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In This Issue

Two articles by Paul T. Kay and Gordon F.M. Rakita, respectively, lead off this issue along with Dr. Rakita's "Prehistoric Ceramics from Northwestern Chihuahua: Annotations of Selected Works (from 1828 to 1958)." New features include "Recent Dissertations and Theses" with abstracts by permission from Proquest, "On the Shelf" that covers some recent publications of interest, and "On View" that includes current and upcoming museum exhibits and websites displaying Southwestern pottery collections. Our feature entitled "Inquiries and Updates" continues. Finally, we are providing 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 35 for how-to).

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EDITORS: M. Patricia Lee, David A. Phillips, and Christine S. VanPool
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Reflected-Light Petrography Identifies Precursor Iron-Bearing Minerals of Post-Fired, Prehistoric Ceramics in the Southwestern USA

Paul T. Kay

Knowledge of the natural products used by prehistoric artisans can enhance our appreciation of their collection and acquisition strategies of regional raw materials and subsequent applications. Yellow minerals collected and curated by professional archaeologists in the Four Corners region of the southwestern USA have generally been described as ocher, yellow ocher or limonite. A search of the pertinent literature provided little clarification. To better understand the nature of these materials, a series of comprehensive, multidisciplinary characterizations were undertaken by the author and his collaborators resulting in the identification of goethite (FeOOH-iron oxyhydroxide) and jarosite ($KFe_3(SO_4)_2(OH)_6$- iron sulfate) species. These findings together with other archaeological data link their use in some prehistoric ceramic production.

These earlier studies of selected, provenienced, raw materials and artifacts applied powder x-ray diffraction (XRD) to establish mineralogy augmented with scanning electron microscope/energy dispersive spectra (SEM/EDS) including dot mapping to identify *element chemistry* and backscatter to observe *metallics* described in (Kay 2005b), (Kay et al 1999), (Kay et al 1996) and (Kay and Phagan1993). Laser Ablation Inductive-Coupled Plasma Mass Spectroscopy (LA-ICP-MS) was used on selected specimens in 1994 to study *trace elemental chemistry*. This study, using reflected-light petrography, *revealed the precursor iron-bearing minerals of post fired prehistoric ceramic specimens* (Kay 2005a).

An anomaly was observed, in 1994, while collecting lean-sample XRD data from a Tsegi Polychrome sherd--bright orange, deep red and jet black, Figure 1.

Figure 1. Collective photo of the sherds and pigments used in this study: Center, Tsegi "B" yielded photomicrographs 3B, 3C and 3D. Top, 4-Mile yielded same as 3C. Right, Tohatchi yielded 3A. Bottom, 1994 Replica with black yielded 3F and Left, modern 'earthy' goethite. Photo by the author.

Small samples, taken from these sherds, were subjected to temperatures as high as 900 degrees C with no color change which was expected. The XRD spectra of the deep red yielded an

identification for hematite (Fe_2O_3 iron oxide also called red ocher) and exhibited a uniform shift in all the *relevant d-spacing* (the diagnostic reflection angle principle of XRD) of approximately plus .5 degrees two-theta. This shift suggested that the instrument was not adequately calibrated. However, recalibration showed this was not the case. Close examination of the other XRD data showed a similar shift in the orange material, also identified as hematite. Evidently, these materials differed in some way from the published Joint Committee of Powder Diffraction Standards stick files (JCPDS 1991). But no shifting was observed in the XRD for the black established as major hematite, Figure 2. Although this black specimen contained minor manganese (Mn), suspected by some investigators of influencing 'blackness', other equally black samples did not. Further studies showed that other samples of raw materials were variable. Some having Mn others not, perhaps a sourcing potential for prehistoric raw material locales.

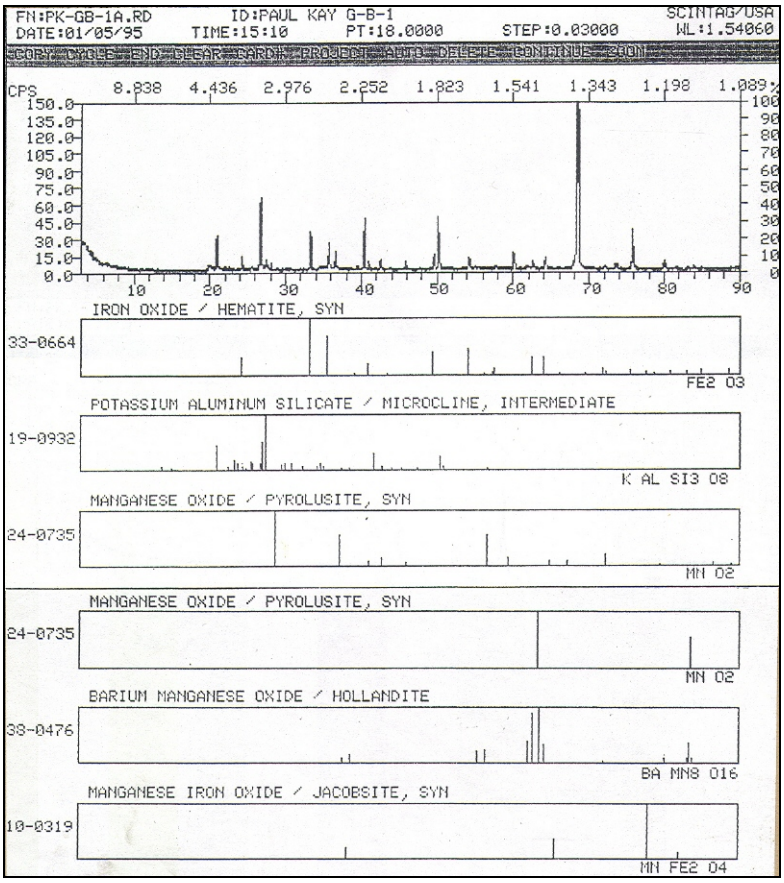


Figure 2. XRD SPECTRUM OF FIRED BLACK WITH STICK FILES FOR IDENTIFICATION

To attempt a resolution to several questions raised by these observations such as how this hematite could be black, why high heat (1000°C) didn't alter any colors, why the shifting in the d-spaces, and what prehistoric uses might goethite and jarosite have, I contacted Richard L. Reynolds, PhD geologist with the USGS-Denver in 1996 who suggested that the black was hematite based upon my data and that particle size influences the color appearance. He had no explanation for the d-spacing question. In an effort to clarify these issues, Reynolds donated a

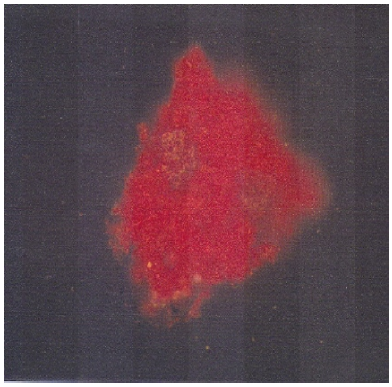
preliminary investigation of these and other samples using the methodology reflected-light using a petrographic microscope.

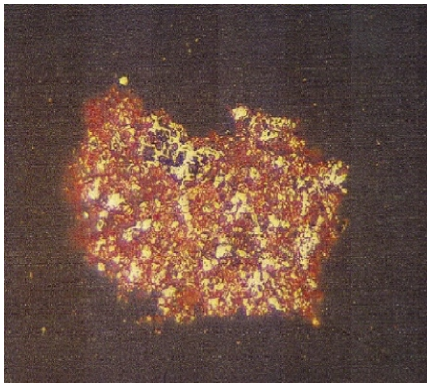
METHODS

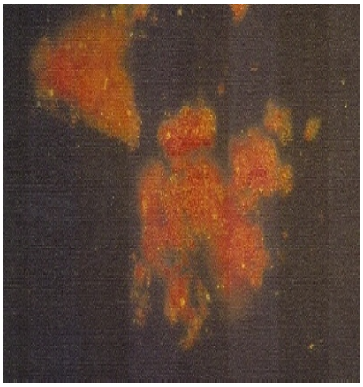
Small samples of all colors were scraped from the various archaeological sherds and the raw goethite (Figure 1), then collected in small vials. These were provided to a specialist who mounted them in dime sized holders containing epoxy then allowed to cure and then polished. The replica was made during the interim from a Fence Lake clay (XRD strong goethite) and beeweed for design. The Tochatchi R/Br is a control as its design is rendered with hematite (XRD this study). The polished mounts were placed upon the stage of a petrographic microscope equipped with an oil immersion objective (readily available in most geology departments) and the resultant reflected images photographed, Figures 3A-3F. Clay bodies (pastes) were not studied.

RESULTS

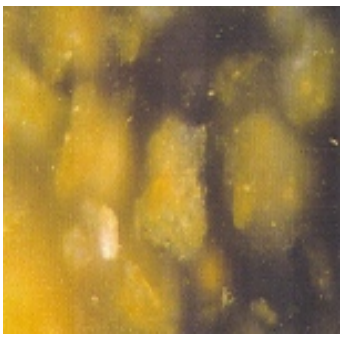
The resultant visual data in Figure 3 is consistent with goethite firing to red/orange. If the observed reflected light image is DEEP RED, the precursor was hematite, see 3A. If ORANGE the precursor was goethite, see 3C, 3D and 3F. If CREAM mixed with RED the black precursor was specular hematite, see 3B. The unfired goethite remains (as when collected) greenish-yellow 3E and Tusayan was the same. The *replica* 3F was slipped with goethite clay, which turned red during oxidation and its orange reflected light image demonstrates the transformation. These tones have a range in slips and paints. These results are seen through the microscope and need not be photographed and the polished mount remains archival.

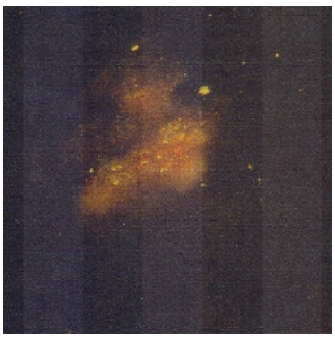






3A-Ruby Red of red painted stripe on Tohatchi R on Br	**3B**-Cream color is specular hematite of Tsegi jet black	**3C**-Orange/red is the orange on Tsegi "B"





3D-Bright orange is the deep Red on the Tsegi "B"	**3E**-Yellow-green is the raw **Unfired** earthy goethite	**3F**-Orange-red is the reddish of fired goethite REPLICA

Figure 3
Scale: Approximately 60 microns in horizontal field-of view.
Photomicrographs 3A – 3F by Richard L. Reynolds, USGS-Denver and the author.
Note: 3A, 3B, 3C, 3D and 3F are ***FIRED***

DISCUSSION

Two large examples of archaeological goethite were studied previously, one grapefruit size ball found in a dry cave near Van Horn ('the yellow ball of Texas'), Texas by Luther Wheate (Joe Ben Wheat's brother) and one fist size chunk from an excavated rock shelter with yellow images from Glen Canyon, Utah. Some clays collected and fired appeared to be a source for orange (personal communication, 1994). Numerous small specimens of archaeologically collected goethite and jarosite were found in the University of New Mexico's Office of Contract Archaeology (OCA) study and given limited characterization, were not associated with use.

One sample in this analysis is an extremely rare, late Tusayan Polychrome from Long House Valley, Arizona (not shown). It is an unfired sherd with a yellow slip identified, as goethite and a black stripe identified as hematite, using XRD. This specimen was provided on loan through the Museum of Northern Arizona for destructive analysis. This is direct evidence that some prehistoric ceramists created red/orange wares and red/orange designs by using goethite in an oxidizing firing, as suggested in 1929 by Florence Hawley (data unknown to me prior to 1997) and demonstrated experimentally as part of this study.

"Goethite . . . is the most abundant of the iron oxyhydroxides and the most stable" (Waychunas 1991:33). However, some cave deposits of goethite are partially changed to red apparently from fires in adjacent rat middens (Fred Luizer 2003). Occasional lightening-strike generated coal seam fires partially alter adjacent goethite outdrop deposits, turning some yellow to red (Donald Davis, personal communication). Some European Paleolithic cave reds as early as Magdalenian are thought to be prepared from yellow hydroxides (Minzoni-Déroche et al 1995 and Pomiès et al 1999) . Archaeological ocher from a Natufian era cave and modern processing experiments using local materials that alter to red when heated were reported by Weinstein-Evron and Shimon (1994). For a modern example see the photo presentation by Jakka (1996). Variability

(substitution) in constituent chemical elements within the given goethite collected appears to help determine the 'redness/orangeness'.

Numerous examples of natural occurring hematite are in the archaeological record and found in the southwest and elsewhere. However, hematite does not yield a fresh, bright looking color when fired, but rather that of dried blood by comparison-see the Tohatchi in Figure 1. Because of the visual similarity to blood and the notion that blood was used in some paints, I conducted experiments with rare, unfired, red painted, archaeological sherds in 1995 with Richard Marlar's assistance at the Veteran's Administration's Hospital-Denver using Hemoccult®, but found no evidence for hemoglobin. However, some replicators have experimented with blood successfully. While the reason for using yellow materials that fires to red may be practical such as much more readily available than hematite, I suggest that the *color transformation* is inextricably linked to the entire belief system (spiritual and epistemological) of many ceramic producing cultures over time. I hypothesize that these decorated ceramics were not just efforts to achieve nice reds and oranges, but were significant to the prevailing oeuvre. Decorated ceramics are not just a class of objects or crafts, but rather are a probable relevant, inextricable link for these peoples with, for example, 'old clay woman'.

SUMMARY

It appears that many prehistoric red/orange wares and red/orange design elements are made from goethite species with variability extending to numerous clays that worked for the potters. Additionally, occasional cubic shapes are seen in this study set suggesting perhaps jarosite was added or co-mingled; jarosite will fire brilliant red in oxygen. Some jet blacks were made from *specular hematite* and require further study. The culturally influenced event of transformation-firing of yellow iron minerals to red/orange in an oxidizing atmosphere is my key theme and this can take place as low as 250 degrees C (Gualtieri 1999). As noted in Waychunas (1991) an analog described as 'goethite heat-oxidized to protohematite' has now become accepted terminology (Gualtieri and Venturelli and references therein 1999). The d-spacing shift probably applies to this intermediate phase called protohematite. Warshaw (1956) noted this shift, without explanation, in her XRD studies of jarosites. A discussion of the prehistoric use of " burnt yellow earth" and various processing techniques and resultant XRD patterns is offered by Helwig and references therein (1997). Unlike the "rusting" noted by Kay (2005b:13) the resultant *protohematite* appears more irreversible once it changes from yellow to red/orange the colors remains unalterably red. Perhaps this is part of its prehistoric 'mystique'.

While the purpose of the 'yellow ball of Texas' eluded me for a number of years, it now seems probable that it was destined, at least in part, for transformation as a ceramic slip or design element; or a pigment (Lobanova et al. 1980), i.e. on pictographs, murals or ceremonial objects either yellow, red or orange (Brody 1991). This studies the Long House data along with the reflected-light observations of the Tsegi Polychrome and suggests a potential use for the OCA pigment. Multiple uses for the rock shelter lump are probable. While goethite is associated with ceramics (this study), wall and rock paintings, and is frequently found upon 'objects', no systematic use for jarosite is documented other than Helene Warren's brief inclusion in the Gran Quivira report (Hayes 1981). Data in this study is suggestive of and consistent with jarosite species use in prehistoric ceramic production. The restricted compositional variation of jarosite

in the SW-USA is suggestive of a limited number of source locales and is one subject of my on-going research (Kay 1996).

The results from the prehistoric samples are demonstrated by comparing those data with those of the modern goethite sample and the replica-fired yellow goethite which yielded an orange reflectance. The replica was intentionally made for control and comparison. The Tusayan sherd provided the rationale for the replication and is consistent with Hawley's observations and comments.

CONCLUSION

The data gathered here is consistent with yellow goethite fired in an oxidizing atmosphere becoming one of several possible intermediate phases of protohematite, turning to red or orange. The d-spacing shift is probably attributed to this phases change structure. There is no known natural occurring protohematite description (although lighting strikes and midden fires could conceivably provided very small quantities) so if found on ceramics or as a paint pigment-it was man-made. Only recently has specific research focused upon protohematite. This transformation dynamics is given a thorough, robust, comprehensive overview and discussion by Gualtieri (1999). In an oxidizing fire, yellow goethite turns red/orange, hematite stays red and some black specular hematite stays black (probably resulting from large, platy particles). Little comparative data is in the literature and these results are preliminary and suggestive rather than conclusive.

To the best of my knowledge, this report describes the first ceramic study to suggest the possibility of a world-wide practice of firing yellow iron hydroxides to red/orange on prehistoric ceramics**.** The sample size is small, but the results provocative suggesting major implications for culturally influenced activities such as the dynamics of contact, trade, and exchange. I speculate that various prehistoric cultures maintained sophisticated mineral procurement and processing strategies (such as controlled firing regimens) which were shared and transmitted vigorously over space and time. Data on separate stashes of goethite and jarosite in the same prehistoric room in northern Arizona was provided (Kay 1996). Apparent discrimination between goethite and jarosite implies conscious and deliberate behavior.

Hopefully someone will expand this preliminary work with a larger, more comprehensive sample leading to more relevant data set. This method is low-cost and only a tiny amount (a few grains) is scraped and polished while remaining archival. Many questions remain, such as was jarosite specifically used in paint or slip, is there an undescribed intermediate phase for jarosite as it oxidizes to red or Karl Knauer's, "is it possible for goethite yellow to alter to black end products in a reducing firing?" and what influences some goethite to turn deep purple when fired hot? As an encouragement, some of today's instruments allow imaging directly on a monitor, offering ease of observation.

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Ramos Negro: The Black Sheep of the Chihuahuan Wares

by
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Among the ceramic types of the Casas Grandes region and the North American arid west, the beautifully decorated red-and-black-on-buff or white polychromes usually receive the overwhelming attention of pottery scholars. This is quite understandable as the various types that fall within this category represent some of the most elaborately decorated and finely crafted vessels in Southwestern prehistory. There are, however, equally interesting, if not as dramatic, types that characterize the region. This brief article discusses one of the more enigmatic ones; Ramos Black (or Ramos Negro). My purpose is to present an introduction to the type and discuss some of it characteristics. Specifically, I give a brief description of the type, discuss the various vessel forms found in Ramos Black, provide what limited information there is on the known temporal and spatial distribution of the type, and discuss the type's unusual association with mortuary features at Paquimé.

Ramos Black is characterized by a black exterior that has been polished to an extremely high luster. It is very similar to the black ware historically produced at Santa Clara pueblo, New Mexico (Kidder 1916) and is a major product of the modern-day potters of the Porvenir section of Mata Ortiz, in Chihuahua. Kidder described the prehistoric Chihuahuan black ware as being jet black, highly polished often to a luster, most often found in the form of a full-bodied bowl with incurving rim. While he makes note that eccentric forms were not common, he did indicate that small jars with flaring lips are sometimes found.

Donald Brand, in the report of his survey of the Casas Grandes region, provided a description of all Chihuahuan black wares, both rough and polished:

> Blackware may be polished or plain, and varies in color from dark brown to lustrous jet black. The plain blackware is usually made of dark brown paste, coarsely tempered, and having a rough surface. Olla forms predominate, varying in size from a few inches up to jars in excess of two feet in height. Although normally a plain utility ware, at times vessels of unpolished blackware were decorated with plastic forms and other relief features. The polished blackware is similar to the redware in paste, but has been carbonized on the surface by a smothered-fire process of burning. This surface is highly polished. The principal forms are a bowl with incurved rim, and an olla with slightly flaring lip. Eccentric shapes similar to those of the redware exist, but are not common. Blackware is quite common, occurring throughout the area in proportions as high as fifteen to twenty percent. Museum collections seem to have exaggerated the proportions of this ware. (Brand 1933: 83)

In its modern usage, Ramos Black refers specifically to the polished variety. More detailed type descriptions of this type can be found in DiPeso et al. (1974:6:160-168), Hawley (1936), and Van Pool et al. (1999).

Forms found at Paquimé

Kidder's (1916) observation about the preponderance of bowls among black ware vessels in the Casas Grandes region in supported by data from Paquimé (Table 1). Di Peso et al (1974:6:160) report that Ramos Black was 4.3% of the Medio period sherds recovered by the Joint Casas Grandes Expedition. Of the over 32,000 Ramos Black sherds, 48% represented bowls and only 52% were jar forms. This can be contrasted with another common Medio period type, Ramos Polychrome that constituted 11.6% of the Medio period sherds (Di Peso et al. 1974:6:251). Of the over 89,000 Ramos Polychrome sherds, 86% represented jar forms and only 14% were from bowls.

Table 1: Sherd Counts by Vessel Form from the Joint Casas Grandes Expedition (Di Peso et al. 1974:6)

Type	Bowls		Jars		Total Count
	Count	Percent	Count	Percent	
Ramos Black	15,847	48%	17,104	52%	32,951
Ramos Polychrome	12,777	14%	76,737	86%	89,514

A similar pattern is seen in the whole vessels recovered by the Expedition (Table 2). Of the 60 whole Ramos Black vessels recovered by Di Peso et al. (1974:6:160-168) there is an approximately even distribution of jars to bowls. Of the 218 standard variety Ramos Polychrome whole vessels collected by Di Peso et al. only 36% were bowls while 51% were jars (1974:6:250-299). Thus bowls are a more common form among Ramos Black vessels in comparison to the well known Ramos Polychrome type. Several eccentric forms were identified at Paquimé including one vessel in the shape of a bear paw (DiPeso et al. 1974: 6: 167). Christine VanPool (personal communication May, 2006) has identified other unusual shapes in Ramos Black within museum collections; including several tri-lobe jars, two-lobe jars with handles, several datura effigies, and a human foot effigy.

Table 2: Whole Vessel Counts by Vessel Form from the Joint Casas Grandes Expedition (Di Peso et al. 1974:6)

Type	Bowls		Jars		Other Forms		Total Count
	Count	Percent	Count	Percent	Count	Percent	
Ramos Black	28	47%	27	45%	5	8%	60
Ramos Polychrome	78	36%	112	51%	28	13%	218

Temporal Distribution

Ramos Black is currently accepted as a Medio period (ca. A.D. 1200-1450) pottery type (DiPeso et al. 1974; VanPool 2003). And while there are questions as to the precise dating of the Medio period (see Rakita & Raymond 2003), most researchers accept a late Pueblo III to Pueblo IV time range for the period.

Data from Henry Carey's (1931) stratigraphic excavations of a refuse mound at the Corralitos Ranch site do suggest that polished blackware frequencies decrease through the Medio period (Rakita and Raymond 2003: 166 and Table 4). Thus, high frequencies of Ramos Black, at least within the middle Rio Casas Grandes valley may be indicative of the early Medio period. A reanalysis of Brand's 1933 survey collection data (Rakita and Raymond 2003) has also provided evidence that a similar pattern of decreasing black ware frequencies characterizes the middle Santa María valley. Finally, Hill's (1992) study of ceramics from the El Zurdo site in the Babícora basin shows a corresponding decreasing frequency of black wares through time.

Regional Distribution

The geographic distribution of Ramos Black (along with the other Chihuahuan wares) was a specific and important issue for many of the early surveyors of archaeological materials in Chihuahua (Carey 1931, Brand 1933, Sayles 1936a, 1936b). Most agree that Ramos Black is found throughout the Casas Grandes region, ranging west to east from the Sierra Madre to the Rio Grande and north to south from the bootheel of New Mexico to the Babícora basin. However, my reexamination of Brand's (1933) data suggests that the type in not evenly distributed across this region.

For each of the sites Brand reports sherd collections, I calculated the percentage of black ware in all sherds from the site and in just the local ware sherds. I then group this data by broad geographic regions and calculated average percentages (again by all sherds and for just local wares) for each region. These data are reported in Table 3.

Table 3: Average Percent of Black Wares for Sites in Northwestern Chihuahua (Data from Brand 1933)

Area	Average Percent of Black Wares	
	All sherds	Of local sherds
Upper Santa María Valley	14%	15%
Babícora Basin	13%	13%
Middle Santa María Valley	7%	7%
Middle Casas Grandes Valley	7%	7%
Río Carmen	3%	4%
Playas District	2%	3%
Huerigos/Carretas Valley	2%	2%
El Paso Area	0%	0%
Mt. Riley Area	0%	0%
TOTAL	**5%**	**5%**

Black ware frequencies are clearly highest in the southern portion of the Casas Grandes region with highest frequencies in the upper Santa María valley and Babícora basin. The middle Santa María and Casas Grandes valleys have the next highest frequency. Average percentage of black wares at sites in Chihuahua clearly declines as one moves north from the upper Santa María valley.

Distribution within Paquimé

My interest in Ramos Black was sparked by an observation I made while completing a re-examination of Casas Grandes mortuary practices. In 2001, I noted that Ramos Black vessels seem to be frequently found in human burials (Rakita 2001: 311-312). Indeed, it seemed to me that Ramos Black was decidedly associated with mortuary contexts. Of the 60 intact vessels recovered from the site, thirty-eight (63%) were discovered in burials (Table 3). In contrast, of the 218 standard variant Ramos Polychrome vessels recovered, only 55 (25%) were found in burials. Thus whole, Ramos Polychrome vessels were more common in non-burial contexts, while Ramos Black vessels were more frequently found in burial contexts. Moreover, and in comparison to Ramos Polychrome, those Ramos Black vessels that accompanied burials were unevenly distributed across the various room blocks of the site. Most whole vessels found in burials were located in Units 12 (House of the Macaws) and 13 (House of the Dead) at Paquimé. Thus it seems reasonable to assume that Ramos Black was considered especially appropriate for inclusion in funerary grave goods. I have elsewhere (Rakita 2001) suggested that Ramos Black vessels was associated with an ancestor cult that I believe developed at Paquimé during the early to middle Medio period.

Table 3: Whole Vessel Counts by Context of Recovery from the Joint Casas Grandes Expedition (Di Peso et al. 1974:6)

Type	In Burials		In Rooms		In Other Loci		Total
	Count	Percent	Count	Percent	Count	Percent	Count
Ramos Black	38	63%	15	25%	7	12%	60
Ramos Polychrome (Standard Variant)	55	25%	129	59%	34	16%	218

Conclusions

Ramos Black is yet one more enigmatic aspect of the Casas Grandes culture of Chihuahua. While similar polished black wares are known from the ethnographic record of the American Southwest (Kidder 1916) and there are analogous types from the American Mid-Continent (Ramey Incised; see Pauketat and Emerson 1991), the style is not common among other prehistoric groups in the North American desert west (though see Simmons [1979: 219] regarding the production of polished black ware at San Ildefonso in 1911). The type is well recognized and defined but under-studied. It is found throughout the Casas Grandes region, but is found in highest frequency in the southern portion of the culture-area. It may represent an early Medio period type, though further chronological studies are required to make this observation more secure. Unlike polychrome types from the region, it is most often found in bowl rather than jar form. Finally, it displays an unusual contextual association with human burials that may indicate its importance in rituals related to the dead.

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Prehistoric Ceramics from Northwestern Chihuahua:
Annotations of Selected Works
(from 1828 to 1958)
by
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January 25, 1999 (revised May 23rd, 2006)

Introduction

The prehistoric ceramics of northwestern Chihuahua have garnered a great deal of attention from researchers currently working in the Casas Grandes (Paquimé) region. Of primary importance are chronological issues, however, systematic concerns (i.e. classification) continue to be debated as well. Despite Di Peso and colleagues extensive work with the materials from Paquimé many uncertainty have been left unresolved. Likewise, the re-dating of Di Peso's chronological framework has not eased the situation. In fact, despite being an area of increasing archaeological activity, it remains one of the few areas of the North American desert west without a firm ceramic chronology.

What follows is a collection of annotations and summaries of various citations dealing with the prehistory of northern Chihuahua. Specifically, all these references address the prehistoric pottery from the region. The aim of this collection is to: (1) synopsize the early literature dealing with the ceramics of the Casas Grandes culture area, (2) provide an historical background to the systematics of ceramic classifications for the region, (3) summarize the various descriptions and definitions posited over the years, and (4) highlight data that might be relevant to the temporal placement of the various ceramic types.

With these goals in mind, only those references that made explicit and meaningful mention of Chihuahuan ceramics were annotated (while many more were actually examined). Furthermore, it was decided that since much of the literature dealing with Chihuahuan ceramics since 1974 is fairly well known by most researchers, no attempt would be made to summarize post-1970s references.

For clarity and accuracy's sake, much of these annotations are direct quotes from the various authors (identified by quotation marks), while other parts are more general summaries. Parenthetical remarks by the annotator are provided in brackets and hopefully clarify points or note important information. Translations from Spanish and French were produced by the author, and are thus suspect to numerous errors.

Hopefully, this collection will serve as a guide and reference manual for those individuals interested in the ceramics of the Casas Grandes Region. It is not intended to be a substitute for reading the primary literature; since by it nature as a summary, it neglects much of the details of these works. However, it should be useful in directing the interested researcher to the appropriate citations. Or, in the case of individuals initiating research within the region, it should provide the historical background necessary for further studies. Finally, it should provide those concerned with the systematics of Casas Grandes pottery with a fair overview of the development of ceramic classifications (prior to 1974) in the region.

This is a slightly abridged version of the annotation completed in 1999. Interested individuals should contact the author (grakita@unf.edu) for the full version. They are also

encouraged to consult Rakita and Raymond (2003, The Temporal Sensitivity of Casas Grandes Polychrome Ceramics. *The Kiva* 68:153–184).

Hardy, R. W. H.

1829 [1977] *Travels in the Interior of Mexico, in 1825, 1826, 1827, & 1828*. The Rio Grande Press, Glorieta, New Mexico.

This is a journal of Lieut. R.W.H. Hardy's travels through Mexico in 1825-1828. His description of Paquimé is brief (pp. 464-466). He does indicate that Apaches were looting the ruins looking for shells and ceramic vessels. Along with this brief mention is a small lithograph of a Ramos [?] style vessel.

Bartlett, J. R.

1854 *Personal Narrative of Explorations and Incidents in Texas, New Mexico, California, Sonora, and Chihuahua* 2. George Routledge and Co., London.

This traveler's journal gives an account of the Casas Grandes (Paquimé) ruins including a brief description of the associated pottery found. The description is also accompanied by two plates of drawings of sherds, none of which are particularly diagnostic.

Bandelier, A. F.

1892 *Final Report of Investigations among the Indians of the Southwestern United States, Carried on Mainly in the Years from 1880 to 1885*. Papers of the Archaeological Institute of America, No. IV. John Wilson and Son, Cambridge.

This volume is a report on various archaeological remains from the US Southwest and Northern Mexico. In the Mexican section Bandelier notes that there are several ruin mounds along the Casas Grandes River where potsherds were strewn over and about the mounds. Commenting on the pottery found near the abandoned church of San Antonio de Padua de Casas Grandes he notes "Around it the soil is covered with fragments of the same pottery as that on the ruined mounds."

Finally he discusses the pottery from the ruins at Casas Grandes (Paquimé)"Of all the objects found at the ruins of Casas Grandes the pottery attracts the principal attention. Not that it is in any better than that found in the ruins of that section in general, for it is of the same make and type; but the number of specimens found in good state of preservation is striking. The decoration these vessels -- I have seen but a very few plain ones -- derives its patterns from symbolic figures."

Lumholtz, C.

1902 *Unknown Mexico: Explorations in the Sierra Madres and Other Regions, 1890-1898*. Dover Publications, New York.

This volume is the famous traveler's journal of Carl Lumholtz, who explored vast portions of northern Mexico. He provides a description of his various explorations in Cave Valley, near San Diego and Colonial Juarez, and in the Garbato region.

Lumholtz provides several plates of typical Chihuahuan wares. Along with these illustrations are some general descriptions of the pottery types.

"The pottery which was excavated here may be judged by the accompanying plates. It is superior in quality, as well as in decoration, to that produced by the Pueblos of the Southwest of the United States. The clay is fine in texture and has often a slight surface gloss, the result of mechanical polishing. Though the designs in general remind one of those of the Southwestern Pueblos, as, for instance, the cloud terraces, scrolls, etc., still most of the decorations in question show more delicacy, taste, and feeling, and are richer in colouring.

"This kind of pottery is known only from excavations in the valleys of San Diego and of Piedras Verdes River, as well as from Casas Grandes Valley. It forms a transition from the culture of the Pueblos of Arizona and New Mexico to that of the Valley of Mexico, a thousand miles further south. In a general way the several hundred specimens of the collection can be divided into four groups:

"(1) The clay is quite fine, of white colour, with a slightly grayish-yellow tinge. The decorations are black and red, or black only. This is the predominant type …

"(2 Of a very similar character, but somewhat coarser in texture, and heavier …

"(3) Brown pottery with black decorations …

"(4) Black ware."

Blackiston, A. H.

1908 Ruins of the Tenaja and the Rio San Pedro. *Records of the Past* 7:282-290.

This article reports investigations by the author north of the Piedras Verde River and in between the Rios San Pedro and Casas Grandes. The sites involved lie along the Teneja River. The only worthwhile comments regarding ceramics include the similarity of the pottery found at these sites with that recovered in the rest of the region.

Hewett, E. L.

1908 *Les Cummunautes Anciennes dans le Desert Americain*. Librairie Kundig, Geneva.

This is a general work on much of the southwest. Only the chapter on Northern Mexico was examined. *Note: the work is in French and the translation is my own.*

Hewett divided his discussion of the Chihuahuan wares into three parts: a general classification with description, second, an extended discussion of effigy vessel forms, and finally, a brief-discussion of the decorative system (or motifs).

While noting that his analysis is limited, Hewett does discuss some decorative motifs. Specifically, he mentions the plumed serpent and claims that "This execution of the plumed serpent is particular to Chihuahua." Moreover; "The parrot motif was employed by the ancient Chihuahuans, and is placed on their most beautiful efforts. We see it on number 14 [Plate XIV], and in a form more particularly conventional, on numbers 1, 5, and 16. There exist few decorated jars which do not have one of the elements of these motifs."

Kidder, A. V.

1916 *The Pottery of the Casas Grandes District, Chihuahua*. Extract from the Holmes Anniversary Volume, Washington.

Kidder notes that while there have been general descriptions (by 1916) of the Casas Grandes region, "Little, however, has been done toward a classification of the wares or an analysis of their elaborate decorative system." This paper, therefore is a beginning, and analyzes materials from the Phillips collection in the Peabody Museum. This sample is composed of 190 pieces of pottery, ". . . excavated principally at Janos, Ramos, and Corralitos, all of which are localities in the Casas Grandes region."

Kidder concludes that the pottery represents a group which "belongs" to the Southwestern culture area rather than the Mesoamerican region. This is based upon the similarity of bowl and jar forms as well as the absence of tripod and flat dish forms. The decoration is also described as being ". . . Southwestern in general plan." Those aspects that do not conform to Southwestern conventions include: the prevalence of effigies (including erotic ones), negative drawing, and the plumed serpent. [Kidder is unsure regarding the club-shaped element. He suggests that if it was originally naturalistic and then developed into the more geometric style, it was probably of Mexican origin; if the opposite evolution occurred, it was most likely of southwestern derivation.]

Weiseheimer, J. W.

1917 Report: Archaeological Researches in the San Joaquin Valley, Chihuahua, Mexico [Manuscript Submitted to the Bureau of American Ethnology (BAE Manuscript No. 2494)].

This is a report of archaeological (loosely defined) research conducted by Capt. Weiseheimer while camped in the San Joaquín valley southeast of Paquimé (near the El Presidente Site) during the Pershing Expedition.

Chapman, K. M.

1923 Casas Grandes Pottery. *Art and Archaeology* 16:25-34.

This article summarizes the Casas Grandes pottery found in the Museum of New Mexico in Santa Fe (no sample size given). Chapman's descriptions generally agree with those of Kidder (1916).

"As compared with much of the ancient pottery of the Southwest, the pieces are small. The largest water jars do not exceed ten inches in height, while many finely finished bowls and other pieces of odd shape are less than three inches in diameter."

Chapman classifies the collection into the same groups Kidder does; plain, red, black [polished], and polychrome. Chapman, like Kidder and Weiseheimer, also notes the rarity of bowl forms.

Typical design elements are ascribed to certain culture areas. Key and meander, spiral, and stepped motifs, Chapman considers Southwestern in origin. While curvilinear forms with eye painted in negative [clubs] are autochthonic.

Chapman notes the similarity between some of the Chihuahuan types and vessels from ". . . southern New Mexico and Arizona." [lower Gila polychrome], and suggests that this may indicate contact between the two groups.

Harcum, C. G.

1923 Indian Pottery from the Casas Grandes Region, Chihuahua, Mexico. *Bulletin, Royal Ontario Museum* 2:4-11.

This is the second, 1923 publication on the ceramic material from the Casas Grandes Region that was split between the Laboratory of Anthropology in Santa Fe, New Mexico; the Archaeological Society of Washington (deposited in the National Museum); and the Royal Ontario Museum of Archaeology (see Hough 1923, Chapman 1923). As with the other publications, this one seeks to give a general description of the material. It does not depart from these other summaries.

Kidder, A. V.

1924 *An Introduction to the Study of Southwestern Archaeology*. Yale University Press, New Haven.

This is Kidder's classic summary of Southwestern Archaeology as of 1924. He provides a concise description of the Chihuahua Basin materials, including ceramics. His examination of the pottery is generally drawn from his previous work on the subject (Kidder 1916). However, there are a few additions or differences.

Kidder adds a "corrugated" type to his 1916 classification of the wares from Chihuahua. "Corrugated ware also is only represented by fragments. The bulk of the pieces are of reddish paste, poorly coiled and with the indentations wiped over and nearly obliterated while the clay was still soft."

He also mentions the cave dwellings explored by Blackiston and states that "At the present time we have no idea whether they are earlier or later than the mound ruins [to the east]; or, indeed, whether they were made by the same people at all. Of their pottery we know nothing, but Blackiston states that it is different from that of Casas Grandes [Blackiston 1905, p. 361 cited]."

Finally, Kidder provides one clue to ceramic chronology. In comparing small and "great house" sites he writes, "It would seem, then, that the practice of 'great house' building was less developed in the Chihuahuan basin than on the Lower Gila, and that Casas Grandes was an exceptional rather than a typical structure. That it was at least approximately contemporaneous with the smaller settlements is proved by the fact that the pottery from Casas Grandes and from the small sites is about the same. I say 'about' advisedly, for there do appear to be slight differences in wares from Casas Grandes and from some of the less conspicuous sites, and *in one mound near Corralitos I found evidence in an old pothunter's hole, of a cruder style underlying the later and finer wares of the upper levels.* The data, however, are insufficient." [Emphasis added]

Amsden, M.

1928 *Archaeological Reconnaissance in Sonora*. Southwest Museum Papers, No. 1. Southwest Museum, Highland Park, Los Angeles.

This is a wonderful narrative of Amsden's horseback survey of north-eastern Sonora. At the end of which, he presents some conclusions or generalizations regarding the materials and sites he encountered.

He divides the Sonoran material into two groups. The western region (of the survey area) he terms Río de Sonora; the region just west of the Sierra Madre he names Peripheral Casas

Grandes. The later he defines as encompassing the region south of the US border to the mouth of the Bacadéhuachi river, west to the Río de Granados, and east to the Sierra Madre. He argues that since these two "cultures" have so little in common with each other, they can not be contemporaneous.

"Ceramically, th[e] Peripheral [Casas Grandes] culture is closely allied to Casas Grandes. . . . Many of the sherds having painted decoration are of typical Casas Grandes polychrome and black-on-yellow wares [?]. . . . The typical Peripheral Casas Grandes decorated pottery is black or black-and-red on a bright orange base. . . . While the pigment of the red decorative lines is always thin and smooth, the black pigment on the Peripheral polychrome is as invariably raised by firing and usually has a burnt, roughened texture bordering very closely upon a glaze. In a few cases, the black has burned a light yellowish green, which, however, misses being a green glaze. Broad-line decorations occur, but the average line is an eighth [3.1 mm] or three-sixteenths [4.7 mm] of an inch in width, which is coarser than the linework on typical Casas Grandes and too fine to be termed broad-line."

He also discusses a black-on-white type that he describes as having ". . . more of the true Casas Grandes preciseness of linework than of the Peripheral decorative technique."

Amsden concludes with a short discussion of chronology.

Sauer, C. and D. Brand

1930 *Pueblo Sites in Southeastern Arizona*. University of California Publications in Geography, Vol. 3, No. 7. University of California Press, Berkeley.

This monograph reports data collected on a survey of Southeastern Arizona. The region studied includes an area south of the Gila Mountains, west of the Peloncillo Mountains, east of the San Pedro River, and north of the town of Douglas. The report does contain a table of sherd counts for 24 ceramic types (including Casas Grandes Polychrome and Peripheral Casas Grandes) over 41 sites.

The authors support Amsden's conclusions regarding the dating of Chihuahuan polychrome in relation to Little Colorado redware; "At a number of these places notable finds of Chihuahua polychrome occur, together with good black-on-red ware of the Little Colorado type." Moreover, they argue that "Persistent association of Middle Gila, Little Colorado, and Chihuahua polychrome ware indicates their partial contemporaneity."

Sauer and Brand also distinguish the typical Chihuahuan polychrome from a more "cruder" form. "The normal type of polychrome and a cruder [form]. Presumably earlier, forms have been identified." And later: "An interesting find is that of poor quality (early?) Chihuahua ware in the remote western Ramsey Canyon at the base of the Huachuca Mountains, and its presence there in association with small-design, Red-on-buff shards." In relation to "Middle Gila Polychrome," they state; "At Ramsey Canyon it is found with peripheral, supposedly early, Casas Grandes [polychrome]."

They also distinguish a punctated redware [however, a later statement suggests that this is a punctated polychrome, perhaps Corralitos polychrome, see italics below]. "It appears also that a very different ware of red clay, in part of fine clay, that has been dotted with angular, usually triangular gougings, is so closely associated with Chihuahua polychrome as to be considered part of the same culture…*A time-differentiation between the gouged and normal polychrome ware* [italics added, but see the annotation for Sauer & Brand (1931), there, it is clear that they are

discussing a Redware] is suggested by the abundance of the former and apparently complete absence of the latter at the Maddox ranch in the Animas Valley. If our test pits mean anything the gouged ware was the last pottery produced in our southeastern area. It is incidentally very common southward in Sonora."

Sauer and Brand make the following comments regarding the association of Chihuahua and Red-on-buff materials: "Whatever the presence or absence of those culture indicators in our record may be worth, the evidence bears to the effect that an early Chihuahua culture had connections at the south [of their study area?] with the Red-on-buff culture of the west, that the climax Chihuahua culture took possession of the irrigable San Bernardino Valley, and that a later culture, characterized by gouged ware and forsaking entirely the beautiful decorations of Casas Grandes -- by this contrast under suspicion as produced by a different people -- came in and occupied the same area for a time."

And in relation to trade connections; "A small amount of incised ware found in the far western part of the local Chihuahua culture area (fig. 3) was probably traded in from the south, Sonora, during late prehistoric Pueblo time. It resembles ware still in use on the western flanks of the Sierra Madre."

Carey, H. A.

1931 An Analysis of the Northwestern Chihuahua Culture. *American Anthropologist* 33:325-374.

After Kidder (1916), this is the most important work published (to 1931) on the ceramics of northwestern Chihuahua (defined as the area which ". . . lies in the northwestern part of the state, the extension being from the United States boundary to an undetermined distance south of the Mexican town Temosachic."). This article was published as part of Carey's dissertation at Columbia University. It is, in part, a study of a variety of museum collection, and in part, an account of the materials Carey actually excavated, himself. His fieldwork was done during the summers of 1928 and 1929.

Carey explains the fundamental theoretical premise of his work: "Since archaeological investigation in the region has been scant it is necessary to ascertain its development as well as its relationships so far as possible and to classify it accordingly. Internal relationships are defined as those occurring between centers within the general culture-province itself, by which the relative homogeneity of culture traits is disclosed and the extent of the culture determined. If there is homogeneity between centers and the traits are sufficiently differentiated from those of contiguous areas, the province may be treated in general comparisons as a unit, or, in ethnological terminology, as a culture area. External relationships are defined as those existing between two or more culture areas. . . . The problem, therefore, becomes largely dependent upon the analysis and interpretation of the typology of objects buried with the dead, of mound structures, and of conditions occurring within them. If sufficient homogeneity of culture traits exists within the region to permit the whole to be designated a culture area, then analytic comparison with traits of contiguous areas may be made. Elements common to both may be found, indicating the occurrence of intertribal contact. Conclusions with respect to interareal development and relations may then be drawn."

Carey presents an extensive summary of materials from a number of Chihuahuan localities derived either from museum collections or archaeological samples. Of the latter, he

states: "In this region deposits of rubbish in which stratigraphic data might be obtained are, up to the present time [1931], unknown.

Typology of Objects: "The stylistic peculiarities of the pottery will be treated in detail here for they furnish clues to aspects of the problem which were formerly obscure. The following sections deal with pottery shapes, designs, and technique, each of which has importance in the elucidation of the general problem."

Carey argues that effigy forms are derived from cultures to the south in Mexico. "The data [below] were taken from the Chihuahua collection of the State Museum of New Mexico, Santa Fe, New Mexico."

Brand, D. D.

1933 *The Historical Geography of Northwestern Chihuahua.* Ph.D. Dissertation, Department of Geography, University of California, Berkeley.

This is Brand's 1933 dissertation thesis for the department of Geography at the University of California (Berkeley), supervised by both Carl Sauer and A.L. Kroeber. The research project reported therein, is predominantly a survey of sites and surface sherds found at them for much of northwestern Chihuahua and a small portion of southern New Mexico. The survey includes the Babícora, Villa Ahumada, and El Paso regions as well.

The thesis is broken into three main parts; a description of the natural landscape, a discussion of the prehistoric materials observed as a result of the survey, and a historical survey of the region from initial European settlement to modern (i.e. 1920-1930s) economic activities. The discussion of the cultural materials includes a history of research, a summary of ceramic collections in museums, a description of the methodology, and a exposition upon the material remains. Most important of this latter category is the discussion of the ceramics.

Brand's main purpose is in documenting the geographic or spatial distribution of the various ceramic types across the region. He does, however, discuss some chronological issues.

"The Northwestern Chihuahua culture area was occupied by a sedentary pottery-making people at an unknown date, probably not earlier than late Pueblo II. Plain buff, corrugated, black, red, and black-on-red wares were developed first. Polychrome wares were developed last, with the Huérigos, Babícora type of Casas Grandes, and Villa Ahumada probably in use before the classic Casas Grandes Polychrome. The most widely traded of Chihuahua wares was the Casas Grandes Polychrome, whose beauty of form and design were seemingly appreciated westward to Las Trincheras of Sonora, into the Salt River and Middle Gila region of Arizona, and northward to the Little Colorado country of Arizona and the upper Rio Grande of New Mexico. Cross-finds in these areas indicate that Casas Grandes Polychrome ware was contemporary with Middle Gila Polychrome, Little Colorado Polychrome and the earlier glazes, and the early Rio Grande glazes. The peak of its development and trade may have occurred as late as the middle portion of Pueblo IV, perhaps around 1400 A.D."

Also included in this thesis is a discussion of the probably location of a Casas Grandes cultural "hearth" area.

Gladwin, W. and H. S. Gladwin

1934 *A Method for the Designation of Cultures and Their Variations*. Medallion Papers, No. 15. Lancaster Press for the Gila Pueblo, Lancaster, PA.

This work is the classic publication of Gladwin & Gladwin's Root-Stem-Branch-Phase classification system for the southwest. Much of the discussion has to do with systematics and distinguishing southern Arizona Hohokam remains from those of the Puebloan material (with much description of the red-on-buff ceramics). However, in the associated classification charts, the authors preview the forthcoming work of Sayles, particularly his survey in northwestern Chihuahua.

Brand, D. D.

1935 The Distribution of Pottery Types in Northwest Mexico. *American Anthropologist* 37:287-305.

This work is a published summary of Brand's surveys in both Chihuahua and Sonora. In it, he discusses the geographic distribution of various ceramic types (including the major Chihuahuan ones). This publication along with his 1943 article essential publishes much of the material contained within his 1933 dissertation. There are however some differences. Moreover, this work presents some conclusions regarding general cultural affiliations between Chihuahua, Sonora, the greater Southwest, and Mesoamerica.

Sayles, E. B.

1936a *Some Southwestern Pottery Types*. Medallion Papers, No. XXI. Gila Pueblo, Globe, Arizona.

The Medallion paper is a summary of the ceramic types defined by Sayles on the basis of his survey in northwestern Chihuahua under the auspices of the Gila Pueblo (see also Sayles 1936b). "It is the purpose of this report to describe the pottery types which developed in the Chihuahua Branch; their relations have been demonstrated by archaeological associations and are traceable through the sequences of decoration, design, treatment, and form. . . . The association of the pottery types described and their inter-relations were determined from the analyses of these sherds collected on the surface and in stratification from approximately two hundred sites in Chihuahua."

In all, Sayles defined twelve types including six polychromes, one redware (in plain & incised variants), one black-on-red style, two red-on-brown types, and one blackware.

Sayles, E. B.

1936b *An Archaeological Survey of Chihuahua, Mexico*. Medallion Papers, No. XXII. Gila Pueblo, Globe, Arizona.

This Medallion paper is a summary of the survey Sayles conducted begin in 1933. This survey represented an extension of the Gila Pueblo's attempt to delineate the geographic extent of the Hohokam culture area (principally through ceramic type distributions).

Sayles describes all the materials he observed, including; lithics (both chipped and ground), architecture, ceramics, floral and faunal remains, burials, rock art, irrigation and agricultural features, and perishable materials. He also enumerated the types of sites found and where they were located, as well as the general topographic layout of the region.

An extensive *Discussion* by Harold S. Gladwin finishes this monograph. In it, Gladwin outlines empirical observations and draws "deductions" from them.

Kidder, A. V.

1939 Notes on the Archaeology of the Babicora District, Chihuahua. In *So Live the Works of Men*, edited by D. D. Brand and F. E. Harvey, pp. 221-230. University of New Mexico, Albuquerque.

This is a brief work describing the excavations conducted by Kidder, Guernsey, and Vaillant near the Hearst Ranch in the Babícora district. Kidder notes that "We collected shards from several sites in the valley, did a few days digging in a mound near Las Varas ranch house, and visited cliff-dwellings in Garbato Canyon, some twenty miles to the west. Kidder presents excellent summaries of the architecture that was uncovered, however he makes only short mention of ceramics.

Brand, D. D.

1943 The Chihuahua Culture Area. *New Mexico Anthropologist* 6-7(3):115-158.

In this publication, Brand (essentially) reproduces the appendix from his dissertation. This data was collected from September 1930 to July 1931. Here, Brand gives a summary of the sites he noted during his survey, as well as some descriptive data on the various drainages of northern Chihuahua (by which he arranges his site data). His goal (i.e. the purpose of his dissertation) was to delimit the temporal and spatial boundaries of the Chihuahuan culture, examine its connections with contiguous cultures, determine ". . . the actual utilization of the settlement area."

Lister, R. H.

1946 Survey of Archaeological Remains in Northwestern Chuhuahua. *Southwestern Journal of Anthropology* 2:433-453.

The article reports the findings of a UNM survey field session directed by Brand in 1936. "The principal work of the expedition may be divided into three phases: the Garbato [valley, south of Casas Grandes] survey, the excavation at the Agua Zarca site, and the excavation at the La Morita site."

Lister does note that "The apparent lack of well-stratified sites in Chihuahua has been a drawback in archaeological investigations. No sites with refuse heaps of any consequence were located by our survey." Sayles mentions obtaining some stratigraphy, but then adds that further investigations are required to confirm the relationships suggested by present data.

Lister, R. H.

1953 Excavations in Cave Valley, Chihuahua, Mexico: A Preliminary Note. *American Antiquity* 2:166-169.

This brief "Preliminary Note" reports the initial expedition by Lister to Cave Valley (west of Casas Grandes). Some time was spent conduction stratigraphic excavations there. "We anticipated that stratigraphic excavations in the caves containing cliff-dwellings, and other evidences of occupation, might reveal earlier cultural material, represented by different pottery types, or even non-ceramic horizons. We did not succeed in finding non-ceramic horizons, but we were successful in finding cultural horizons considerably older than Casas Grandes."

A total of 2460 sherds were collected, of which 96% were "assignable" to the Mogollon culture (by Martin & Rinaldo). Types included Alma Plain, Rough, Incised, Scored; San Francisco Redware, patterned, incised, corrugated, indented corrugated, plain corrugated, and fillet rim.

Some Casas Grandes types were recovered from upper levels or surfaces. Polychrome types were vary rare, but Médanos red-on-brown and Madera black-on-red were more common.

Lister concludes by suggesting that the Casas Grandes culture grew out of an autochthonic Mogollon cultural base, as opposed to being influenced from southern New Mexico.

Carey, H. A.

1954 Grant No. 1597, The Ancient Indian Culture Centering in the Casas Grandes Valley, Northwestern Chihuahua, Mexico. *American Philosophical Society, Yearbook* :313-316.

Carey studied ceramic collections in various museums of the southwest as well as private collections. He based his comparisons upon the idea that "The shapes of vessels and the painted design motives on them revealed proof of group inter-borrowing, and, therefore, of inter-contacting of the groups. . . ."

Carey notes that certain life designs ("of almost identical tradition in negative painting techniques") are common on both Chihuahuan and Mimbres wares and effigy vessels gave insight into ". . . the daily life of the Chihuahuans. . . ." But nothing specific is stated.

The surveys included the collection of potsherds (as well as photography) from ruins for further study. [These collections may still be available at Morehead State College, Kentucky where Carey was employed at the time.]

Carey, H. A.

1955 Grant No. 1779 (1954), The Casas Grandes Culture, Chihuahua, Mexico. *American Philosophical Society, Yearbook*: 314-316.

This is a brief report on the continuation of studies begun in 1953 (Reported in Carey, 1954).

Lister, R. H.

1958 *Archaeological Excavations in the Northern Sierra Madre Occidental, Chihuahua and Sonora, Mexico*. University of Colorado Studies, Series in Anthropology, No. 7. University

This monograph describes in detail Lister's excavations in Cave Valley and the Rio Garbato in Chihuahua as well as Arroyo el Concho in Sonora. In all, twelve cave sites were examined, including; Cueva de la Olla (Olla Cave). Eleven sites yielded ceramics (Zig Zag cave did not) and Lister presents individual data for each (on pp. 21, 24, 26, 28, 37, 40, 44, 55, 56, and 66), including stratigraphic information where appropriate.

In his conclusion, Lister once again reiterates his belief that the Casas Grandes culture (of the eastern river valleys) grew out of an indigenous Mogollon presence (within the Sierra Madre cave sites).

Inquiries and Updates

Tewa Pottery Designs Inquiry:

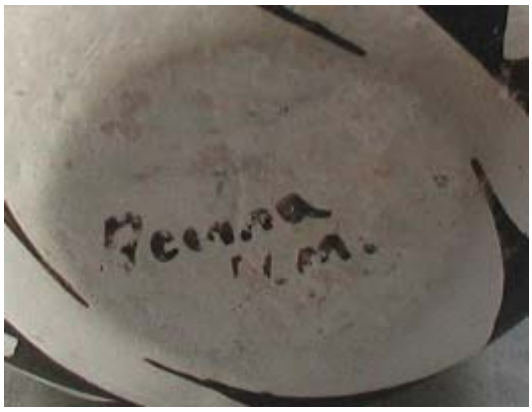
Wayne Keene in Cortez, Colorado wrote to Pottery Southwest explaining that he is attempting to identify ancestral Tewa, especially San Juan, painted designs. He also has an extensive bibliography (33 pages) of references on southwestern pottery designs that he would be happy to share with anyone via e-mail.

Wayne is a potter who belongs to this group of potters and archaeologists called the Leupp Kiln Conference, which is affiliated with the Institute for Archaeologic Ceramic Research. Recently, the 4th annual Leupp Kiln Conference was held in Yellow Jacket, Colorado. The LKC is a collection of interested potters and archaeologists attempting to reproduce ancestral puebloan ceramics using local materials. It is affiliated with the Institute of Archaeolgic Ceramic Research. Next year the conference will be held at Homolovi Ruins State Park near Winslow, AZ.

If you can help him, please contact him directly at: Waykee7@aol.com

Inquiry re Earhart Pot:

John Williams wrote the following to Pottery Southwest "Recently I came across a small piece of pottery and discovered a hand written note inside. It was dated 1948 and stated that the piece was purchased in Death Valley from Amelia Earhart's husband, Mr. Putnam. My research revealed that George Putnam had remarried and he and his wife were running a Death Valley hotel named StovePipe Wells Hotel in 1948. I'm interested in discovering the origin of the pot. Can you tell me anything about it?" Please respond directly to John at: john@beach-tees.com



Photos courtesy of John Williams

Please note: These photos are not to scale.

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Title: *The Evolution of Exchange in Small-Scale Societies of the Southern High Plains*
Author: Brosowske, Scott D. Ph.D., The University of Oklahoma 2005
Document: AAT 3163309, ISBN 0-496-97249-9, 545 pages

ABSTRACT: The Southern High Plains is a vast semiarid environment characterized by erratic climate conditions and incongruent resources distributions. Prior to A.D. 1250 the region was inhabited by small groups of mobile foragers. Except for the transfer of some high quality tool stone, evidence for exchange between these societies is extremely meager suggesting that important resources were obtained through residential mobility. The onset of the Middle Ceramic period around A.D. 1250 was marked by the sudden appearance of Plains Village tradition societies who occupied permanent settlements and practiced subsistence economies based on foraging and horticulture. Settlements of the period vary from single family homesteads to villages containing 250 people.

The large numbers of habitation sites documented for the period indicate that the region experienced a dramatic increase in human populations at this time. Coinciding with these significant cultural changes, the Middle Ceramic period also witnessed the emergence of widespread exchange networks. This study examines this development and its meaning in small-scale societies of the region. Durable goods obtained through exchange can be described in a number of ways including the distances which items were traded and their function or meaning in society. In this study, utilitarian items, particularly chipped stone tools produced from high quality materials, are the most abundant exchange items documented. These objects were regularly traded over distances of 100 to 300 km. Nonutilitarian items, including jewelry produced from marine shell and precious stone, smoking pipes, and elaborately decorated ceramics were also obtained from communities located 350 to 550 km away.

Given the distances involved, the latter objects are assumed to represent status or prestige items. While nonlocal utilitarian items are widespread throughout the region, status items are notably concentrated at a few communities. A political economic perspective, which envisions exchange as an activity embedded in broader social, economic, and political institutions, provides the theoretical foundation for understanding the alternative roles that exchange played in small-scale societies that inhabited the region. By necessity, a contextual perspective, which emphasizes both spatial and temporal parameters, is employed to investigate the interrelationships that existed between exchange and broader realms of social life. This study concludes that initially exchange was regional in scope and provided access to utilitarian items among recently settled populations. Although temporal trends are not well understood, exchange was later elaborated by a few communities and involved the procurement of utilitarian and nonutilitarian objects through long-distance trading expeditions to settlements outside the region. Importantly, this expansion was also accompanied by the appearance of other key developments including land tenure systems, intensified economic production, and regional trade centers. Altogether, these trends are interpreted as evidence for increasing social complexity and the emergence of local leaders who

encouraged and organized these activities. Support for this interpretation is derived from the ethnographic record which demonstrates that the subsistence economy and exchange frequently provide important avenues by which emergent leaders distinguish themselves above other members of society. In this study exchange is seen as serving a dual role that simultaneously brought prestige to local leaders and enhanced the status and well-being of the communities they represented.

Title**:** *Pottery and mobility: A functional analysis of Intermountain Brownware (Nevada, Utah, Arizona)*, Author: Betenson, Britt J. MA, University of Nevada, Las Vegas 2005
Document: AAT 1428545, ISBN 0-542-27452-3, 175 pp.
ABSTRACT: Intermountain Brownware, is a late prehistoric ceramic type made by mobile hunter-gatherers that is found throughout southern Nevada, western Utah and northern Arizona. Most hunter-gather groups around the world are not pottery producers. Through interdisciplinary analysis, I examine the physical and morphological characteristics to understand the amount of labor invested in the construction and production of Intermountain Brownware. I then evaluate these results amongst environmental, historical, ethnological, and archaeological data to conclude that Intermountain Brownware possesses lower porosity, and is thinner and stronger than commonly reported. Gas Chromatography-Mass Spectrometry (GC-MS) is performed to empirically characterize food residues remaining in the pores of each sherd. Seed and root residues were predominant in our archaeological samples and meat was not. This study demonstrates that Intermountain Brownware ceramics are of better quality than previously thought, that labor investment was significant, and that these vessels were primarily constructed for cooking seed and root stews.

On the Shelf

Brody, J. J.

2005 Mimbres Painted Pottery: Revised Edition. School of American Research, Santa Fe.

"The Mimbres cultural florescence between about AD 1000 and AD 1140 remains one of the most visually astonishing and anthropologically intriguing questions in Southwest prehistory. In this revised edition, noted Mimbres scholar Dr. J. J. Brody incorporates the extensive fieldwork done since the original publication in 1977, updating his discussion of village life, the larger world in which the Mimbres people lived, and how the art that they practiced illuminates these wider issues. He addresses human and animal iconography, the importance of perspective and motion in perceiving Mimbres artistry, and the technology used to produce the ceramics. This lively, engaging work will interest archaeologists, art historians, and all people who enjoy the beauty of Mimbres pottery. Featuring over one hundred new illustrations and insights drawn from a lifetime of study and contemplation, this book is much more than a revised edition; it establishes a new standard for the artistic interpretation of a classic Southwestern culture for the new century." (http://sarpress.sarweb.org/sarpress/index.php?main_page=index)

Habicht-Mauche, Judith A., Suzanne L. Eckert and Deborah L. Huntley, eds.

2006 The Social Life of Pots: *Glaze Wares and Cultural Dynamics in the Southwest, AD 1250-1680.* University of Arizona Press. Tucson.

"The demographic upheavals that altered the social landscape of the Southwest from the thirteenth through the seventeenth centuries forced peoples from diverse backgrounds to literally remake their worlds—transformations in community, identity, and power that are only beginning to be understood through innovations in decorated ceramics. In addition to aesthetic changes that included new color schemes, new painting techniques, alterations in design, and a greater emphasis on iconographic imagery, some of the wares reflect a new production efficiency resulting from more specialized household and community-based industries. Also, they were traded over longer distances and were used more often in public ceremonies than earlier ceramic types. Through the study of glaze-painted pottery, archaeologists are beginning to understand that pots had "social lives" in this changing world and that careful reconstruction of the social lives of pots can help us understand the social lives of Puebloan peoples. In this book, fifteen contributors apply a wide range of technological and stylistic analysis techniques to pottery of the Rio Grande and Western Pueblo areas to show what it reveals about inter- and intra-community dynamics, work groups, migration, trade, and ideology in the precontact and early postcontact Puebloan world. Through material evidence, the contributors reveal that technological and aesthetic innovations were deliberately manipulated and disseminated to actively construct "communities of practice" that cut across language and settlement groups. *The Social Life of Pots* offers a wealth of new data from this crucial period of prehistory and is an important baseline for future work in this area." (http://www.uapress.arizona.edu/BOOKS/bid1668.htm)

Society for American Archaeology

2005 Ceramics in Archaeology: *Readings from American Antiquity 1936-2002*. Compiled By Hector Neff. Society for American Archaeology. Washington, D.C. (http://www.saa.org/)

Townsend, Richard F., ed.

2005 Casas Grandes and the Ceramic Art of the Ancient Southwest. The Art Institute of Chicago. Chicago.

"This catalogue accompanies The Art Institute of Chicago's major exhibit of Casas Grandes ceramics. It contains interpretive essays by art historians and a contemporary ceramic artist, all closely familiar with the ancient Southwestern arts. More than 140 illustrations in full color present, for the first time, a visually compelling picture of Casas Grandes vessels in relation to their neighboring ceramic styles. The catalogue is available through the Museum Shop and includes photographs and plans of important archaeological sites." (http://www.aic.org)

Whittlesey, Stephanie M. and Haren G. Harry, Statistical Research Inc.

2006 Pots, Potters, and Models: *Archaeological Investigations at the SRI Locus of the West Branch Site, Tucson, Arizona*. University of Arizona Press. Tucson.

"This CD-ROM and book present the research at a large, dispersed residential settlement located along the Santa Cruz River occupied during the Rincon phase of the Sedentary

period between about A.D. 950 and 1100. One of the most intensively excavated settlements in the Tucson Basin, excavations at the SRI locus provided an opportunity to return to a previously excavated site and contribute new evidence for earlier findings. West Branch has been identified as a community of potters who fabricated arange of painted, plain, and red ware ceramics. The research focused on this notion, exploring how pots were made, the ways in which potters carried out their craft, and models for the production and distribution of ceramic containers. Volume 1, Feature Descriptions, Material Culture, and Specialized Analyses, is provided in CD-ROM format and includes details of fieldwork such as feature descriptions and the descriptive artifactual and subsistence-data reports. Volume 2, Synthesis and Interpretations, presented in book format, offers the results of synthetic and interpretive analyses." (http://www.uapress.arizona.edu/BOOKS/bid1639.htm)

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

In the Museums

Born of Clay: Ceramics from the National Museum of the American Indian
November 5, 2005–May 30, 2007
George Gustav Heye Center, New York
The 301 remarkable pieces in this exhibition span 5,000 years and four distinct regions the Andes, eastern North America, Mesoamerica, and the southwestern United States. These clay creations are explored as the products of ongoing, complex societies and individual artistry. The exhibit includes the ideas of eight contemporary potters from the four regions who express the idea that despite differences in the composition, form, and decoration of pottery, Native potters share respect for ancestral traditions, a belief in the sacredness of clay, and an appreciation for the changing use of ceramics. (http://www.nmai.si.edu)

Casas Grandes and the Ceramic Art of the Ancient Southwest
April 22-August 13, 2006
Regenstein Hall, Art Institute of Chicago, Chicago

Jar with both a plumed serpent and a macaw-headed serpent, A.D. 1280-1450. Casas Grandes; Ramos Polychrome. 22.2 x. 23 cm (8 3/4 x 9 1/2 in.). Private collection. G22315

Overview: Between A.D. 1200 and 1400, in the vast desert region comprising parts of the American Southwest and Northwest Mexico, there flourished many ancient Indian communities whose diverse ceramic arts are considered among the most accomplished in the world. The visual tradition of this distinctive cultural area bears an unmistakable "South-western" character,

readily distinguished from that of Mesoamerica to the south, or the arts of the ancient Mississippian world to the east. Simple volumetric containers-spheres, hemispheres, and various globular forms-are covered with complex inter-locking geometrical designs, sometimes combined with bold abstract animal and human figures. Yet within this larger shared tradition, there are many identifiable local styles and symbolic vocabularies created by different communities to represent and maintain their own cultural identity and sense of place in the landscape.

Casas Grandes and the Ceramic Art of the Ancient Southwest will be the first major exhibition to explore, through works of the highest artistic order, the complex imagery of the Casas Grandes-Pakimé tradition of Northwest Mexico, in relation to the more archaeologically well-known and aesthetically appreciated styles of the American part of the Great Southwest. The extensive Casas Grandes region, with its desert, rivers, and mountains, has been the subject of important archaeological explorations, and recent publications have outlined its significance in relation to the other cultural areas to the north-Hohokam, Mimbres, and Anasazi. In contrast the rich artistic achievement Casas Grandes ceramic works has barely been explored. The exhibition will feature some 60 Casas vessels selected for the highest quality from public and private collections; these earthenware forms will be presented and discussed in relation to approximately 60 others of comparable masterpiece quality, representing other major styles the ancient Southwest. Contrasting and comparing this powerful imagery will reveal as never before the exceptional achievement of Casas master-potters, hitherto largely unknown to the public. Polychromatic designs of animals both real and mythological, together with abstract human figures and geometries of remarkable variation, will be displayed to reveal their imaginative complexity. Certain motifs display affinities with Mesoamerican imagery yet they are incorporated into a visual vocabulary reflecting the tradition of abstract design and the cosmological outlook of the Southwestern desert cultural domain to which they belonged. Today, the Pueblo, Pima, and Papago peoples of New Mexico and Arizona trace ancestry to the ancient communities of the American part of the Southwest, while the old Casas Grandes communities have been absorbed in the larger populations of Northern Mexico. (http://www.aic.org)

Color* Second Installation of *Elements of Earth and Fire

through November, 2006

Museum of Indian Arts and Culture, Santa Fe. (http://www.miaclab.org)

Elements of Earth and Fire consists of three four-month installations, each focusing on one element of pottery making: form, color, or texture. The series highlights the work of over twenty unconventional potters and explores how they use pottery making to communicate individual artistic expressions and communal identity. This second installation highlights new uses of color in Pueblo pottery. Included in Color are the works of Diego Romero (Cochiti) who was born into a family of traditional Cochiti painters but raised in Berkeley, California. His work is truly cross-cultural. Les Namingha (Hopi Navajo) is a member of the illustrious Nampeyo pottery family of Hopi. Namingha incorporates his contemporary training with his traditional roots to create a unique style of indigenous pottery, and Daryl Candelaria (San Felipe Pueblo).

Texture* Third Installation of *Elements of Earth and Fire

The third and final installation will address similar themes of innovation and tradition, and will highlight experimentation in texture. Among those whose work will be featured are three highly regarded artists from Santa Clara Pueblo: Jennifer Tafoya Moquino, Grace Medicine Flower, and

Kevin Naranjo. *Texture* highlights new uses of texture in Pueblo pottery and addresses themes of innovation and tradition. It opens July 2 and runs through October 8, 2006.

Mesa Verde: 100 Years at the Park, 10,000 on the Plateau
May 28, 2006 - Sun. Oct 29, 2006, 1:00 pm to 4:00 pm
Center of Southwest Studies Gallery, Durango
Phone**:** 970-247-7456
This huge exhibition is a partnership project of Fort Lewis College, Mesa Verde Museum Association, Mesa Verde National Park, and Mesa Verde Foundation. It fills three galleries and took two years to assemble. It is a historic, geographic, archaeological and art exhibit. The "Place Form and Color" is the section devoted to details of individual Mesa Verde buildings. Here is where you will find drawings and photos of petroglyphs as well as three-dimensional exhibits of pottery ranging from ancient shards to painted tourist plates.
(http://www.swcenter.fortlewis.edu)

The Secrets of Casas Grandes
November 5, 2006 – October 2007
Museum of Indian Arts & Culture /Laboratory of Anthropology, Santa Fe

Ramos Polychrome jar with horned serpent iconography, Casas Grandes, AD 1200-1450. 16.2 cm. x 19.0 cm. Edward Ledwedge collection, Museum of Indian Arts & Culture / Laboratory of Anthropology, 8313/11

This exhibit is unique in its focus on the archaeology and ceramics of Casas Grandes, Northern Mexico, a little-known prehispanic culture of the Greater Southwest. Concentrated around the prehistoric site of Paquimé in northwestern Chihuahua, Casas Grandes was the most complex society of its time, blending elements of ancestral Puebloan and Mesoamerican culture. During the Medio period of A.D. 1200-1425, Casas Grandes was a major regional center of interaction and trade, with evidence of ball courts and exotic artifacts such as copper, shell, turquoise, and macaws.

Specialist potters made striking, intricately-painted effigy vessels and geometric polychrome ollas. The vibrant pottery features elaborate symbolic imagery and depicts humans, supernatural beings, and animals, including macaws, owls, fish, turtles, lizards, feathered and horned serpents, and other fantastic creatures. Some scenes portray dancing figures with animal headdresses, and appear to tell stories of transformation from the human to spiritual realm. Along with other archaeological evidence, the variety of ceramic forms and intriguing iconography offer a window to the ancient Casas Grandes world.

Today these ceramics are considered remarkable works of art, and several recent museum exhibits have displayed them from the perspective of art history. The current exhibit differs by exploring what the ceramics tell us about the people who made and used them—beyond their

beauty as art objects—and by considering the larger society in which they functioned in utilitarian and ritual contexts. The exhibit presents current archaeological findings and highlights future research problems that concern the remaining secrets of Casas Grandes.

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)

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.
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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.

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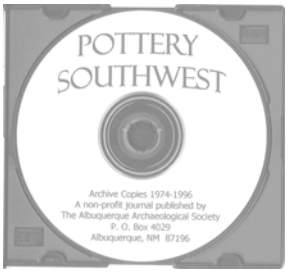

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