

1978

# PREHISTORIC CREMATIONS FROM NOGALES, ARIZONA \*

Karl J. Reinhard

*University of Nebraska at Lincoln*, kreinhard1@mac.com

Jeff H. Shipman

*University of Arizona*

Follow this and additional works at: <http://digitalcommons.unl.edu/natresreinhard>



Part of the [Archaeological Anthropology Commons](#), [Ecology and Evolutionary Biology Commons](#), [Environmental Public Health Commons](#), [Other Public Health Commons](#), and the [Parasitology Commons](#)

---

Reinhard, Karl J. and Shipman, Jeff H., "PREHISTORIC CREMATIONS FROM NOGALES, ARIZONA \*" (1978). *Karl Reinhard Papers/Publications*. 43.

<http://digitalcommons.unl.edu/natresreinhard/43>

This Article is brought to you for free and open access by the Natural Resources, School of at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Karl Reinhard Papers/Publications by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

## PREHISTORIC CREMATIONS FROM NOGALES, ARIZONA\*

KARL J. REINHARD

Arizona State Museum

with a contribution by

Jeff H. Shipman

Human Identification Laboratory  
University of Arizona

### ABSTRACT

In October, 1969, the Highway Salvage Section of the Arizona State Museum conducted emergency salvage excavations in conjunction with the construction of the Tucson-Nogales Highway. Ten cremations were recovered from a backhoe trench which had been placed within the city limits of Nogales, Arizona. Analysis of the cremations indicated cultural contact between the Trincheras culture of Sonora, Mexico, and the Hohokam culture of the Santa Cruz River Valley in southern Arizona.

### INTRODUCTION AND BACKGROUND

This paper summarizes the excavation of 10 cremations undertaken by the Highway Salvage Section of the Arizona State Museum during the construction of the Tucson-Nogales Highway in October, 1969. The site was discovered by a New Pueblo Construction Company trenching crew within the city of Nogales, Arizona, approximately one block north of the intersection of Sonita Street and International Street. When a few cremations were exposed by the backhoe, construction was halted and the Arizona State Museum was notified. Laurens C. Hammack, Highway Salvage Archaeologist, excavated the cremations from the sides of the backhoe trench. After six hours of work, the excavation was terminated and the area was cleared for further construction. The remainder of the site is now lost or under the city of Nogales. The site was recorded in the State Museum files as Arizona EE:9:68.

### SITE DESCRIPTION

The backhoe trench dug by the construction crew ran east-west across Sonita Street and was approximately 0.6 m in depth, 1.0 m wide, and 30 m

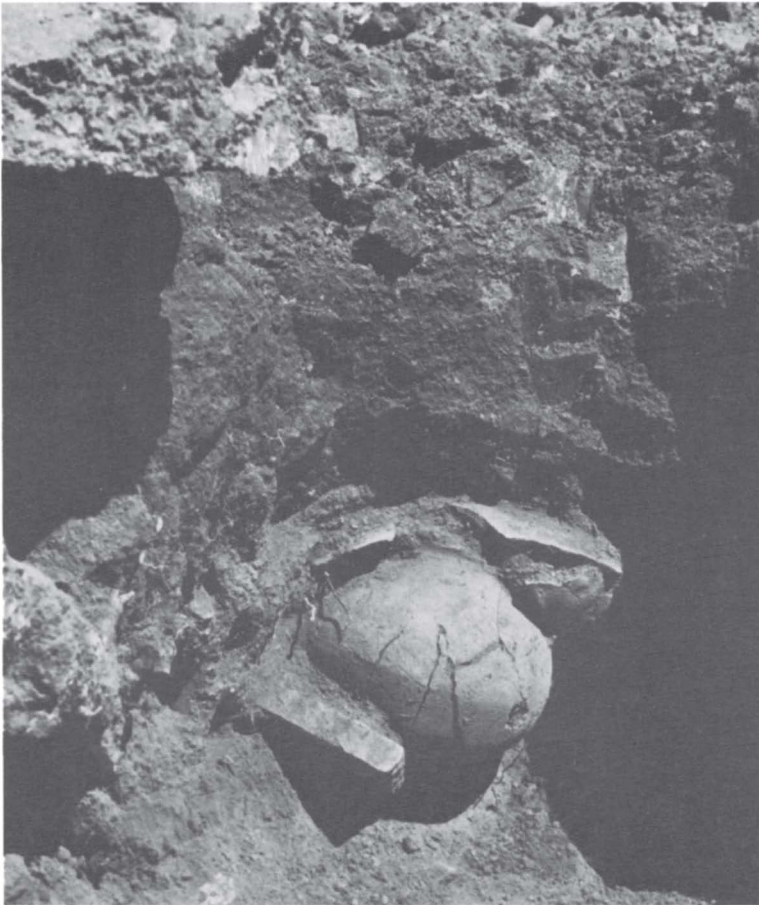
---

\*Contribution to Highway Salvage Archaeology in Arizona, No. 56



Figure 1. a) the backhoe trench;

long, (Figure 1a). Ten cremations were recovered from the trench walls, and two jars were reconstructed from sherds collected from the trench backdirt. All cremations were secondary urn cremations. Nine were upright urn cremations, and one was an inverted urn cremation, a jar turned upside down over the ashes. These cremations were concentrated in the western portion of the trench, each occupying its own shallow pit except for Cremations 5, 6, and 7, which were found occupying a single common pit. The pits ranged from between 50 and 60 cm below present ground surface and were spaced irregularly along the trench walls (Figure 1b). Cremations 5, 6, 7, 8, 9, and 10



b) an exposed cremation from the trench.

were located along the south trench wall; Cremations 1, 2, 3, and 4 were along the north wall.

All of the recovered cremations were found in contact with the trench walls. Since excavation was limited only to the trench walls, it is probable that these cremations represent only a portion of a much larger interment area containing many more cremations than the 10 reported here.

Table 1 summarizes the artifacts found with the 10 cremations.

## **CERAMIC ANALYSIS**

### **Cremation 1**

A small, sooted, coarse tempered jar was found with Cremation 1 (Figure 2a). This jar is squat with a recurved rim. The remnants of two clay knobs on opposite sides of the jar indicate that it was double-lugged or double-handled. Temper is of sand with a very crumbly fracture. Mica is present on the vessel's smoothed exterior, and scraping marks are present on the vessel's interior. The vessel was found inverted over the ashes in the bottom of the cremation pit. This is the only example of an inverted urn cremation at this site.

### **Cremation 2**

A sooted, fragmentary jar was recovered with Cremation 2. Brush striations on both the interior and exterior surfaces are reminiscent of interior scoring exhibited by Trincheras plainware vessels. Temper is similar to that of the jar found with Cremation 1.

### **Cremation 3**

The first decorated vessel to be uncovered was a small, globular, sand tempered and apparently multi-spouted jar (Figure 2e). The exterior of this vessel is heavily fire clouded and its red paint so eroded as to obliterate large parts of the design. Scraping marks run halfway up the interior surface. In addition to one intact spout, there are remnants of one other. A portion of the vessel was destroyed by the backhoe, so it is difficult to determine how many additional spouts may have been present, though three or four are conjectured. The design consists of interlocking scrolls trailing from hourglass elements and extends from the spout necks to the base of the vessel. This is a typical design of Rillito Red-on-brown vessels.

### **Cremation 4**

A second partial Rillito Red-on-brown jar was uncovered with Cremation 4 (Figure 2f). Banded decoration extends from the recurve just below the rim to the vessel's base. The temper is of fine sand with some flakes of mica.

**Table 1.** Cremations and associated artifacts from Arizona EE:9:68.

	Sex/Age	Associated Pottery Vessels	Other Burial Offerings	Notes
Cremation 1	child, 2-4 yrs.			
	child, less than 2	plainware jar		
Cremation 2	adult, age unknown	plainware jar	<i>Glycymeris</i>	
	child, under 6 yrs.		shell bead	
Cremation 3	adult male	Rillito Red-on-brown jar	non-human bone fragments	
Cremation 4	no bones recovered*	Rillito Red-on-brown jar		
Cremation 5	adult, possibly male	plainware jar	non-human bone fragments	jar exhibits a "kill" hole in its side
Cremation 6	child, 2-5 yrs.	plainware jar plainware bowl		plainware bowl exhibits a "kill" hole in its bottom
Cremation 7	child, 2-5 yrs.	purple-on-brown jar	shell ring and 14 shell bracelet fragments	
Cremation 8	no bones recovered*	plainware jar partial Rillito Red-on-brown bowl	incised bone fragments	
Cremation 9	adult, possibly male	purple-on-brown jar	incised bone fragments	
Cremation 10	adult, sex unknown child, under 6 yrs.	plainware jar	palette and specular hematite	

\*Due to the disturbance by the backhoe, no material for osteological analysis was recovered.

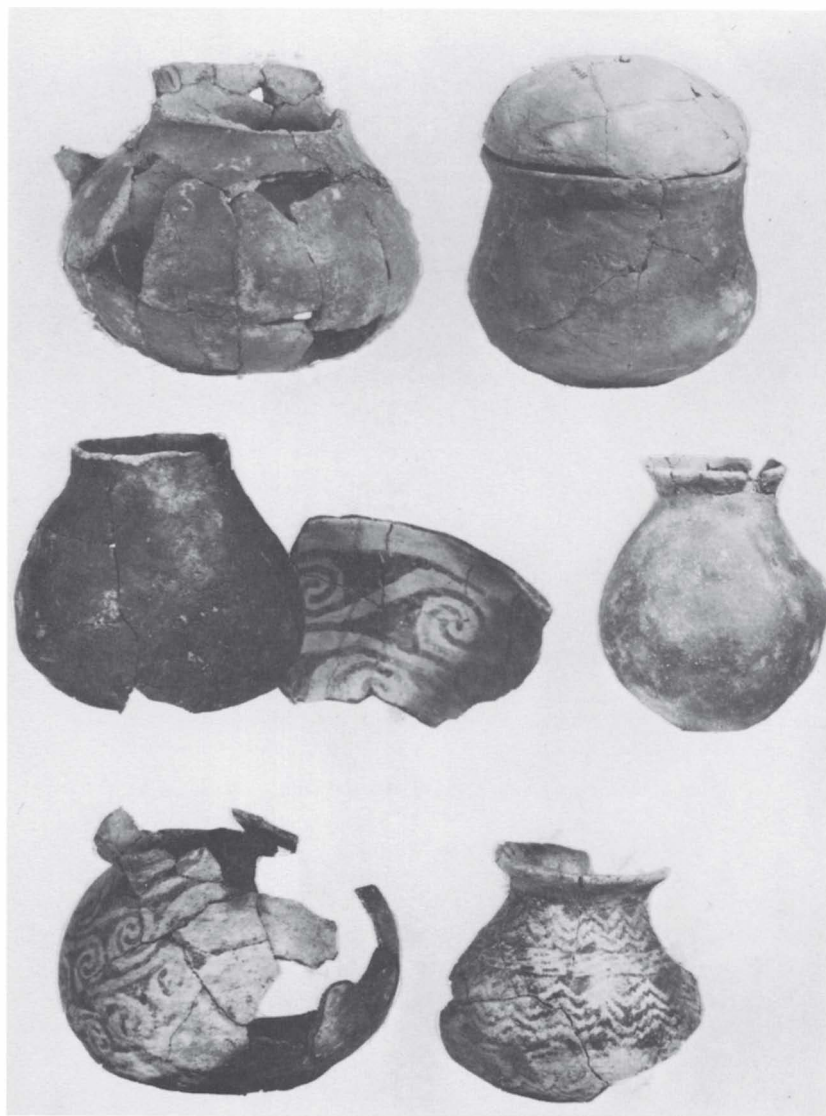
### Cremation 5

The plainware jar found with Cremation 5 is sooted similarly to the Cremation 1 vessel. Its temper, however, is finer and its fracture, though crumbly, is less fragile. It is sand tempered, but contains more clay in its paste. Flakes of mica are present on the exterior surface. Its base shows blackening and wear indicating the vessel filled a utilitarian role before serving as a crematory urn. A "kill" hole, roughly 2.0 cm in diameter, is present in the side, punched through from the exterior and shearing clay and temper off the interior surface.

### Cremation 6

Two vessels were found with Cremation 6 (Figure 2b). The first, which contained cremated bone, is a light brown, wide mouth plainware jar. The sand temper is rather sparsely scattered through the paste.





**Figure 2.** a) *top left*, lugged vessel, Cremation 1; b) *top right*, two plainware vessels, Cremation 6; c) *middle left*, plainware jar and Rillito Red-on-brown cover sherd, Cremation 8; d) *middle right*, purple-on-brown jar (purple paint on rim interior), Cremation 7; e) *bottom left*, Rillito Red-on-brown jar, Cremation 3; f) *bottom right*, Rillito Red-on-brown jar, Cremation 4.

A small, shallow, plainware bowl served as a cover for the cremation vessel. It was found inverted over the larger vessel and exhibits a "kill" hole drilled very carefully through its center. The hole measures 2.0 cm in diameter. The bowl is dark orange in color and exhibits no fire clouding.

### Cremation 7

A small, purple-on-brown flair-rimmed jar was found containing the ashes of Cremation 7 (Figure 2d). It is sand tempered and crumbly as are most of the plainwares. Drying cracks criss-cross the vessel walls and base, and though the vessel exterior was smoothed, remnants and depressions left by the original coils are visible. The vessel is decorated with a line of roughly dribbled non-specular purple paint. The vessel temper, surface, and paste color are not similar in temper or color to any of the Trincheras decorated sherds from southern Arizona examined in the Arizona State Museum type collections. It appears that this jar is not a true Trincheras Purple-on-red but rather a local purple-on-brown. A burial offering of shell ornaments found with this cremation is discussed below.

### Cremation 8

Two vessels were recovered with Cremation 8 including a partial plainware jar and a partial Rillito Red-on-brown bowl (Figure 2c). Small fragments of incised bone that were also present are discussed below.

The plainware jar contained the crematory ashes. It is sand tempered and dark gray in color. The recurved rim, which had broken off at one time, was reground.

The bowl sherd served as a cover for the jar. The interior is decorated with two bands of interlocking scrolls.

### Cremation 9

The largest vessel found with the cremations was uncovered with Cremation 9. It is a sand tempered jar decorated with triangular pendants painted in highly specular purple paint. The pendants extend from the rim to about midway down the vessel wall. The temper of the vessel is comparable to that of the purple-on-brown vessel from Cremation 7 and with the plainware vessels from Cremations 1, 5, and 8. This vessel, like the purple-on-brown jar from Cremation 7, seems to be a local variation of Trincheras Purple-on-red.

### Cremation 10

Artifacts from Cremation 10 included a soot blackened plainware jar, a palette, and a sample of specular hematite pigment poured into the jar with



the ashes. The jar itself was badly crushed, and because of its fragile nature and the samples of specular hematite adhering to the sherds, was only partially reassembled. This sand tempered vessel appears to have been a squat jar with a recurved rim similar to that of the jar from Cremation 1. The palette and hematite are discussed below.

### **Vessels from Backdirt**

Four partial vessels were reconstructed from sherds recovered from the trench backdirt. The first vessel is a large, sand tempered Rillito Red-on-brown seed bowl. It is decorated with four vertical bands of curvilinear, interlocking scrolls, with the area between the bands filled by a complex combination of parallel zig-zag lines, barbed lines, and negative zig-zag lines. Its base shows much wear suggesting that it served a utilitarian purpose before being used as a crematory vessel. The other reconstructed vessel is a light orange colored jar. It is sand tempered and heavily fire clouded.

Two large bowl sherds were also obtained from the trench backdirt (Figure 3). Both are typical of Trincheras Specular Purple-on-red (Withers 1941:36-40). The first exhibits a bright red, polished slip. Its decoration consists of sawtooth pendants from the rim and interlocking triangles with pendant dots on the interior. Both of the designs are typical of Trincheras pottery design motifs. The second bowl sherd is also typical of Trincheras Purple-on-red. Its surface color, however, is not so deep a red as the first. It varies from orange to tan and looks to be floated instead of slipped (Hawley 1936:10). On this background a design consisting of sawtooth pendants from the rim and two horizontal bands of connected, interlocking curvilinear scrolls has been painted. The scrolls are painted in a manner to produce a negative interlocking 'S' scroll effect. Both sherds are polished and exhibit highly specular purple paint. They also bear use striations perpendicular to and on the exterior of the rim, indicating use as scoops after the original bowls were broken. Since these sherds were recovered from backdirt, it is impossible to ascertain their crematory context.

Two hundred and twenty-nine miscellaneous sherds were collected from the backdirt. Two hundred and four were plainware and 25 sherds were decorated (Figure 4 and Table 2).

### **CERAMIC SUMMARY**

The sherds and whole vessels recovered at Arizona EE:9:68 can be grouped together under three broad categories. The first is local brownwares. This would include the plainware vessels recovered in Cremations 1, 2, 5, 6, 8, 10, and the jars reconstructed from sifted backdirt. Also included are the purple-on-brown jars from Cremations 7 and 9 plus the red-on-brown seed jar



**Figure 3.** Trincheras Purple-on-red sherds recovered from the trench backdirt. Both have been re-utilized as scoops.



**Figure 4.** Miscellaneous sherds from backdirt: *upper left*, two Trincheras Purple-on-red; *lower left*, two Trincheras Polychrome; *right*, Rincon Red-on-brown sherds.

**Table 2.** Miscellaneous sherds recovered from backdirt.

	Jar Sherds	Bowl Sherds	Indeterminate Vessel Form	Total
Historic decorated	—	—	1	1
Sand tempered plainware	186	6	11	203
Trincheras Specular				
Purple-on-red (slipped)	—	3	—	3
Trincheras Non-Specular				
Purple-on-red	—	8	—	8
Trincheras Polychrome	—	2	—	2
Redware (burned)	—	2	—	2
Rillito Red-on-brown	6	1	—	7
Buffwares	2	—	—	2
	194	22	12	228

reconstructed from the backdirt. These vessels are grouped together on the basis of their commonly coarse temper, poor surface treatment, and apparent low firing temperature. Low firing temperature is evidenced by a dense, heavy texture and a tendency to disintegrate in water.

The second grouping consists of the red-on-brown vessels found with Cremations 3, 4, and 8, all of which are typed as Rillito Red-on-brown. These two jars and partial bowl are distinct from the rest of the assemblage in exhibiting rather finely executed decoration and surface polish. Vessel walls are thin and seem to be well fired. These artifacts are interpreted as trade pieces from further north along the Santa Cruz River in the Tucson Basin.

The final category of pottery consists of the two Trincheras Purple-on-red bowl fragments reassembled from the backdirt, and Trincheras Purple-on-red and Polychrome sherds found on the site. These ceramics stand out clearly from the rest of the assemblage due to their red-slip, thin walls, well applied purple paint, and finely polished surfaces. These examples mark the furthest divergence from the local pottery and are part of a very well developed ceramic tradition. This tradition is associated with the Trincheras culture from northern Sonora and dated between A.D. 800 and 1100 (Johnson 1963:182-83).

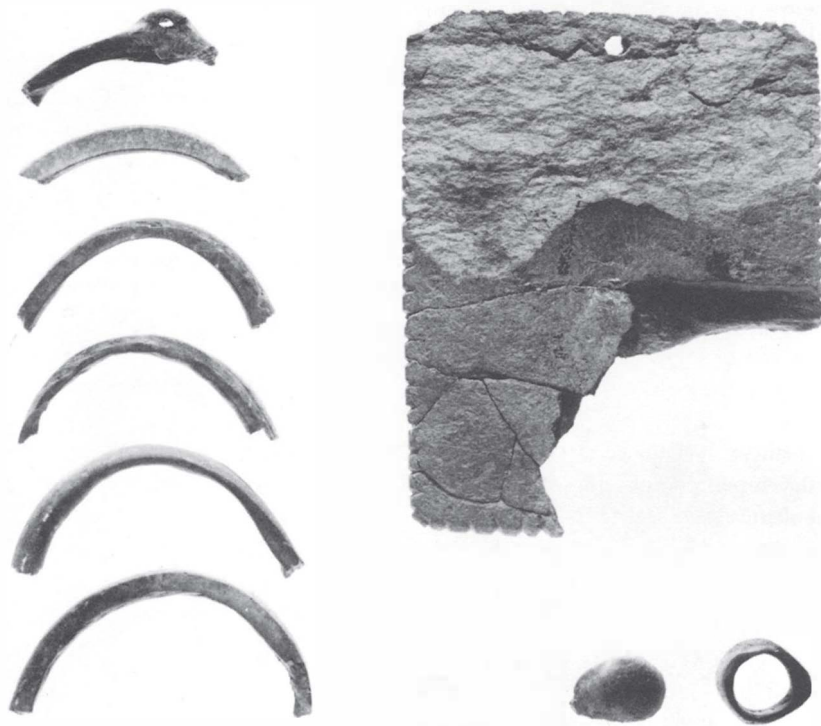
### NON-CERAMIC OFFERINGS

Offerings were found with Cremations 2, 3, 5, 7, 8, 9, and 10. Fourteen shell bracelet fragments and one shell ring were found with Cremation 7 (Figure 5). All bracelets exhibited perforated umbula for suspension and were burned, probably in the crematory fire. A single *Glycymeris* shell bead was discovered with Cremation 2 (Figure 5).

Fragmentary pieces of non-human bone were found with Cremations 3, 5, 8, and 9. The bone found with Cremations 8 and 9 was incised, but the bone found with Cremations 3 and 5 was unworked. The bone from Cremation 3 was tentatively identified as bear (Stanley J. Olsen, Zooarchaeologist, Arizona State Museum). Little more can be said about these offerings as the bones are too fragmentary.

A slate palette from Cremation 10 was, unlike the associated plainware jar, reconstructed (Figure 5). It measures 9 cm long and 7.2 cm wide. Notches appear on the four edges spaced at regular 4 mm intervals. The palette shows a circular use depression at its center, 3 cm in diameter and approximately 2 mm in depth. A suspension hole has been drilled 4 mm from one of the shorter edges. This slate palette has been fractured by heat indicating that it too was burned in the crematory fire.

Ground specular hematite, the pigment used for purple paint, was also added as an additional offering with Cremation 10.



**Figure 5.** Shell and stone artifacts: *left*, shell bracelet fragments, Cremation 7; *upper right*, slate palette, Cremation 10; *lower right*, *Glycymeris* bead, Cremation 2 and shell ring, Cremation 7.

## OSTEOLOGICAL REMAINS

The human bone collected at Arizona EE:9:68 was submitted for analysis to determine the age, sex, and possible pathologies present in eight of 10 cremations. Bone from the other two cremations was scattered by the backhoe and not recovered.

Definitive statements concerning the age and sex of an individual represented by cremated remains can rarely be made. For example, if the robusticity of bone fragments in a given cremation falls within the range of variation consistent with that of adult males, the osteologist may indicate that the cremation was probably an adult male. However, because the same robusticity is present within the extreme range of variation for adult females, there is always some question as to whether that cremation was actually an adult male. The nature of fragmentary, cremated material often makes definite skeletal interpretation extremely difficult.

Sorting through cremated human bone is a tedious and time consuming task. Jeff H. Shipman of the University of Arizona's Human Identification Laboratory analyzed the cremated bone from Arizona EE:9:68. His analysis is presented below.

The following are the results of my examination of eight cremations which were submitted to this laboratory for analysis.

*Cremation - 1:* The skeletal material represents two individuals, based on 1 left and 2 right temporal pyramids. One individual, identified by the size of separate basi-occiput and temporal pyramid fragments, is a child approximately 2-5 years of age. The other individual is an infant, less than 2 years of age as determined from the incompletely formed apices of the deciduous molar roots. The metopic suture is still patent.

No osseous anomalies or pathologies are observed. The total cremated bone weight is 106.0 grams.

*Cremation - 2:* Two individuals, an adult and child, are represented in the debris. The sex of the adult is indeterminate, and the age is based largely upon fragments of a cervical vertebra, and acetabulum, and a maxilla. The child's age (under 6 years) is based on the unerupted first permanent molars.

No anomalies or pathologies are observed and no non-metric observations could be taken. The total cremation weight is 106.7 grams.

*Cremation - 3:* The adult male from this cremation is represented by only 30.5 grams of total osseous material. The identifiable cranial fragments consist only of the occipital squamous with heavy nuchal markings and a supra-inion depression. (No determination can be made concerning deformation, however.)

No dentition, bony anomalies or pathologies, or non-metric observations are observed.

*Cremation - 4:* Not submitted.

*Cremation - 5:* There are by far more skeletal fragments (710.7 grams) here than in any of the other submitted cremations. The right supra-orbital border exhibits a morphology that is consistent for known adult males.



There are both mandibular and maxillary root fragments. No dental pathologies are evident. In neither the cranial nor postcranial skeleton are pathologies or anomalies observed. Although there are many fragments in this cremation, there is no evidence which would suggest that more than one individual is represented.

*Cremation - 6:* This incomplete cremation represents a child aged 2-5 years at death. The age of this individual is based on the size of the temporal pyramids and on an unerupted permanent molar.

No observable skeletal anomalies or pathologies can be found, nor can any non-metric observations be made. The total cremation weight is a mere 14 grams.

*Cremation - 7:* The burned remains are those of a child aged 2-5 years at death. This individual is aged on the basis of an unerupted permanent molar. The metopic suture of the frontal is not patent.

No anomalies or pathologies are observed. Non-metric observations were not taken except for the lack of a metopic suture. The total cremation weight is 57.4 grams.

*Cremation - 8:* Not submitted.

*Cremation - 9:* This osseous material is that of an adult and possibly a male. The sex is based on the robusticity of cranial and postcranial fragments. Dentally, only one single-rooted tooth is represented in the debris.

No anomalies or pathologies can be found and neither can any non-metric observations be made. The total cremation weight is 154.0 grams.

*Cremation - 10:* This material is representative of an adult and a child. The age of the adult is based on worn permanent molars and cortical and cranial thicknesses; the sex is indeterminate. The infant was less than 6 years of age at death, based on the deciduous molars and a canine. (The age is also determined by small long bones and the cranial thickness.)

Two deciduous molars, one deciduous canine, and one permanent molar represent the dentition in this cremation. No pathologies, anomalies or non-metric traits are observed. The total cremation weight is 91.0 grams.

*General Site:* These burned remains are those of an adult, based on cortical thicknesses of the limb bones. The sex cannot be determined for this individual.

No pathologies or anomalies can be detected. The total cremation weight is 26.5 grams.

## OSTEOLOGICAL SUMMARY

All of the cremations from Arizona EE:9:68 are below the 2000 gram bone weight expected for cremated human adults. The largest parcel of bone, from Cremation 5, weighed 710 grams. The smallest cremation (6) weighed 14 grams. These low weights may reflect poor gleaning practices after burning, resulting in most of the bone being left in the crematoria. A second possible explanation is that serial cremation was practiced. Serial cremation involves depositing the burnt bone of a single individual in several vessels and in several different pits.

Sex and age determinations are listed in Table 1. Eleven individuals are represented in the eight cremations submitted for analysis. All individuals that could be sexed were adult male. Cremations 3 and 5 probably contain the remnants of adult males, while Cremation 9 is possibly that of an adult male. Determinations in all three cases were based on cranial characteristics. The determination for Cremation 9 was also based on post-cranial characteristics.

Juveniles or infants were represented in Cremations 1, 2, 6, 7, and 10. These determinations were based largely on dental characteristics and to a lesser degree on cranial fragments.

Cremations 1, 2, and 10 contained the remains of two individuals each. Fragments of an infant and a juvenile were present in Cremation 1. Fragments of both a juvenile and an adult (sex unknown) were present in Cremations 2 and 10.

The interment of two individuals in a single cremation pit (or vessel) is rare in the Hohokam area. Due to the small amounts of bone present in the cremations, it is impossible to say with certainty that multiple cremation (more than one body in a vessel) was a deliberate practice. The bones of two individuals could have been mixed together in the crematoria or, less likely, the bones of two individuals were mixed after interment by rodent activity. Multiple cremations may also be those of an infant and its mother, both of whom may have died in childbirth, or simply represent periodic cleanings of crematoria in which all miscellaneous bone was sealed in a single jar and buried. This latter explanation would account for the low bone weights of the cremations.

### ARCHAEOLOGICAL IMPLICATIONS

The cremations recovered at Arizona EE:9:68 represent a portion of a larger cremation area probably associated with a village as yet undiscovered or long since destroyed by the construction of surrounding buildings and roads. The 10 cremations were deposited during the Hohokam Rillito phase (between A.D. 700 and 900). This is evidenced by the three Rillito Red-on-brown jars and the one partial Rillito Red-on-brown bowl found with the cremations. The cremation pattern at Arizona EE:9:68 closely resembles the cremation pattern of the Hohokam segment at San Cayetano del Tumacacori (DiPeso 1956:540) and at the Baca Float sites (Doyel 1977). These sites are in close proximity to each other and lie approximately 32 km (20 miles) north of Nogales along the Santa Cruz River (see Figure 6). Assemblages from all of these sites hint at culture contact between the Hohokam of southern Arizona and the Trincheras culture of northern Sonora.

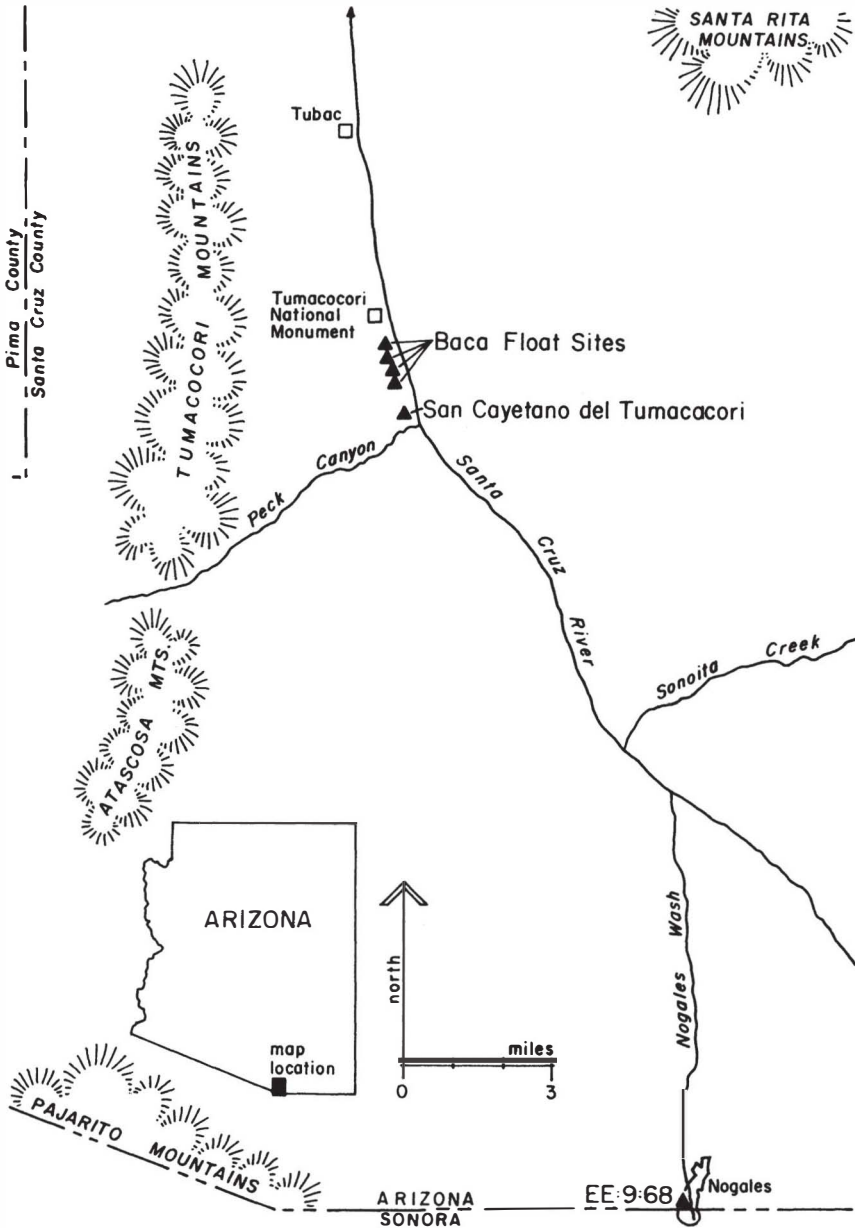


Figure 6. Map of Santa Cruz River showing contact zone in relation to the Tucson Basin, San Cayetano, and Baca Float sites.

For the purpose of this paper, the area that exhibits the greatest mixture of Trincheras and Hohokam artifacts will be termed the Santa Cruz contact zone. This area runs along the Santa Cruz River and its tributary streams between Tumacacori and Nogales (Figure 6).

The cremations at Arizona EE:9:68 represent eleven individuals. Six of these were found in three double cremations (two individuals were sealed in each of three jars buried in separate pits). Three more single cremations were buried together in one pit.

The Santa Cruz River Valley between Nogales and the Baca Float sites was a zone of contact between the Hohokam and Trincheras cultures. Traits common to both are represented in the artifactual assemblages at Arizona EE:9:68. The secondary urn mode of cremation, the practice of occasionally "killing" funerary vessels, and the use of multiple cremations are seen as reflective of a ceremonial tradition demonstrably different from the Salt-Gila Hohokam typified at Snaketown. The differences between these two areas may be the result of culture contact and the diffusion of cremation practices from the Trincheras area northward along the Santa Cruz River.

The Trincheras culture of Sonora is poorly defined. The culture is marked primarily by pottery painted with purple pigment made with specular hematite. Trincheras Purple-on-red, Trincheras Polychrome, and Nogales Polychrome are the major types of purple painted pottery. Data relating to Trincheras burial or cremation practices are almost non-existent, so the testing of hypothesized culture contact and the relation of Santa Cruz contact zone cremation practices to the Trincheras culture must depend on further work in northern Sonora. However, it can be demonstrated that the cremation pattern in the Santa Cruz contact zone is quite distinct from that at Snaketown and the Gila-Salt Hohokam. Santa Cruz contact zone cremation practices are also quite different from cremation practices in the San Pedro Valley (Masse n.d.) and those of the Gleeson site in the Empire Valley (Fulton 1940).

Many different types of cremation were practiced in southern Arizona prehistorically. Primary cremation consisted of burning the body over an elongated pit and leaving the ashes and calcined bone in place where they fell. Secondary cremation refers to the practice in which the body is burned in a crematorium after which the ashes and bones are collected and placed in a pit within a cremation area.

There are many types of secondary cremations, but two dominant types were in use during the Hohokam Colonial and Sedentary periods. In the Salt-Gila drainages, bones and ashes were deposited at the bottom of a small circular pit and covered with broken ceramic vessels and other funerary offerings (Haury 1976:164).

The other major type was secondary urn cremation. This involved placing the ashes and burned bones of a cremated individual in a ceramic vessel which was then deposited in a pit. Such vessels were sometimes sealed with a sherd or bowl. Secondary urn cremation does not appear at Snaketown until the Sedentary period and even then it was an occasional occurrence (Gladwin, Haury, Sayles and Gladwin 1937:96). Gladwin does illustrate urn cremation as a cremation mode in Snaketown's Sacaton phase. Inverted urn cremation merely refers to placing the vessel holding the cremated bone upside-down in the pit.

Urn cremations are the dominant cremation mode along the Santa Cruz River between Nogales and Tumacacori in the Colonial and Sedentary periods. The most concise and comprehensive description of Hohokam cremation in this area is presented in Doyel's report on the Baca Float sites (1977:20, 77). Doyel types the cremations found at the Baca Float sites as follows:

- 1a upright urn without cover
- 1b upright urn with bowl cover
- 1c upright urn with sherd cover
- 1d upright urn, sherd cover, sherd under urn
- 2a inverted urn with bowl cover
- 2b inverted urn without cover
- 2c inverted urn with sherd cover
- 3a sherd under with sherd over
- 3b sherd only

Of 32 cremations recovered at the Baca Float sites, 25 were upright urn cremations, 4 were inverted urn cremations, and 3 were associated with sherds only.

At San Cayetano, DiPeso (1956:540) found 75 Hohokam interments of which 53 were urn cremations. At Arizona EE:9:68 nine cremations were upright urn cremations with one inverted urn cremation. Table 3 illustrates the contact zone differences in the dominant cremation practices between sites in the Santa Cruz contact zone and other southern Arizona Hohokam sites.

"Killed" funerary urns are reported from both San Cayetano and Baca Float. This practice involves punching or drilling a small hole through the funerary urn. DiPeso (1956) reports that 6 percent of the San Cayetano cremations exhibited "kill" holes in crematory urns. The "kill" holes are found either in the side or bottom of a crematory urn or in the middle of the cover sherd or bowl. Doyel reports nine of the Baca Float cremations as bearing "kill" holes. He also reports a second type of ceremonial "killing" of crematory urns. This entails the breaking of portions of a vessel's rim before using it as a crematory urn. Six of his cremations exhibited broken rims. At

Table 3. Dominant types of cremations.

SITE	CREMATION MODE						TOTALS
	Pit	Trench	Urn (Undifferentiated)	Urn (Inverted)	Urn (Upright)	Unknown	
Sites outside of contact zone							
Snaketown (Haury 1976)	43	1	4				48
Alder Wash (Masse n.d.)	28			3	5		36
Punta de Agua (Greenleaf 1975)				12	4		16
Santa Cruz contact zone sites							
Baca Float (Doyel 1977)	3			4	25		32
San Cayetano (DiPeso 1956)	10		3	9	44	9	75
Arizona EE:9:68				1	9		10

Arizona EE:9:68 two cremations were associated with “killed” urns; no cremation vessels exhibited broken rims.

Another difference between the cremation pattern of the Santa Cruz contact zone and that of the Salt-Gila Hohokam is the presence of multiple cremations. This practice involves sealing the bones of two individuals in a single urn.

Shipman and Wolf (1977:185) report finding five multiple cremations in the Baca Float osteological material. Shipman found three such cremations at Arizona EE:9:68. Unfortunately the data from these sites are inconclusive as to whether multiple cremation was a deliberate practice, or if the ashes of two individuals were mixed and sealed in a single jar by accident. Furthermore, there are not enough data concerning burial patterns in the Trincheras area of Sonora to establish a correlation between burial practices there and multiple cremation in the Santa Cruz contact zone. However, in the Southwest multiple cremations are rare, even in Hohokam sites where cremation is a common practice. The frequency with which multiple cremations were found at Baca Float and Arizona EE:9:68 hint that multiple cremations may have been a common practice in Santa Cruz contact zone, whether deliberate or not.

Evidence suggesting that multiple cremations may have been a deliberate practice is the patterned association of one adult and one child in eight of 10 multiple cremations reported from southern Arizona. The children range in age from newborn to 5 years. Shipman and Wolf (1977) report four such associations among the five multiple cremations from the Baca Float sites.



The two multiple cremations from Alder Wash (Masse n.d.) fit this pattern, and two of the three multiple cremations from Arizona EE:9:68 exhibit this adult-child relationship. Although this sample is small, and the mixing of bone in multiple cremations may be purely fortuitous, these finds may represent a prehistoric preference for cremating the remains of a child, infant, or newborn with the body of an accompanying adult.

Only one instance of multiple cremation was reported from Snaketown (Birkby 1976:380). Here also, the cremation contained the remains of an adult and child.

If the Santa Cruz River Valley between Nogales and Baca Float is a contact zone between the Trincheras and Hohokam cultures, one would expect that further north along the Santa Cruz River cremation patterns would gradually resemble the typical pit cremation of the Salt-Gila Hohokam.

Greenleaf (1975:101) mentions Colonial and Sedentary period cremations from the Tucson Basin. Sixteen cremations are reported from Greenleaf's Punta de Agua sites. Inverted urn cremation is dominant over upright urn cremation. Four upright urn cremations were found as compared to 12 cremations in which the cremated bone was covered by a ceramic vessel. Greenleaf reports that inverted urn cremations at Punta de Agua usually consist of a bowl or two nested bowls inverted over piles of ashes and bone placed in the bottom of a pit (Greenleaf 1975:102). This pattern appears to be a combination of the Santa Cruz contact zone secondary urn cremation and the Salt-Gila pit cremation. Like the pit cremation, the ashes are gleaned from the crematorium and deposited in the bottom of a small pit. Like contact zone urn cremation, the ashes are sealed beneath an intact ceramic vessel. However, because the ashes are placed into the pit and then covered by the bowl, these are not the true urn cremations in which the ashes are sealed in a vessel before being placed in the pit. Consequently these cremations have been interpreted as an intermediate type combining aspects of both pit cremation of the Gila-Salt Hohokam and the urn cremation of the Santa Cruz contact zone.

Three "killed" vessels were found in association with the Punta de Agua sites showing further relations to cremation practices of the contact zone.

The urn cremation pattern in the Santa Cruz contact zone is distinct from that of the Salt-Gila branch Hohokam at Snaketown. Without further study, the implication of this difference cannot fully be understood. Doyel does not cite cremation as a trait difference between the Salt-Gila region and Santa Cruz contact zone, but he presents an explanation for other material cultural differences between the areas.

In this author's opinion, these differences can be attributed to two major factors. One of these is the spatial separation of the two areas, whereupon after the initial Hohokam population expanded into the Santa Cruz area traits

tended to diverge somewhat through time. . . . Secondly, and probably most important, it is necessary to recognize that material traits are reflective of the level of socio-cultural integration and should be reflective of the adaptive requirements of the social systems involved. (Doyel 1977:107)

In short, Doyel would attribute many of the differences between the Salt-Gila and Santa Cruz area to differences in subsistence strategy that effect the complexity of the social systems of the two areas. The Salt-Gila Hohokam based their subsistence on complicated canal irrigation which led to increased social complexity. Along the Santa Cruz River a reliance on dry-farming allowed the culture to continue at a lower level of social complexity.

The testing of this, or any other explanation, must await a better understanding of the Trincheras culture in Sonora. The material culture assemblage from Arizona EE:9:68 indicates some form of interrelationship between the Trincheras and Hohokam cultures. The finding of specular hematite and the presence of locally made purple-on-brown vessels indicates a southern influence on stylistic trends of prehistoric potters of the Nogales area. Perhaps the urn cremation pattern and "killed" vessels of Arizona EE:9:68 can also be fit into a Trincheras framework.

The cremations recovered from Nogales support the proposition that Arizona EE:9:68 lies in an area of contact between the Hohokam and Trincheras cultures. It is, however, impossible to establish whether the inhabitants of Arizona EE:9:68 were Hohokam, Trincheras, or a group whose cultural traits were determined by a subsistence pattern less complicated than the Salt-Gila Hohokam to the north. Such questions can only be answered after more data are collected from Nogales and the Trincheras area of northern Sonora.

#### ACKNOWLEDGEMENTS

The assistance of Bernard L. Fontana and Emil W. Haury of the Department of Anthropology, University of Arizona, in pottery identification is appreciated. I thank David E. Doyel of the Arizona State Museum for his critique of the paper's concluding remarks. Most importantly the editorial assistance provided by R. Gwinn Vivian and W. Bruce Masse was instrumental in writing the final version of this paper. Finally, I thank Laurens C. Hammack for his guidance and help in all stages of writing this report and Helga Teiwes for the photography.

#### REFERENCES

- Birkby, Walter H.  
1976 Cremated human remains. In *The Hohokam: Desert Farmers and Craftsmen*, by Emil W. Haury, pp. 380-84. The University of Arizona Press, Tucson.
- DiPeso, Charles C.  
1956 The Upper Pima of San Cayetano del Tumacacori. *The Amerind Foundation* 7.

- Doyel, David E.  
1977 Excavations in the middle Santa Cruz River Valley, southeastern Arizona. *Contribution to Highway Salvage Archaeology in Arizona* 44.
- Fulton, William Shirley and Carr Tuthill  
1940 An archaeological site near Gleeson, Arizona, *The Amerind Foundation* 1.
- Gladwin, Harold S., Emil W. Haury, E. B. Sayles, and Nora Gladwin  
1937 Excavations at Snaketown, material culture. *Medallion Papers* 25.
- Greenleaf, J. Cameron  
1975 Excavations at Punta de Agua. *Anthropological Papers of the University of Arizona* 26.
- Haury, Emil W.  
1976 *The Hohokam: Desert Farmers and Craftsmen*. The University of Arizona Press, Tucson.
- Hawley, Florence May  
1936 Field manual of prehistoric southwestern pottery types. *University of New Mexico Bulletin, Anthropological Series* 4.
- Johnson, Alfred E.  
1963 The Trincheras culture of northern Sonora. *American Antiquity* 29(2)174-86.
- Masse, W. Bruce  
n.d. The Peppersauce Wash project: Excavations at three multicomponent sites in the lower San Pedro River Valley, Arizona. *Contributions to Highway Salvage Archaeology in Arizona* 53.
- Shipman, Jeff H.  
n.d. Report on the cremated human remains from Ariz. EE:9:68. MS. Human identification Laboratory, The University of Arizona, Tucson.
- Shipman, Jeff H. and Lori B. Wolf  
1977 Analysis of the cremations from the Baca Float sites, AZ DD:8:122 and AZ DD:8:128. In "Excavations in the middle Santa Cruz River Valley, southeastern Arizona," by David E. Doyel, pp. 182-86. *Contribution to Highway Salvage Archaeology in Arizona* 44.
- Withers, Arnold M.  
1941 Excavations at Valshni Village, Arizona. MS. Master's thesis, University of Arizona, Tucson.