero and 60% with Red-on-Terracotta. Therefore, Chupadero Black-on-White and Red-on-Terracotta varieties appear by A.D. 1110 and likely earlier, given the high amount of interaction with Middle Style III and the positive relationship with Mimbres Corrugated.

Data from Tables 1 and 2 provided an initial appearance estimate for Chupadero and Red-on-Terracotta. A strong relationship occurs when using Middle Style III and Mimbres Corrugated and removing those middens containing Late Style III (Table 3).

Table 3. Mimbres Middle Style III and Mimbres Corrugated Associated with Chupadero and the Red-on-Terracotta in Middens Lacking Mimbres Late Style III.

| Association | Mimbres Middle III | % | Mimbres Corrugated | % |
|------------------------|---------------------------|----------|---------------------------|----------|
| Chupadero Only | 5 | 14% | 4 | 33% |
| R/T Only | 5 | 14% | 0 | 0% |
| Both Chupadero and R/T | 15 | 43% | 4 | 33% |
| No Chupadero and R/T | 10 | 29% | 4 | 33% |
| Midden Totals | 35 | 100% | 12 | 100% |

Independently, both Middle Style III (25 of 35 middens) and Mimbres Corrugated (8 of 12 middens) respectively exhibit a 71% and 67% association with Chupadero and the Terracotta ware in middens that likely predate A.D. 1110.

Earlier Mimbres Black-on-White styles found in the middens bracket the appearance of Chupadero and Red-on-Terracotta. There is evidence for pottery mixing with earlier occupations (Table 2), but nonetheless three early middens (Middens 18, 19, 45 in Table 1) date to Early and Late Style II (A.D. 880-1020). None of these early middens contains Chupadero and Red-on-Terracotta and thus they all probably predate their appearance. Four middens (Nos. 15, 18, 39, 47) contain Early Style III (A.D. 1010-1080) and lack Late Style III (Table 1). Three of these contain Middle Style III (A.D. 1060-1110) with Chupadero only, Red-on-Terracotta only, and both. The fourth is apparently earlier and does not contain Chupadero or Red-on-Terracotta. The temporal overlap range between Early III and Middle III is 20 years (A.D. 1060-1080). These data suggest that both types initially appeared within the A.D. 1060-1080 interval, and by A.D. 1080, in Middle Style III times, Chupadero B/W and Red-on-Terracotta ware became increasingly frequent within the site.

This study produced two important results. The site wide distribution of Chupadero Black-on-White and the Red-on-Terracotta ware exhibits a synchronous occurrence in the Cedar Well site. Analysis indicates that both types were present at least by A.D. 1080 and likely somewhat earlier, with substantially higher incidence throughout the site by A.D. 1100. By A.D. 1110, virtually all of the occupants were using Chupadero and Red-on-Terracotta pottery.

The appearance of Red-on-Terracotta ware and Chupadero Black-on-White in the Cedar Well site has regional implications. Both types were initially produced in the Sierra Blanca area, southeastern New Mexico (Hayes 1981; Mera 1931; Mera and Stallings 1931; Stewart 1983; Wiseman 1986). Recent Instrumental Neutron Activation Analysis (INAA) analysis securely identified only two Chupadero major manufacturing areas: the Sierra Blanca area and further north in the Salinas District (Creel, et al 2002). Sierra Blanca was the likely source of Chupadero Black-on-White from Cedar Well based on their maps (Creel, et al 2002:123-127). The high incidence of both pottery types indicates a strong relationship between the occupants of the Jornada Basin Cedar Well site and neighboring areas to the east and northeast at least 100 km distant. This relationship persisted to terminal puebloan occupation in this portion of the southern San Andres Mountains at A.D. 1350-1400 (Kemrer 2006).

An earlier relationship with their Mimbres neighbors to the west is evidenced by the entire Mimbres Black-on-White stylistic series found on Cedar Well. Numerous Mimbres sites, including the Rio Vista (a.k.a. Garfield) village containing at least 100 rooms (Mayo 1994), are located in the Rio Grande valley, and Rio Vista is directly 60 km west from Cedar Well. Our site database demonstrates the strength of this relationship. Six additional extensive villages on the flanks of the southern San Andres Mountains manifest Mimbres Black-on-white incidence comparable with Cedar Well. An Instrumental Neutron Activation Analysis (INAA) study of Mimbres Black-on-White sherds from three Jornada and two neighboring Mimbres sites confirmed this relationship. Sherds from Jornada Cedar Well and Bruton Bead (LA 30645, LA 35269) sites were produced in the Mimbres Garfield site area (Speakman and Glascock 2005).

People at the Cedar Well site and neighboring villagers likely played a developmental role in the Mimbres area. The presence Chupadero Black-on-White, Red-on-Terracotta ware, Playas Red ware, early El Paso decorated and other pottery types in late Mimbres sites is one of several site characteristics postulated to signal reorganization (Hegmon et al 1998, 1999). In the southern Mimbres Valley, initial reorganization, the Terminal Classic Phase, is estimated to begin at or about A.D. 1130 through the late 1100s when most villages were depopulated. The Eastern Mimbres area, that includes sites directly west of the southern San Andres Mountains, underwent complete reorganization during the Postclassic Mimbres Period, estimated to be within the A.D. 1150-early 1200s interval (Hegmon et al 1999).

Crossdating analysis indicates that the Terminal Classic Phase and the early portion of the Postclassic Mimbres Period began at least 20 years earlier than previous estimates suggest. Accepting a conservative date of A.D. 1110 when Chupadero Black-on-white and Red-on-Terracotta appeared in Mimbres sites eliminates certain ambiguous Mimbres reorganization explanations. This date falls within the well-established Mimbres Black-on-White production period. Reorganization likely began in the A.D. 1110s or slightly earlier and thus eliminates the argument that required extending Mimbres whiteware manufacturing span or accepting large "heirloom" Mimbres ceramic assemblages in Terminal or Postclassic occupations, a problem that Shafer (1999, 2003) noted. Additionally, Mimbres villages were occupied in the Mimbres Valley and the eastern Mimbres areas during the A.D. 1110-1130/1140 interval when the reorganization process was occurring. This revised chronology implies that Terminal Classic and early Postclassic Mimbres occupations as integrated village histories rather than separate occupations, as Creel (2006) recently concluded at Old Town. It also ties late Mimbres village depopulation with reorganization. Mimbres out-migration and the presence of exotic ceramic types in late Mimbres sites link to the formation of a new set of stronger and expanded regional relationships, an important part of the reorganization process.

Acknowledgements:

Our work was performed as volunteers to the Environment Stewardship Division, White Sands Missile Range (ES-WSMR). We thank ES-WSMR archaeologists Mike Mallouf and Jim Bowman and Bureau of Land Management archaeologist, Tom Holcomb, for their support. I greatly appreciate the comments on an earlier draft of this document by Darrell Creel, Pat Gilman, Karl Laumbach, and Reg Wiseman.

References

- Creel, Darrell
2006 Excavations at the Old Town Ruin, Luna County, New Mexico, 1989-2003. Bureau of Land Management, Cultural Resources Series 16, Santa Fe.
- Creel, Darrell G., Tiffany C. Clark, and Hector Neff
2002 Production and Long-Distance Movement of Chupadero Black-on-White in New Mexico and Texas. In *Geochemical Evidence for Long-Distance Exchange*, edited by Michael D. Glascock, pp.109-132. Bergin and Garvey, Westport.
- Hayes, Alden C.
1981 Excavation at Mound 7, Gran Quivira National Monument, New Mexico. National Park Service Publications in Archaeology, No. 16. Washington, D.C.
- Hegmon, Michelle, Margaret C. Nelson and Susan M. Ruth
1998 Abandonment and Reorganization in the Mimbres Region of the American Southwest. *American Anthropologist* 100(1): 148-162.
- Hegmon, Michelle, Margaret C. Nelson, Roger Anyon, Darrell Creel, Steven A. LeBlanc, and Harry J. Shafer
1999 Scale and Time-Scale Systematics in the Post-A.D. 1100 Mimbres Region of the North American Southwest. *Kiva* 65(2): 143-166.
- Kemrer, Meade F.
2006 Terminal Puebloan Occupation: An Example from South Central New Mexico. Paper presented at the 2006 Mogollon Conference 12-14 October, 2006, Tucson.
- Mayo, Jill
1994 Garfield revisited: Further Research on a Mimbres Site in the Southern Rio Grande Valley. Unpublished Master's Thesis, Department of Sociological and Anthropology, New Mexico State University, Las Cruces.
- Mera, H. P.
1931 Chupadero Black-on-White. Laboratory of Anthropology, Archaeological Survey, Technical Series, Bulletin 1, Santa Fe.
- Mera, H. P., and Stallings W. S., Jr.
1931 Lincoln Black-on-Red. Laboratory of Anthropology, Archaeological Survey, Technical Series, Bulletin 2, Santa Fe.
- Miller, Myles R.
1995 Ceramics of the Jornada Mogollon and Trans-Pecos Regions of West Texas. in *Prehistoric and Historic Aboriginal Ceramics in Texas* by Timothy K. Perttula, Myles R. Miller, Robert A. Ricklis, Daniel J. Prikryl, and Christopher Lintz. *Bulletin of the Texas Archaeological Society* 66: 175-235.

Shafer, Harry J.

1999 The Mimbres and Postclassic: A Case for Discontinuity. In *The Casas Grandes World* edited by Curtis F. Schaafsma and Carroll L. Riley, pp 121-133. University of Utah Press, Salt Lake City.

2003 *Mimbres Archaeology at the NAN Ranch Ruin*. University of New Mexico Press, Albuquerque.

Shafer, Harry J. and Robbie L. Brewington

1995 *Microstylistic Changes in Mimbres Black-on-White Pottery: Examples from the NAN Ruin, Grant County, New Mexico*. *Kiva* 61 (1): 5-29.

Speakman, Robert J. and Michael D. Glascock

2005 *Instrumental Neutron Activation Analysis Garfield, Hatch, Bruton Bead, Jaggedy and LA 35392 Sites, South-Central New Mexico*. Missouri University Research Reactor, Archaeometry Laboratory, University of Missouri, Columbia.

Stewart, Joe D.

1983 *Structural Analysis of Three Rivers Redware Designs*. *Kiva* 49 (1-2): 39-65.

Way, Karen L.

1979 *Early Pueblo Occupation in the Southern Tularosa Basin, New Mexico*. in *Jornada Mogollon Archaeology: Proceeding of the First Jornada Conference*, edited by Patrick H. Beckett and Regge N. Wiseman, pp 41-51. New Mexico State University, Las Cruces.

Whalen, Michael E.

1980 *The Pueblo Periods in South-Central New Mexico*. In *Archeological Synthesis of South-Central and Southwestern New Mexico*. edited by Steven A. LeBlanc and Michael E. Whalen, pp387-448. Office of Contract Archeology, University of New Mexico, Albuquerque.

Wiseman, Regge N.

1986 *Origins of Chupadero Black-on-White*. Albuquerque Archaeological Society, Technical Note 2, Albuquerque.

On the Shelf

Talking with the Clay, 20th Anniversary Revised Edition

The Art of Pueblo Pottery in the 21st Century

Stephen Trimble

When you hold a Pueblo pot in your hands, you feel a tactile connection through the clay to the potter and to centuries of tradition. You will find no better guide to this feeling than *Talking with the Clay*. Stephen Trimble's photographs capture the spirit of Pueblo pottery in its stunning variety, from the glittering micaceous jars of Taos Pueblo to the famous black ware of San Ildefonso Pueblo, from the bold black-on-white designs of Acoma Pueblo to the rich red and gold polychromes of the Hopi villages. His portraits of potters communicate the elegance and warmth of these artists, for this is the potters' book. Revealed through dozens of conversations, their stories and dreams span seven generations and more than a century, revealing how pottery-making helps bridge the gap between worlds, between humans and clay, springing from old ways but embracing change. In this revised, expanded, and redesigned edition, Trimble brings his classic into the twenty-first century with interviews and photographs from a new generation of potters working to preserve the miraculous balance between tradition and innovation.

<http://sarpress.sarweb.org/sarpress>

Craft Production in Complex Societies: *Multicraft and Producer Perspectives*

Edited by **Izumi Shimada**

ISBN 978-0-87480-921-3

The study of craft production is a complex and challenging one that illuminates key aspects of the material, organizational, and ideological interests, values, and capacities of a given culture.

Many crafts are treated as separate, but are actually practiced concurrently and in close proximity to each other, facilitating crucial interaction. There is a need for a balanced evaluation of the roles of producer and consumer in craft production, and the importance of properly contextualized workshop excavations and the definition of the entire sequence of operation in documenting craft production both as a social and material process.

Craft Production in Complex Societies redresses the skewed conception and approach to craft production that have been shaped by studies focused on separate, single medium crafts, finished products, and the consumer. It presents case studies and regional syntheses from diverse geographical areas, time periods, and sociopolitical complexities that break important new ground in the anthropological study of the creative role and social identity of the producer and multi-craft production. It is expected to serve as a key reference in craft studies for many years to come.

Izumi Shimada is professor of anthropology at Southern Illinois University, Carbondale

Contributors

Gary M. Feinman, The Field Museum

David J. Goldstein, Southern Illinois University, Carbondale

Takeshi Inomata, University of Arizona
William H. Isbell, Binghamton University
Jonathan Mark Kenoyer, University of Wisconsin, Madison
Yung-ti Li, Academia Sinica, Taipei
Heather M.- L. Miller, University of Toronto
Barbara J. Mills, University of Arizona
Linda M. Nicholas, The Field Museum
Susan Elizabeth Ramírez, Texas Christian University
Barbara L. Stark, Arizona State University
Peter S. Wells, University of Minnesota
<http://www.uofupress.com/store/product363.html>

Heritage Management

Editors: Kelley Hays-Gilpin and George Gumerman IV, Northern Arizona University
Semi-annual in March and September, 288 pages per volume
First Issue: March 2008

Heritage Management is a global, peer-reviewed journal that provides a venue for using scholarly, professional, and indigenous knowledge to address broader societal concerns about managing cultural heritage. We address issues of resource management, cultural preservation and revitalization, education, legal/legislative developments, public archaeology, and ethics. The journal presents an engaging forum for those who work with governmental and tribal agencies, museums, private CRM firms, indigenous communities, and colleges and universities. It facilitates a multivocal arena for disseminating and critically discussing cultural heritage management issues collaboratively among professionals and stakeholders. *Heritage Management* will include peer-reviewed research on policy, legislation, ethics, and methods in heritage management and will showcase exemplary projects and models of public interpretation and interaction. A peer-reviewed Forum section presents position statements and responses on key current issues. The journal also includes reviews of books, web pages, exhibits, and resources in various media.

Submission Guidelines: *Heritage Management* welcomes submission of original manuscripts of no more than 30 double spaced pages that focus on management of the world's heritage resources. All manuscripts are subject to anonymous peer review by knowledgeable scholars and professional practitioners and, if accepted, may be subject to revision. Materials submitted to HMJ should not be under consideration by other publishers, nor should they be previously published in any form. Submissions should include an original manuscript sent via email in MS Word or RTF format to Heritage.Management@nau.edu. Manuscripts should be submitted with low resolution illustrations that can be easily be transmitted via email They should include a title page that has the article title, names and full contact information of all authors; and an abstract of no more than 200 words.

Manuscript style generally should conform to Society for American Archaeology Style Guide <http://www.saa.org/Publications/StyleGuide/styframe.html>. Non-conforming manuscripts will be returned to the author(s) for revision. Additional details concerning preparation of final

manuscripts accepted for publication can be located at www.LCoastPress.com
<http://www.lcoastpress.com/> or from the editors.

For other questions and correspondence, contact one of the co-editors at Kelley.Hays-Gilpin@nau.edu or George.Gumerman@nau.edu.

Editorial Board (Still in formation)

Don D. Fowler, Forum Editor

Stephanie Whittlesey, Reviews Editor

Jeffrey H. Altschul, Statistical Research Foundation

Caryn M. Berg, SWCA Environmental Consultants

Reinhart Bernbeck, SUNY Binghamton

Elizabeth Bradshaw, Rio Tinto

Joelle Clark, Northern Arizona University

Donald Craib, Craib Law Office

William Doelle, Desert Research

Brian Fagan, University of California Santa Barbara

Susan Forbes, Te Papa Museum, New Zealand

Steve Hemming, Flinders University

Andrea Hunter, Osage Nation, Oklahoma

John Kantner, School for Advanced Research

Anne Killebrew, Pennsylvania State University

Jeannie Moe, Montana State University

Webber Nodoro, ICCROM

George Nicholas, Simon Fraser University

Charles Niquette, Cultural Resource Analysts Inc.

Kevin Pape, Gray & Pape

Veronica Perez-Rodriguez, Northern Arizona University

Lynne Sebastian, Statistical Research Foundation

Neil Silberman, Ename Center, Belgium

Helaine Silverman, University of Illinois, Urbana-Champaign

Wendy Teeter, Fowler Museum at UCLA

Robin Torrence, Australian Museum

David S. Whitley, ICOMOS

Saving Places that Matter: A Citizen's Guide to the National Historic Preservation Act

Thomas F. King Published October 2006, 256 pp, \$24.95 paperback

They're going to wipe out your neighborhood or drive you off your ranch to put in a transit station or a surface mine. How do you stop it? Tom King, renowned expert on the heritage preservation process in the United States, explains the ins and outs of Section 106 of the National Historic Preservation Act and how it can be used to protect special places in your community.

King shows the scope of the law, how it is often misinterpreted or ignored by government agencies and developers, and how to use its provisions to force others to pay attention to your concerns. He explains the quirky role of the National Register of Historic Places and the importance of consultation in getting what you want. King provides you with examples of how

people like you can use the Section 106 process to stop wanton development, and encourages you to do the same. "No one understands the section 106 review process as well as Tom King does! His many years of experience and esoteric understanding of the 106 review process are unparalleled. Tom's expert advice on steering us through this maze of regulations has been invaluable in trying to save Abó Canyon and our traditional ranching way of life from the ravages of a very destructive train-tracking project" -*Jean Sawyer-Rosas & Luis Rosas, Dripping Springs Ranch, New Mexico*

"Without Dr. Thomas F. King's intellect, understanding, passion and informative books concerning the intricacies of U.S. preservation law, there would be no hope for average citizens to understand the complex/destructive world of the developer, their manipulation of the National Historic Preservation Act, 106 Review, mis-use of state/federal agencies, departments of transportation, Army Corps of Engineers, state and local planners for the most profitable assault on the American people since the ruthless days of the robber barons... It is my hope that Dr. King's experiences will help all people begin to understand what we are losing every day in the name of progress." -*David W. Blake, Buckland, Virginia, Preservation Society*
<http://www.LCoastPress.com> ISBN: 978-1-59874-084-4 (c), 978-1-59874-085-1



Publications available from the Albuquerque Archaeological Society

Bice, Richard A., Phyllis S. Davis, and William M. Sundt

2003 AS-5 Indian of Mining of Lead for use in Rio Grande Glaze Paint. Albuquerque Archaeological Society. Albuquerque

From the Foreword

"Although three decades have passed between the beginning of the Albuquerque Archaeological Society's field work and the completion of this report, this report is still an historic first not just for New Mexico but for the entire country. This is a major milestone in archaeology, the first recorded excavation of a prehistoric lead and early historic lead/silver mine in the United States of America.

"Lead isotope studies have demonstrated that Rio Grande Pueblo potters almost exclusively used galena (lead) from the veins within 800 meters of the Bethsheba mine in the early 14th century (Habicht-Mauche, et al., 200, 2002). This report and the work conducted by Warren (1974) confirm that the Bethsheba and/or other veins within one-half mile were mined by AD 1300. . . ."

"This report is also the first published report on the excavation of a Spanish or Mexican silver/lead or lead mine in the country." Homer E. Milford, Abandoned Mine Lands Bureau, New Mexico Mining and Minerals Division.

Paperback: \$22.00 plus \$3.50 shipping and handling, CD in pdf format: \$12. Please make checks payable to: The Albuquerque Archaeological Society, P. O. Box 4029, Albuquerque, NM 87196
Bice, Richard A., Phyllis S. Davis, and William M. Sundt

1998 The AS-8 Pueblo and The Canada de las Milpas: A Pueblo III Complex in North-Central New Mexico. Albuquerque Archaeological Society. Albuquerque

From the Foreword

"This volume is the latest in a long series of important contributions made by the Albuquerque Archaeological Society over the past 30 years. The project which is reported here involved excavations at a 13th century Anasazi pueblo and investigation of the larger community of which it was a part. Excavations focused on AS-8, a 46 room pueblo located near San Ysidro, New Mexico. AS-8 is the largest site in a cluster of mostly contemporaneous farmsteads which includes at least 48 other architectural sites located along a two mile long portion of Cañada de las Milpas. This cluster appears to represent a distinct community, and AS-8 is the preeminent site within the cluster. Several lines of evidence suggest that initial settlement in this area occurred around AD 1160, and that occupation continued until around 1305, with the period of most intensive occupation about AD 1245. . . .

"The cornerstone of the analytical and interpretive sections of the report is an innovative ceramic seriation. . . . The ceramic seriation is combined with other lines of evidence to infer the construction sequence at AS-8 and the settlement history of the community as a whole." John R. Roney, Albuquerque.

Paperback: \$22.00 plus \$3.50 shipping and handling, CD in pdf format: \$12. Please make checks payable to: The Albuquerque Archaeological Society, P. O. Box 4029, Albuquerque, NM 87196

On View

On the World Wide Web

There are many valuable resources now available on the World Wide Web. Here are just a very few relating to Southwestern pottery. Please feel free to send your suggestions and/or comments for inclusion in future issues of *Pottery Southwest*.

Arizona State Museum online

Some 20,000 Southwest Indian whole-vessel ceramics combine to form the focus of ASM's POTTERY PROJECT. Spanning 2000 years of life in the unique environments of the American desert Southwest and northern Mexico, the collection reflects almost every cultural group in the region. This collection - the largest and most comprehensive of its kind - is one of the nation's most significant cultural resources. It has been designated an Official Project of the *Save America's Treasures* program, a public private partnership between the White House Millennium Council and the National Trust for Historic Preservation to celebrate and preserve our nation's cultural legacy. (<http://www.statemuseum.arizona.edu/exhibits/pproj/index.asp>)

Logan Museum of Anthropology

The Logan Museum of Anthropology at Beloit College in Beloit, Wisconsin, possesses a superb collection of artifacts from the ancient Southwest. The vast majority were collected during excavations undertaken by the Museum in the 1930s under the direction of Paul Nesbitt. From 1929 to 1931, field work was done at the Mattocks Ruin in the Mimbres Valley of New Mexico resulting in an extensive collection of pottery and other artifacts from the Mimbres people. From 1931 to 1939 focus shifted to another group of Mogollon sites in the Reserve area of New Mexico. Work at the main site, the Starkweather Ruin, was supplemented by exploratory digs at the Hudson and Wheatley Ridge Ruins. These sites yielded a large number of Mogollon artifacts of all types. To these were added extensive surface sherd collections from important sites all over the Southwest. (<http://www.beloit.edu/~museum/logan/>)

Lowell D. Holmes Museum of Anthropology

"Through the Eyes of the Pot: A Study of Southwest Pueblo Pottery and Culture, The Morgan Collection of Southwest Pottery" Wichita State University, Wichita, Kansas
In 2002, the Lowell D. Holmes Museum of Anthropology at WSU received more than 100 Southwest Pueblo pots and a large library of related books from WSU alumnus Jack Morgan. On the Web site, the photographs of 109 pots, most of which are from the Morgan collection, can be rotated 360 degrees. The site also contains biographies of 54 potters represented in the collection, and the history of the pueblos where the pots were made. Many of the pots were made by well-known Pueblo artists. (<http://www.holmes.anthropology.museum>)

MISSION STATEMENT

Pottery Southwest is a scholarly journal devoted to the prehistoric and historic pottery of the Greater Southwest, (<http://www.unm.edu/~psw>) that provides a venue for professional and avocational archaeologists to publish scholarly articles as well as providing an opportunity to share questions and answers. This highly respected journal makes publishing more accessible for younger scholars and practicing archaeologists. *Pottery Southwest* regularly features information about new publications and exhibitions relating to prehistoric and historic pottery of the Greater Southwest. Published by the Albuquerque Archaeological Society from 1974 to 1996, it was revitalized on the World Wide Web in 2004. *Pottery Southwest's* website is hosted by the Maxwell Museum of the University of New Mexico.

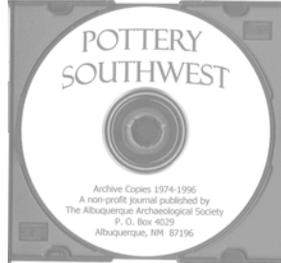
SUBMISSIONS TO POTTERY SOUTHWEST

The availability of *Pottery Southwest* in electronic format creates opportunities for communicating with a wide audience in a sophisticated manner. It also creates formatting challenges far beyond those of printing and/or photocopying. Some of our contributors have requested that we provide guidelines for submissions. Readers with dial-up connections have requested that we keep the size of the publication under 1,000 KB. Following are some tips on how to make this electronic transition as painless as possible:

| | |
|---|--|
| Author Information | Please include all the information you want in the publication including your contact information so that readers may contact you directly. |
| Length of Paper (word count) | Major papers should try to be in the range of 3,000 to 5,000 words or a maximum of 30,000 characters counting spaces. (To find out the length of your paper in MS Word go to Tools and click on Word Count.) Inquiries and Updates as well as dissertation abstracts and notices should be in the 500 to 1,500 word range. |
| Page Margins | Top, bottom, left and right margins should all be 1 inch. |
| Headers and Footers | Please note that any headers and footers will be removed before inclusion in the complete issue. It is best not to include them in your submission. |
| Font Type and Size | Our preferred font and size is Times New Roman, 12 point. |
| Spelling and Grammar | Please be certain to use the spell check and grammar check features of your word processor before submission. Authors are responsible for the accuracy of their work. |
| Paragraph Format | Paragraphs should be single space, flush left, double space or 12 points between each paragraph. |
| Images (number & pixels) | Please limit all images to 640 x 480 pixels maximum in jpg. Whenever possible please try to limit the number of images to no more than six. Images should be submitted as a separate file as well as within the document. When lining up images the easiest way is to create a table and insert the image into a cell. The row below the image can be used for its label. This is much easier than trying to line up text under an image. To learn more about size see http://www.microscope-microscope.org/imaging/image-resolution.htm . |
| Text Boxes | We recommend avoiding text boxes; use a table format instead. |
| Format Of Spreadsheets, Tables, etc. | Importing spreadsheets, pie charts, etc. from Excel into a Word document should not present a problem. However, if you do this, please send us a separate copy of what you use so that we may assure that the transition works smoothly. |
| Bibliographies | In order to make formatting go smoothly, we are requesting that bibliographies not include any tabs or spaces to make text line up. This causes havoc for conversions. Thus, please follow this format: Author (last name, first name) year title, etc. We will insert hanging indents so that the text lines up properly. |
| Tips On Using Ms Word | If you are in doubt as to where paragraph returns, tabs and/or spaces have been used to line up text in your document, click on the paragraph symbol in your tool bar at the top of your screen. This will reveal where these formats have been used. |

Over the summer we may change our internet service provider. In the interim "Camera ready" submissions should be sent to psw@unm.edu with a copy to pottery_southwest@hotmail.com. Finally, please don't be shy about contacting us if you have questions about submissions; we'll be happy to help. Your contributions are needed to keep *Pottery Southwest* viable. Additional formatting tips are at SAA's site at <http://www.saa.org/publications/Styleguide/styframe.html>.

ORDER FORM
for POTTERY SOUTHWEST
1974-1996 Archive CD



TO: *Pottery Southwest*
 c/o Albuquerque Archaeological Society
 P. O. Box 4029
 Albuquerque, NM 87196

| Number of CDs | Send to PLEASE PRINT CLEARLY | Price per CD | Total |
|------------------|---|---|-------|
| | Name: _____ Address: _____ City: _____ State: _____ Zip Code: _____ E-Mail (optional): _____ | \$5.00 for AAS members and students | |
| | Name: _____ Address: _____ City: _____ State: _____ Zip Code: _____ E-Mail (optional): _____ | \$7.50 for non- members | |
| | AMOUNT ENCLOSED: | \$ _____ | |

YOUR NAME & ADDRESS (if different from above):

Name: _____

Address: _____

City: _____ State: _____ Zip Code: _____

E-Mail (optional): _____