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Jimmy L. Mitchell
Editor

Cover Illustration: The Restored Spanish Governor's Palace.
Drawing by Mark A. Mitchell, Senior at Judson High School.

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EDITORIAL

PUBLIC EDUCATION

The April meeting of STAA was held at Trinity University to the accompanyment of a torrential downpour...quite typical in South Texas this spring. A sizeable crowd braved the storm to make the meeting one of the best in the last couple of years.

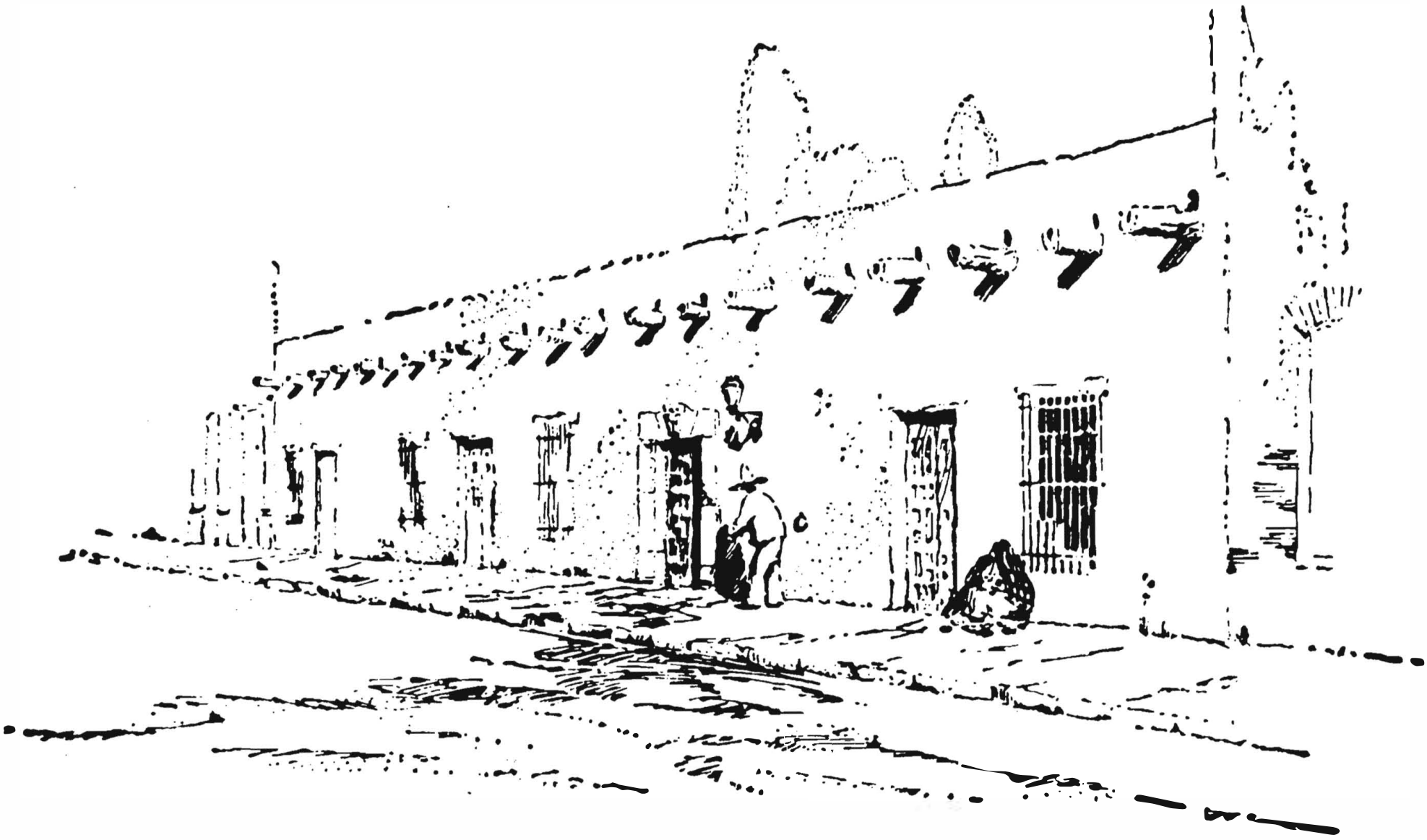
The STAA Board met prior to the scheduled business meeting and approved holding a July meeting in Victoria, Texas, at the Victoria College/University of Houston Library. The annual BBQ was deferred until October, when the weather should be more suitable; Steve Black will again pile up the Mesquite wood and serve as chief chef. Details will be published later in the Newsletter.

In addition, at the suggestion of Tom Hester, the Board approved the establishment of a scholarship fund for archaeological field schools to help worthy students defray part of normal tuition costs. Victoria members volunteered to start the fund with a gift of fifty dollars; in the tried and true tradition of Tom Kelly, the hat was passed during the business meeting and approximately $85 additional was collected. Thus, the fund is off to a good start. (Anyone wishing to donate to the cause can send their money in to the STAA business office.) This scholarship fund will be available for students who apply for field school at any university and who are recommended by an archaeological faculty member; applications may be submitted to the Board. The Board Chairman, Smitty Schmiedlin, appointed a screening committee to review applications and select a student or students for these scholarship awards.

The business meeting was followed by an exceptional program and a pleasant social hour. Among the attendees were students in the continuing education archaeology program cosponsored this spring by Trinity University and STAA (over 20 students enrolled in this 5-week continuing education program). Thus, these students also got a taste of the warm fellowship and sincere dedication of our group.

This April STAA meeting was one which was fully focused on the Public Education role of the Southern Texas Archaeological Association; our group sponsors specific archaeological programs such as the continuing education program with Trinity, conducts excellent quarterly meetings to update members and the public on what's happening in South Texas archaeology, and, through our new scholarship fund, helps worthy students to gain meaningful field experience. Truly, this was a most worthwhile experience, and it feels good to be a part of it.

The Editor



SPANISH GOVERNOR'S PALACE

Harvey P. Smith, Jr.

INTRODUCTION

Four chanting Indian warriors covered with paint and feathers danced around a huge hole in the ground. The depression contained a live horse, a tomahawk and four arrows. As the pagan celebration continued, observers might have thought they were deep in the wilderness. Actually, the scene was the center of Military Plaza and the Presidio de Béxar in 1749. With a final burst of activity, the horse was buried alive, as the ceremony concluded the signing of a peace treaty with the Apache and the Spanish *presidio* garrison at San Antonio de Béxar (Ramsdell 1959:103-4). The year 1749 was also a climax for the Spanish Governor's Palace on the west side of Military Plaza, since the year marks completion of the structure.

On another occasion just a few years before, the same *presidio* was attacked by 350 Apaches. The faltering defenders were reinforced by 100 mission Indians from the nearby San Antonio Mission de Valero, and defeat was turned to victory (Habig 1976:53).

All of this warfare and bloodshed seems hard to believe, as we view the relatively quiet and serene facade of the Spanish Governor's Palace, as it appears today in downtown San Antonio, Texas. Nevertheless, only about 230 years before, at the completion of the "Palace," action such as this was not unusual. Defending the small community of San Fernando was a full-time job for the local *presidio*. Undermanned and poorly supplied, the *presidio* was a frequent target for marauding Apache and Comanche bands.

Located on the west side of Military Plaza, the Governor's Palace has witnessed verbal as well as military and other physical conflict around and about it. In 1928 the old "Palace" stood in ruins and was finally rescued from impending oblivion when it was purchased by the City of San Antonio and scheduled for restoration. Harvey P. Smith, Sr., was selected as architect and appointed by Mayor Chambers to prepare restoration drawings and to do research prior to supervision of the restoration work.

Architect Smith, a local San Antonian, had studied the historic heritage of the area for many years. With the commission to restore the "Palace," Smith proceeded with more detailed research with sources such as the García Library at the University of Texas at Austin. Carlos Casteñada, Austin, Texas, assisted with several of his translations of Morfí (1967) and other sources. As a devotee of historic preservation, Smith had for some time advocated saving the historic structures in and around San Antonio. He had emphasized the re-use value, as well as the tourist attraction to the local community in a day when this was not yet a popularly-accepted theme (Smith 1933:11). Now his efforts were finding a symphathetic ear. The Governor's Palace would be the first major project where he would have the opportunity to help save an important part of our historic past. [Editor's Note: For further evidence of Smith's role in the preservation of the San Antonio missions, see *La Tierra* Vol. 7, Issues 1-4, 1980, and Vol. 8, No. 1, January 1981.]

Frederick C. Chabot, a local historian, conducted a long verbal and written exchange with the Mayor and the restoration advisory committee to persuade them to use his information regarding the history and the plan of the "Palace." However, the booklet by Chabot (1929) was primarily a chronological history and contained only a listing of rooms as found in the Luis Menchaca will. Chabot finally suggests that the front facade of the restored residence should follow photographs of the De la Garza and Veramendi houses.

Fronticepiece. Idealized view of the Spanish Governor's Palace, Plaza de Las Armas, San Antonio, Texas, by Harvey P. Smith, Sr. (Published courtesy of Harvey P. Smith, Jr.).

More adequate and verifiable information was needed. Fortunately, the front facade of the old "Palace" was in the best state of preservation of any portion. As recorded on the architect's restoration drawings (Smith 1929:Sheet 5), existing door and window openings with original wood lintels were found in place in the front facade (Smith 1931:32). Although not complete by any means, these elements provided a logical framework upon which to base the restoration. In any event, the search for authenticity is always difficult and creates many discussions and not a few arguments along the way.

The "Palace" was a classic example of the ubiquitous question: "What and how much should be restored?" As it stood in ruins, the first two bays of rooms were outlined by the existing foundations. Only the front row of rooms facing Military Plaza had standing walls as well as original door and window openings (Smith 1931:30).

Some of the purists might say "Stabilize the ruins and put back nothing more." Still others might say "Put back the walls, only." And finally, most of those involved said that it must be completely restored, supplying what was missing as authentically as possible. The latter plan was adopted and the restoration research and planning proceeded.

HISTORY

Prior to being known as the Governor's Palace, the old residence was the *Commandancia* of the permanent *presidio* located east of San Pedro Creek. This, then, was the residence of the presidial captain.

The Presidio de Béxar was preceded by the founding of Villa de Béxar by Governor Martín de Alarcón who led an expedition from Mexico in 1718 (Habig 1968:38). Joined by Padre Antonio Olivares, a mission was founded and named San Antonio de Valero (the Alamo: see Eaton 1981). Later another expedition was led by Marqués de Aguayo, Governor of Coahuila and Texas, which arrived in San Antonio in April of 1721. By 1722 Aguayo relocated the original *presidio*, and with adobe construction, built a permanent rectangular enclosure which was later to be known as Plaza de las Armas and is our present Military Plaza (Ramsdell 1959:21). The *Commandancia* was a part of this complete fortification and served originally as the presidial captain's residence.

Aguayo's relocation of the original *presidio* was described as moving from the west side of San Pedro Creek to the east side, and being then placed a distance of about "two gunshots" from the Mission San Antonio de Valero (Habig 1968:49). The mission was on the east side of the San Antonio River. This consolidation resulted in greater protection from Indian attack, and also provided a stronger group of buildings, better able to withstand the wear and tear of warfare.

The carved keystone over the entrance to the "Palace" bears the Hapsburg coat of arms with the imperial double-headed eagle. "A Hapsburg as King of Spain accounts for the double-headed eagle as a support to Spanish arms (Chabot 1929)." The inscription below reads "*Se acabó 1749*" (Finished in 1749). Between the time of its completion and 1836, when the Texas Republic was formed, the "Palace" was witness to many a colorful event, including its occupancy by various Spanish governors. Thus, it seems to justify its title of "Governor's Palace" in a manner befitting a colorful Spanish frontier city.

Several bits and pieces of historic information regarding the "Palace" form a meager thread of events that entice the reader, but don't tell nearly enough.

1761: Governor Navarrete describes the "Palace" as "the house of the Captain, with his office," on the west side of the Military plaza, "built of stone or pebbles and mortar and a very strong edifice" (Ramsdell 1955:112).

1763: The "Palace" came to be owned by the captain of the *presidio*, Luis Antonio Menchaca. Later his son was to be acting governor and probably spent time in the "Palace" (ibid.:114).

1804: José Menchaca sold the palace property to Ignacio Pérez and the deed of sale describes the home as follows (Chabot 1929:41):

"...on the west side of Military Plaza..., said house was composed of one parlor (*sala*)," one dining room (*comedor*), "one bedroom (*recamara*), two *zahuanes*, and one kitchen, all of stone, with door and window frames of stone." (Figure 1).

1846: On this date Ferdinand Roemer was a visitor to San Antonio and described the palace property which was then serving as a hotel:

"It was built of stone and was rather roomy, with high ceilings. It had but few windows and while these had blinds, they contained no window panes. The walls were plain white and the beams on which the roof rested were visible. Small cedar boards were laid across these, then followed first a layer of mortar and then a layer of dirt" (Steinfeldt 1979:42).

Typical of the limited information available, these few entries in the historic record were added to other sources, to compile as much authentic data as could be found about the old "Palace." Each small fragment had to be evaluated as to source and as to time, to fit it into the total, resulting mosaic. The record indicated that the architect spent over a year on this type of research before any restoration plans were started (Smith 1931:32).

RESTORATION

As the restoration program was developed, a number of data sources were established by the architect and systematically researched for information related to the "Palace." The most helpful of these were:

A. Historic records as written in various sources.
   (1) Official reports
   (2) Personal diaries
   (3) Tax and real estate records
   (4) Books
B. Photographs and paintings
C. Maps and surveys
D. Test excavations
E. Removal of all late construction, not pertaining to the original structure.

The authenticity and accuracy of the various sources was checked and cross-checked whenever more than one reference existed. For example, the front facade of the building appears on several photographs that clearly show the fenestration of doors and windows (Steinfeldt 1979:44, Figure 35; Lochbaum 1968:15). All of the photos reflected the same arrangement which was then compared to the existing, standing walls and openings Again, the arrangement matched. All of the existing wood lintels for these openings were also found in place, and were preserved in the restoration (Smith 1929:9:see Figure 2). The stone architrave with the carved keystone over the main entrance was in place and appeared in several old photos dated around 1870 (Steinfeldt 1979:44, Figure 35). Thus a framework of information was built up, using the existing standing walls and openings, as a basis for more detailed elements of the "Palace."

Looking to the building structure itself, we may examine some of the details.

A. Foundations: Sheet No. 1 of the restoration plans (Smith 1929:1) very clearly defines the existing stone foundations that were found in place (Figure 3). These established the size and position of the first two rows of rooms. Excavations were carried down on both sides of each footing (foundation) and careful measurements taken to establish building and room sizes. Footings were examined as to construction

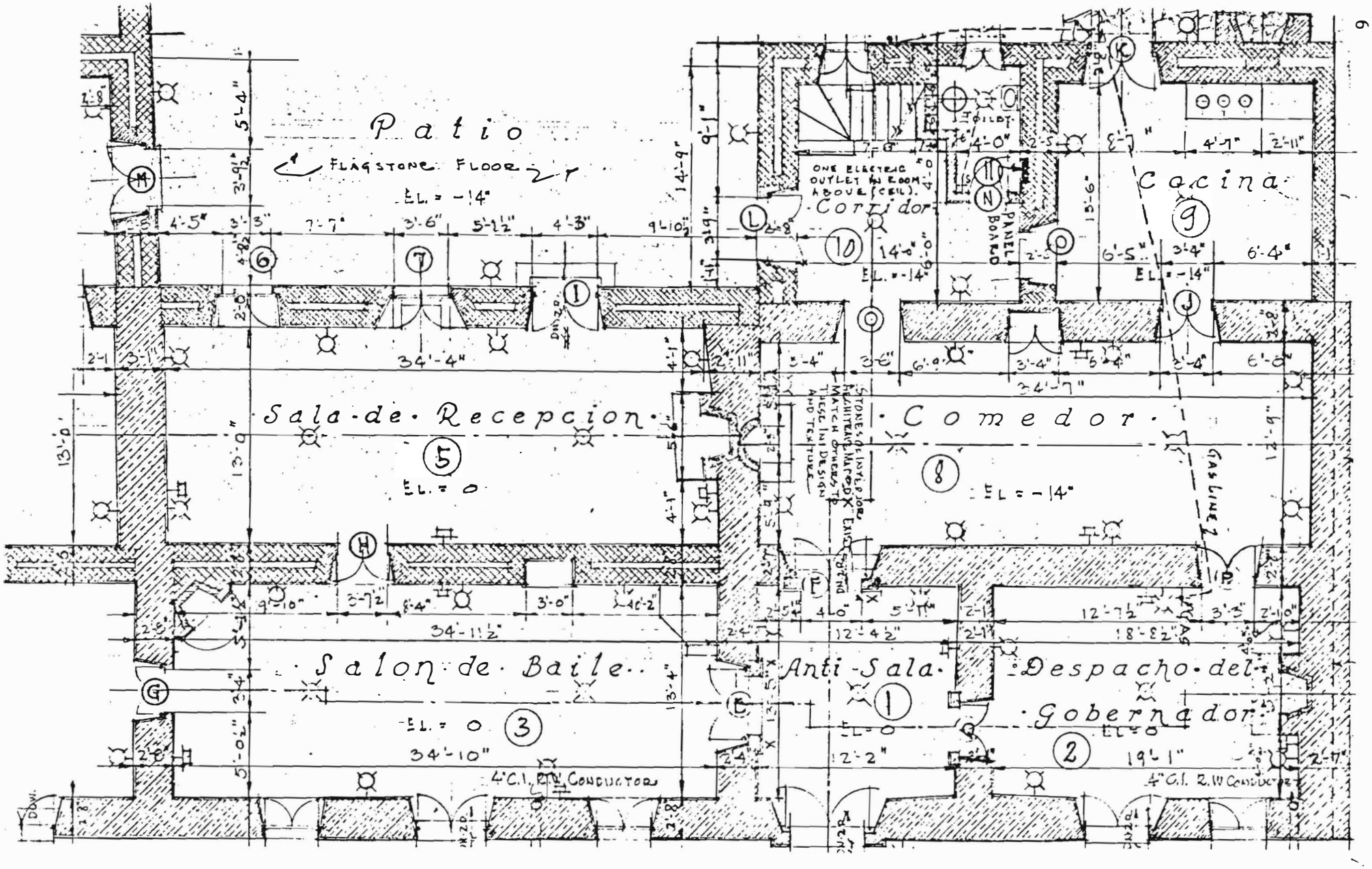


Figure 1. Reconstruction Plan for the Spanish Governor's Palace showing rooms and major architectural features. (Detail adapted from Sheet 3, Restoration Drawings by Harvey P. Smith, Sr.)

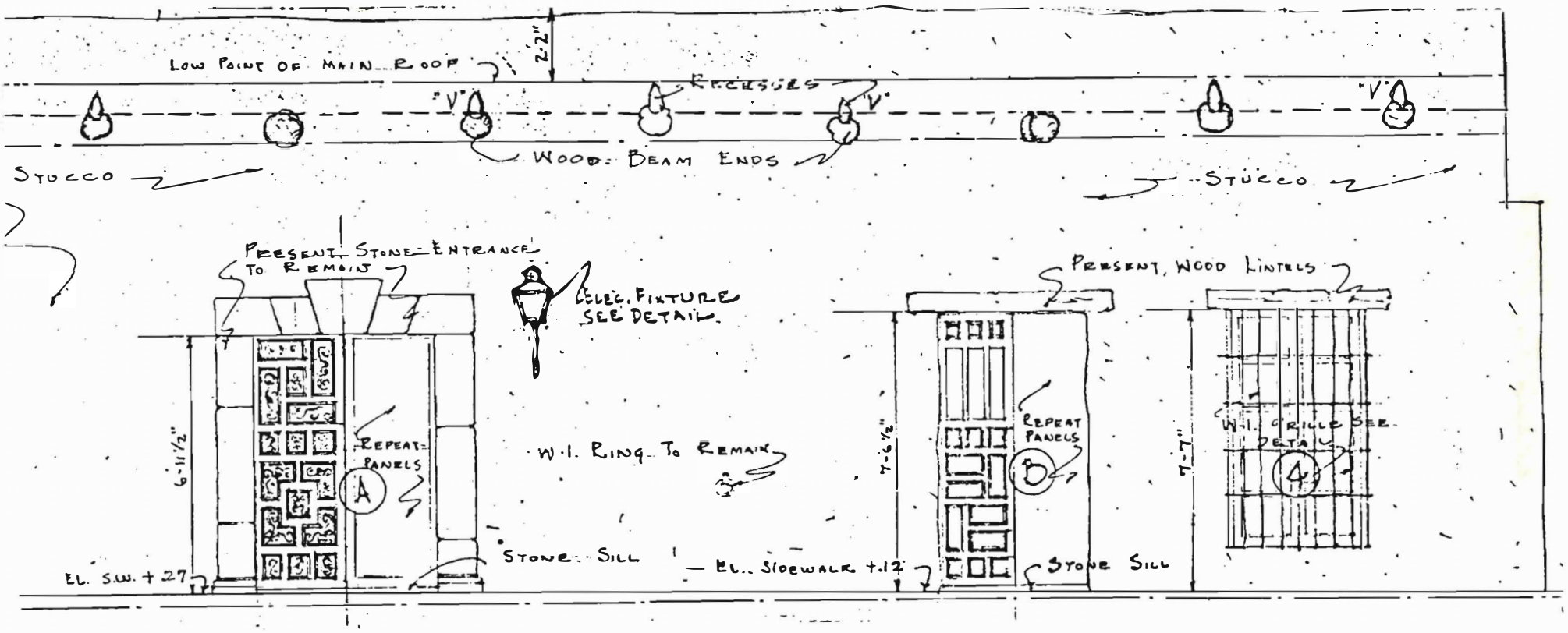


Figure 2. Front Elevation of the Spanish Governor's Palace, facing on Military Plaza. (Detail from Sheet 5, Restoration Drawings, by Harvey P. Smith, Sr.; sheets dated 10-22-19.)

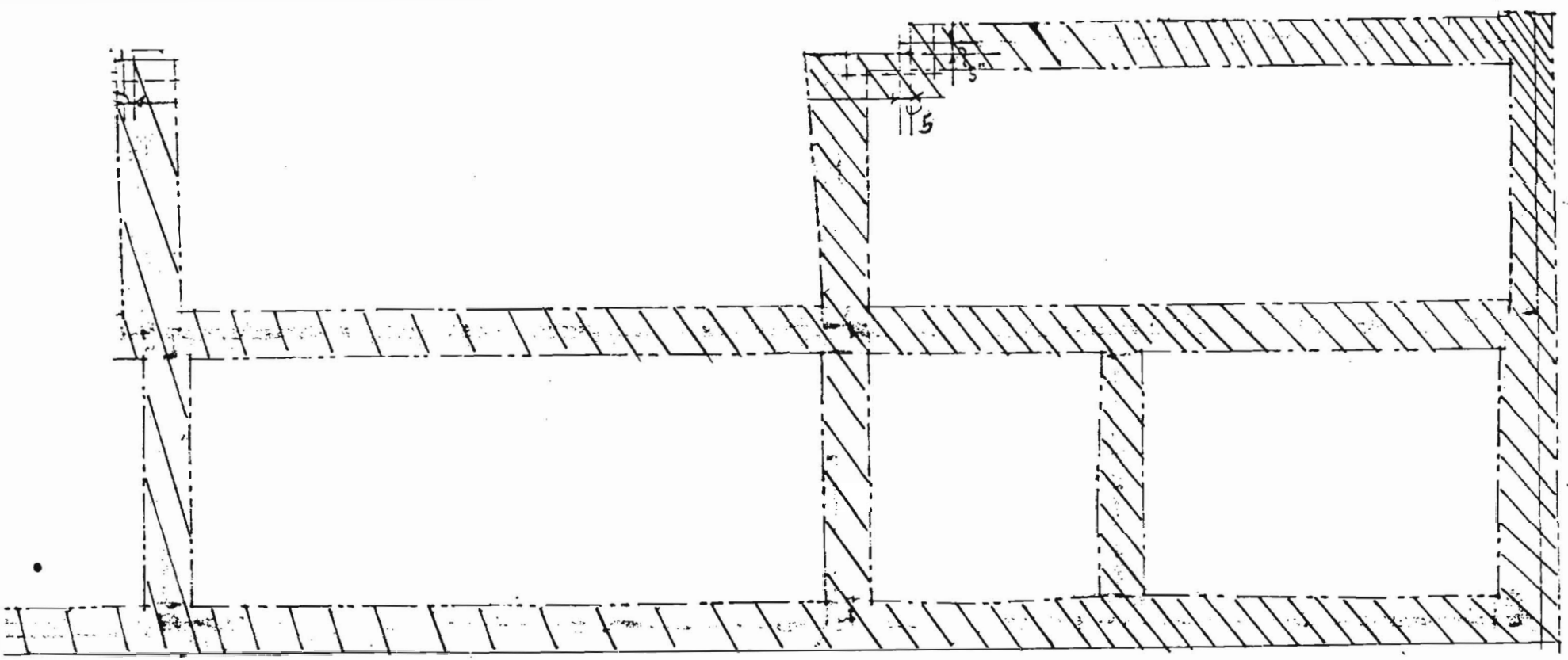


Figure 3. Existing Stone Foundation of the Spanish Governor's Palace located during reconstruction of the Site. (Detail adapted from Sheet 1, Restoration Drawings, by Harvey P. Smith, Sr.) Scale: 1/8 inch = 1 foot.

methods and materials to establish original construction (Smith 1931:32). Very similar excavation techniques are described in the same 1931 issue of *Art and Archaeology* in an adjoining article by Bruce Bryan on the excavation of the Galaz Ruin, Mimbres Valley, New Mexico (Bryan 1931:35).

B. Removal of late, added-on construction revealed the original niche found in the north wall of the small chapel. This interesting detail was preserved just where it was found, and now provides a place for a figure of the Virgin to be placed in the restored chapel (Martin 1931:188).

C. An old iron hitching ring adjacent to the front entrance (See Front Elevation, Figure 2) was preserved in place (Smith 1929:5).

D. Although original ceiling construction was not found when the 19th century roof was removed (See Figure 4 a), early accounts by travelers such as Ferdinand Roemer in 1846 provided a detailed description of the "Palace" ceilings and other details. Roemer's account (quoted earlier) was made while he was a guest in the "Palace," which was then serving as a hotel. He also describes roof construction as being the typical flat type with pole supports covered with alternate layers of mortar and dirt. This style of construction is evident in the later 1870 photographs (Steinfeldt 1979:42). Architect Smith followed Roemer's early description, and detailed ceilings of exposed wood poles (beams) with wood slats "laid across these." Additional details followed such as "plain white" walls with few windows that were fitted with blinds (Figure 4 b).

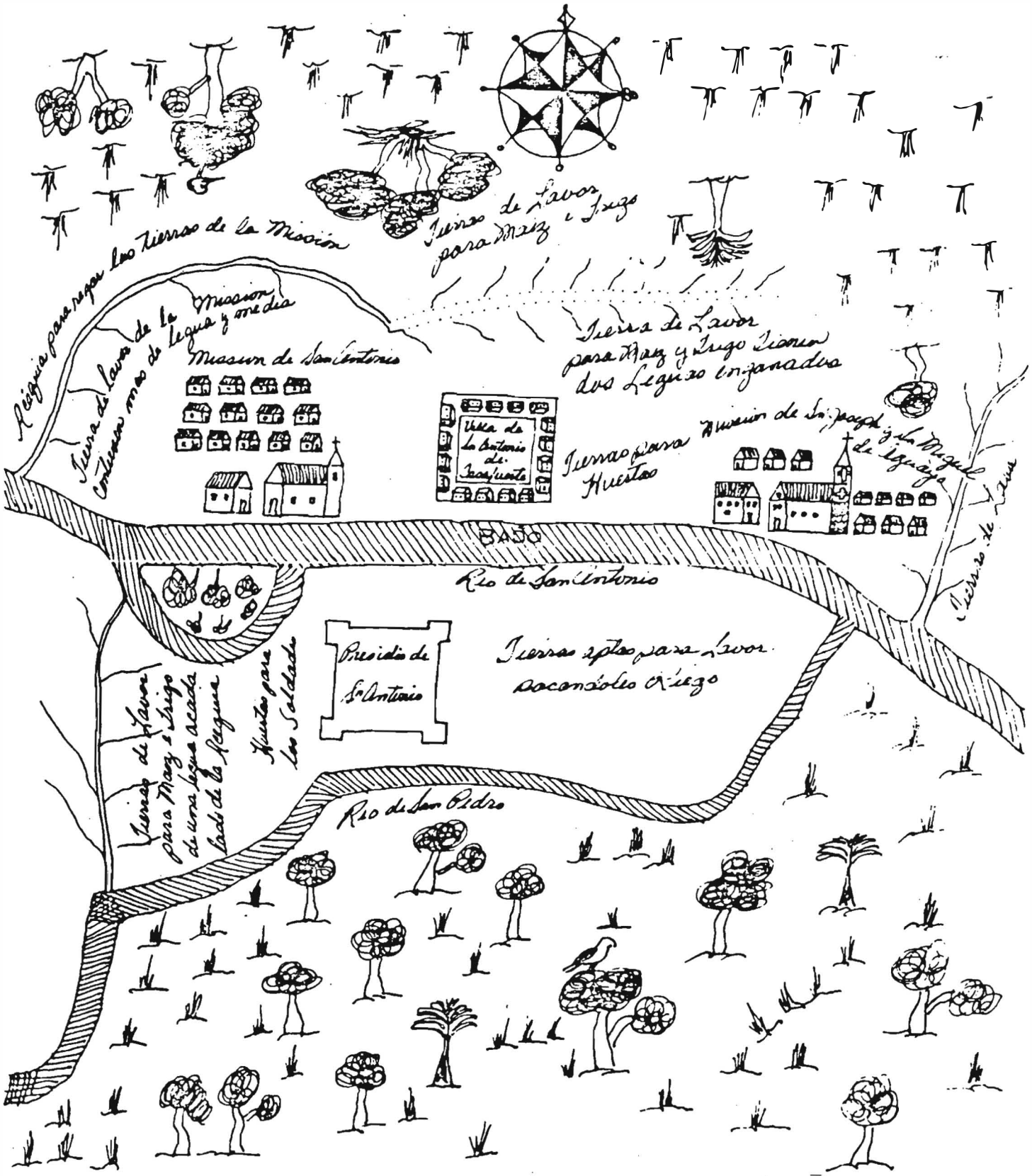
E. Site excavation revealed the location of an old well and an old exterior fireplace. Both of these were reconstructed in the existing locations.

SITING

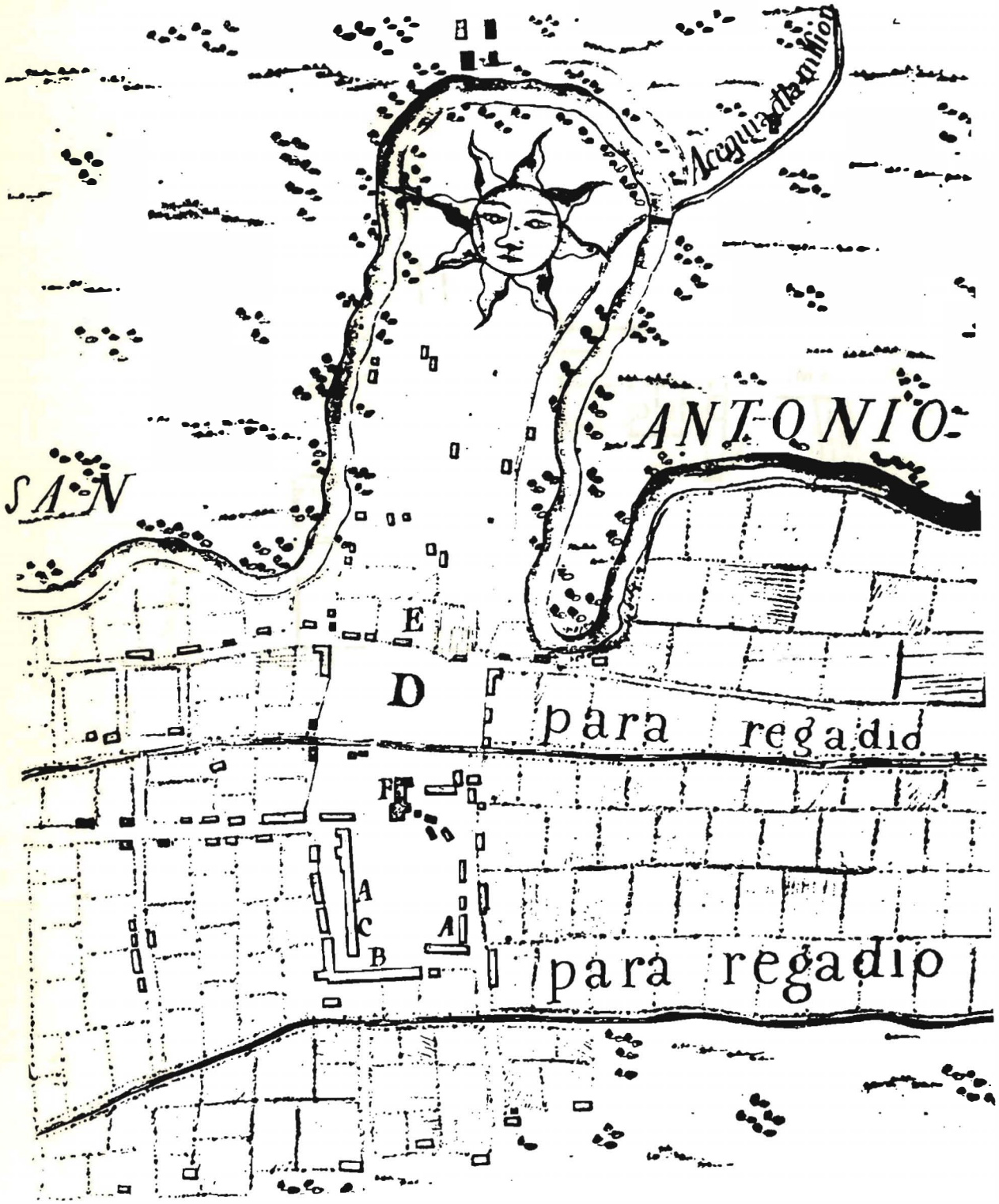
There is some conjecture as to the position of the residence with relation to the remainder of the *presidio* buildings. An early map by José de Urrutia, 1767, a copy of which is located in the Daughters of the Republic of Texas Library at the Alamo, shows a continuous row of structures on the west side of Military Plaza that are described by Fox (1977) as "continued across present Commerce Street and turned the corner going east" (Fox 1977:2). From this position Amargura Street (now Cameron Street) could later develop either in <u>front</u> or in <u>back</u> of the old "Palace" building. If the "Palace" were a part of the continuous *presidio* rectangular enclosure, Amargura Street would appear to run in back of, or west of the "Palace" residence, remaining outside of the *presidio* enclosure.

An earlier map drawn by the Marqués de Aguayo in 1730 implies that the *presidio* buildings were to form a closed rectangle which would result in the development of a street around the <u>outside</u> of the enclosure (Bolton 1915:Figure 2). Such a conclusion would place Amargura Street in back of and immediately west of the "Palace" residence (See Map 1). Fox (1977:24) refers to this position as an error, and offers another version, which seems to follow the Urrutia map, which shows a separation between three sections of the original *presidio* rectangle (See Maps 2 and 3). From the time of original construction circa 1730 until the date of the Urrutia map of 1767 the *presidio* group appears to have been altered extensively which probably explains the variations in siting that appear to exist.

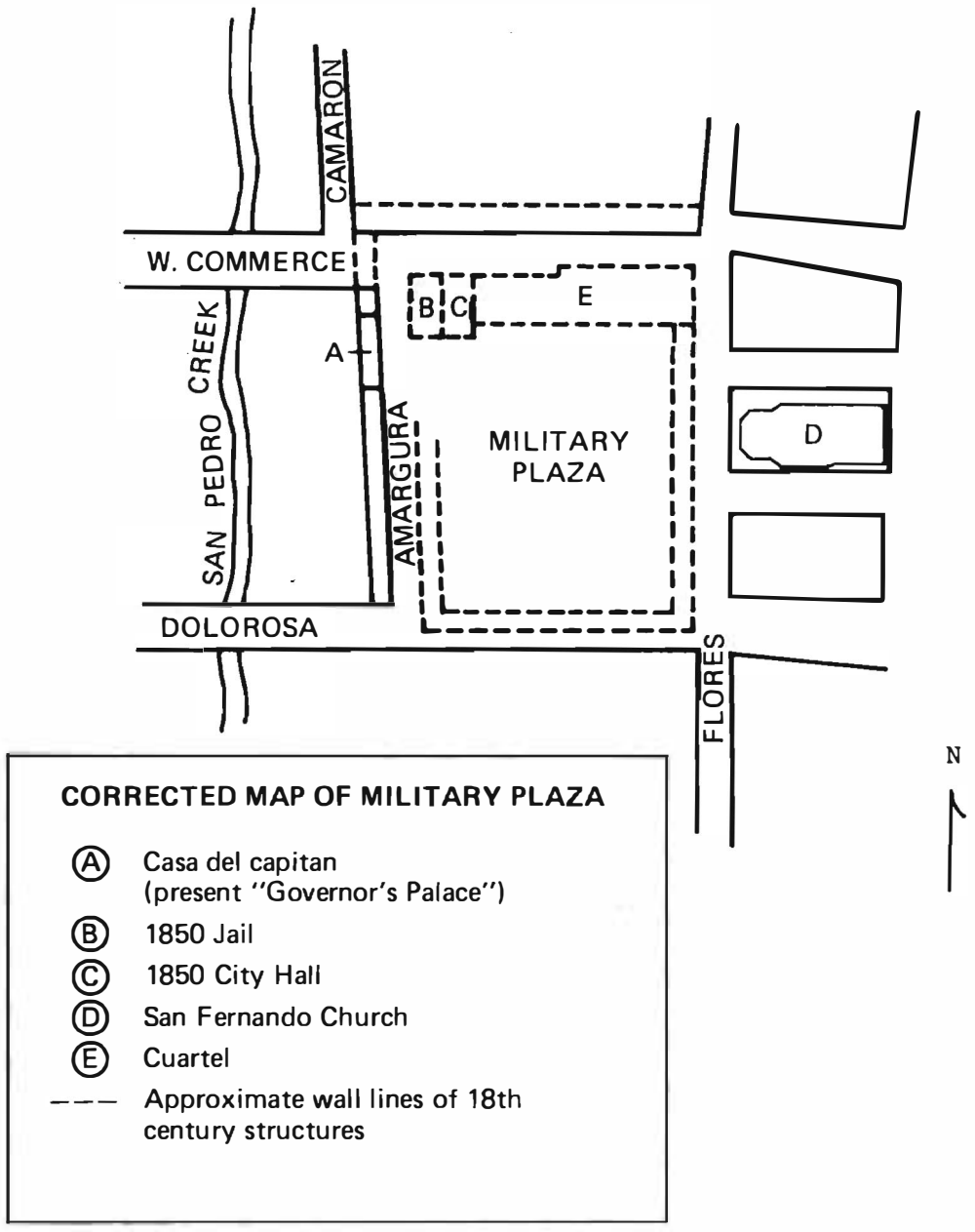
It seems perfectly possible that the position of Amargura Street could have been to the west (outside) originally (Corner 1890:16-17), and later changed to the front when the *presidio* building group was altered, as suggested by the Urrutia map. Regardless of the actual sequence of events, the present position of the "Palace" was accepted with a street in front and property extending to San Pedro Creek in the rear. With this arrangement, Architect Smith developed a patio to the west with doors opening out from the large *sala de recepcion* (Smith 1929:3). The small, enclosed patio then opens out through a gate to a much larger courtyard extending to San Pedro Creek (ibid. 1929:3).



Map 1. Aguayo Map of 1730 (Adapted from Bolton, 1915): Note the *Presidio* is shown as a single structure between the San Antonio River and San Pedro Creek.



Map 2. Detail of the 1767 Map of San Antonio by Joseph de Urrutia. A, Presidio Quarters; B, Captain's Quarters (Governor's Palace); C, Guardhouse (or office?); D, Village Plaza; E, Village homes; and F, Church. (Adapted from Fox 1977, Figure 1, which was copied from the Library of the San Antonio Conservation Society.)



Map 3. Hypothesized Relationships of Structures on Military Plaza. (Adapted from Fox 1977, Figure 2. Reproduced through the courtesy of the Center for Archaeological Research, The University of Texas at San Antonio.)

a.

b.

Figure 4. a. Spanish Governor's Palace just prior to restoration. b. Newly renovated structure. (Photographs by Harvey Patterson, San Antonio, 1929.)

Considering all of these facts regarding the site, it is probable that the original "Palace" was part of a continuous grouping of buildings that formed a closed *presidio* rectangle. At this time a street circulation developed around the exterior which gradually formed the plaza. With later revisions, the rectangle of the *presidio* was "opened up" and Amargura Street was relocated to run in front of the "Palace." Finally, the land in back of the "Palace" was consolidated, providing access for the occupants to San Pedro Creek. This is the site arrangement developed by the architect in the restoration program.

CONCLUSION

The carved keystone arch remains as the one most exciting detail, reminding the viewer of the romantic past of which the old Palace has been a part -- visitors included royal governors, military commanders, elegant ladies, adventurers, heroes, colorful Indians and many another citizen both high and low. Just outside its doors battles have been fought, Indian attacks have been endured, military troops have paraded, haywagons have assembled and occasionally a hanging brought frontier justice (See Fox 1977:Figure 4, for "The Hanging of Bob Augustine in 1861"). The famous night life of the Military Plaza attracted the visitors and residents alike to partake of the "chili queens"' spicy fare and wash it down with coffee, or a stronger thirst-quencher from one of the nearby saloons or music halls. The evenings went on with the dancing of the *fandangos* to a measured step, and ended only as the sun flooded the Plaza to mark another day.

Setting aside the details of authenticity, the restored Governor's Palace, as a fine residence of its day, is a collective, conceptual whole. Soundly based on original foundations, walls and openings, a framework has been preserved to reflect the complete structure with its whitewashed walls, shuttered windows and jutting roofspouts. The governors who have lived here may have been few, but they have only added to the history of this frontier "Palace."

It was best said by a local historian:

> "It is also a monument to those patriotic citizens who have had the good sense to appreciate the treasures of the past and the good taste to restore them faithfully" (Ramsdell 1959:115).

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Mark Mitchell
1981

PRELIMINARY INVESTIGATION OF THE KERLICK SITES, DeWITT COUNTY, TEXAS

E. H. "Smitty" Schmiedlin

In 1979, Mr. Herman Kerlick, a rancher in southwest DeWitt County, contacted UTSA archaeologists to report possible Indian mounds exposed by land clearing on his property (see Figure 1).

In January, 1980, the author visited the sites along with Mr. Kerlick. At least four possible sites were located, but only a small amount of material was collected from the surface, as all were overgrown with weeds and small brush. The sites appeared to be very shallow with no identifiable artifacts observed.

Mr. Kerlick suggested we make use of a backhoe working nearby to test each site. This was done after laying out a north-south line with a compass on each site.

The first site tested was 41 DW 242, the "Snake Pit" site. The site is on a sandy knoll 300 yards west of Hoosier Creek, a small spring fed creek. The site rises one to two feet above the surrounding terrain and was covered with a dense growth of thistles. The site was once in cultivation and is scattered over a 60-70 foot circle. The backhoe started on the south edge of the site and worked north to the center and then turned east. All excavation was well into basal clay. The site was much deeper than expected, running four to five feet deep near the center. The material collected from the backhoe trenches consisted of large animal bones, burnt sandstone, flint, mussel shell, snails, and deer antler. Very large deer antler were observed "in situ" in the north-south trench at about the four-foot level. They were not removed. It was also noted that large decayed tree roots were scattered over the entire site. This caused both trenches to cave in almost immediately (see Figure 2).

The second site tested was 41 DW 243, the "Lake Site." The site is very badly scattered due to landscaping during construction of an earthen dam. What is left of the site is on high ground north of a very large gully that has small springs and "seeps." This site had been partially excavated by Mr. Kerlick and appeared to have more cultural material than 41 DW 242. A north-south line was again established and a backhoe trench cut across the remaining portion of the site. The site was two to three feet in depth but much more material showed up in the backhoe trenches than expected, again flint bifaces, burnt flint, sandstone, mussel, and snail were collected.

The third site, 41 DW 244, the "Creek Site," was also badly disturbed by bulldozing and landscaping. The site is located above the normal floodplain 500 yards west of the Smith Creek, a small spring fed creek. There are small "seeps" located to the west of the site also. The trenching done at this site was not done on a north-south line, but at the "Operator's" whims. Nonetheless, again a large amount of cultural material was retrieved, which included flint, large animal bones, antler, mussel shell, sandstone, and snails (see Figure 3).

The fourth site was left undisturbed. It is directly across from 41 DW 244. It was designated 41 DW 245.

The following inventories are the combination of materials collected from the above trenches, the landowner's collection, and subsequent surface collecting by the author. They do not include the material sent to UTSA or materials collected during the two STAA digs conducted at the sites during 1980.

41 DW 242

Bone:
- 9 pcs Deer Leg Fragment
- 1 pc Deer Hindleg Socket
- 1 pc Deer Front Shoulder
- 4 pcs Deer Vertebra
- 3 pcs Deer Antler
- 2 pcs Deer Foot Bones
- 2 pcs Large Carnivore Jaw with Teeth
- 2 pcs Large Animal Vertebra

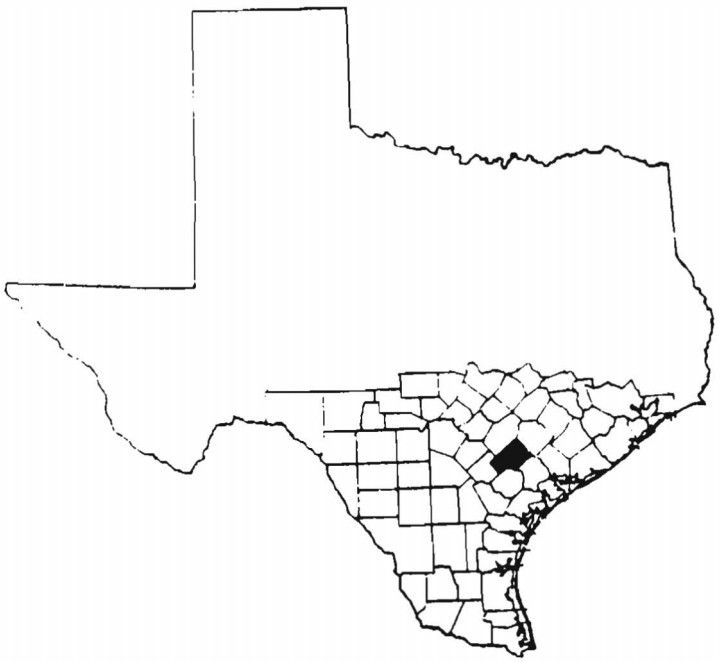
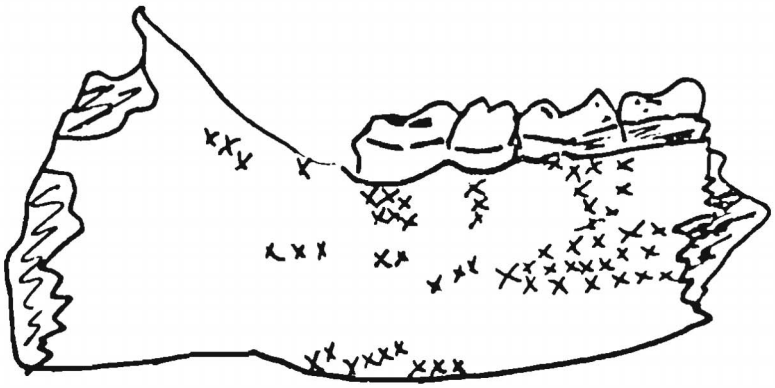
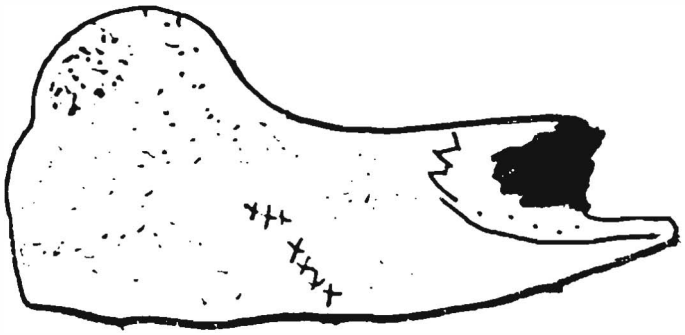


Figure 1. Location of DeWitt County with reference to other counties in Southern Texas (DeWitt County indicated by shaded area).

Figure 2. Serrated Arrow Point with Asphaltum from Site 41 DW 242, DeWitt County. (Asphaltum indicated by X's on the artifact)



A.



B.

C.

D.

Figure 3. Modified Bone Specimens from Site 41 DW 244, DeWitt County, Southern Texas: A. Deer Jaw with Asphaltum (indicated by X's), B. Bone with Asphaltum, C. Deer Bone with Asphaltum, and D. Incised Bone Bead (Specimens shown actual size).

7 pcs Small Animal Bone

1 pc Deer Ulna Tool

1 pc Human Finger Bone

Lithics: 3 pcs Biface
1 pc Serrated Arrow Point with Asphaltum (See Figure 2)
Miscellaneous Burnt Flint and Sandstone

Miscellaneous: Snails
Mussel Shell

41 DW 243

Bone: 21 pcs Fragments Deer Bone
1 pc Deer Antler
8 pcs Animal Jaw Bone
1 pc Animal Skull Fragment
2 pcs Large Animal Bone Fragments
6 pcs Turtle Bone
3 pcs Deer Ulna Tool

Lithics: 19 pcs Biface
1 pc *Uvalde* Type
3 pcs *Tortugas* Type
1 pc *Marcos* Type
2 pcs *Kinney* Type
2 pcs *Ensor* Type
1 pc *Yarbrough* Type
1 pc *Fairland* Type
1 pc *Travis* Type
1 pc *Palmillas* Type
1 pc *Pedernales* Type

1 pc Serrated *Scallorn*

Miscellaneous: 1 pc Sun Ray Clam
Various Snail and Mussel

41 DW 244

Bone: 27 pcs Miscellaneous Bone Fragments
1 pc Deer Jaw Bone Decorated with Asphaltum (Figure 3)
1 pc Altered Deer Bone with Asphaltum (Figure 3)
3 pcs Deer Antler
1 pc Highly Decorated (Incised) Small Bone Bead (Figure 3)

26 pcs Human Skull Fragments and Teeth
(Apparently 1 Adult Male)

Lithics: 13 pcs Large Biface
1 pc *Kinney* Type
1 pc *Catan* Type

Ceramics: 1 pc Thick Grey Pottery Sherd with Bone (or Shell) and Coarse Grains of Sand Temper

Miscellaneous: Mussel Shell
Snails

The author's conclusions are:

I. This type of site is deceptive when viewed in its natural state and is easily overlooked in the field. A possible clue is the large concentration of white thistles that grow on them and the "knockaway" (Anaqua) trees which are ever present.

II. More was going on at these sites than day-to-day hunting and gathering as evidenced by bone decorated by incising and painting with asphaltum. Also, the very large (5" circumference) deer antlers and human burials from the same site leads me to believe they will be found associated together if carefully excavated.

III. There was trade with coastal tribes as indicated by the asphaltum and Sun Ray Clam.

IV. Backhoe archaeology is difficult to control but can sometimes be useful if strict control is exerted.

I would like to thank Mr. Kerlick for letting us share his sites and working with us in every way possible. His keen interest in the sites, his hospitality, gathering of campfire wood, access to his property and last but not least, the two wonderful cookouts of barbeque and sausage he provided for the STAA digs.

All assumptions and descriptions herein are totally the author's.

A LATE PALEOINDIAN AND ARCHAIC ROCKSHELTER, PECOS COUNTY, TEXAS

L. W. Patterson

INTRODUCTION

This article describes a small rockshelter archeological site 41 PC 94, in Pecos County, Texas, with artifact types that probably indicate prehistoric occupations during the Late Paleoindian and Archaic periods. Nothing was found, such as ceramics or arrow points, that would also indicate any Late Prehistoric occupations. There is another archeological site, 41 PC 96, in this general area that has evidence of historic Indians, in the form of a scraping tool made of glass.

This site is located in an arid region of a semi-desert nature. Except for the nearby Pecos River, water supply here is scarce. Vegetation types reflect the low average rainfall, and consist mainly of small shrubs, with little grass. A number of plant foods would have been available to Indians following a hunting and gathering lifeway. Animal foods available would have included deer and turkey, which are presently common in this region.

Flint sources are abundant in this area, and Indians had access to ample lithic supplies for the manufacture of stone tools.

Archeological materials described here are based on surface collection, and are therefore limited. Enough lithics specimens were found, however, to enable description of the lithic manufacturing activities practiced here.

SITE DESCRIPTION

This rockshelter is located under the caprock at the top of a steep slope that is several hundred feet high. No artifacts are visible on the floor of this rockshelter, and artifacts collected here are from the steep slope below. The rockshelter is approximately 35 feet wide and 25 feet deep.

There are some signs of Indian occupations in this rockshelter. The ceiling is blackened from smoke. There is a small storage recess cut into one side wall. At the entrance there is a large rock with a deep mortar hole depression, indicating much use. This mortar hole is approximately 8 inches deep and 8 inches in diameter. The use of a mortar for grinding probably indicates wild plant food processing.

There is a good view of the surrounding country from the high entrance of this rockshelter. It would have been a good lookout point for hunting activities. The southeast exposure of the entrance would have afforded additional cold weather protection for the occupants.

PROJECTILE POINTS AND CHRONOLOGY

The main indication of time periods involved at this site is given by projectile point types, as shown in Figure 1. One *Angostura*-like point was found. It has the classic shape of an *Angostura* point, but the basal edges are not ground. Some analysts might classify this as a *Travis* point, because of lack of basal smoothing, but I feel that a tentative classification as *Angostura* should be made. The *Angostura* point type is associated with the Late Paleoindian period (Suhm and Jelks 1962:167; Hester 1980: 98), in the approximate time period of 6,000 BC, but is not well dated in Texas.

The dart point shown as Figure 1B is a fairly large contracting stem form, possibly indicative of the Archaic period, although not of a precisely diagnostic form. The dart point shown as Figure 1C is probably also an Archaic period type. It appears to be in the process of being resharpened, possibly because of tip breakage during the hunt.

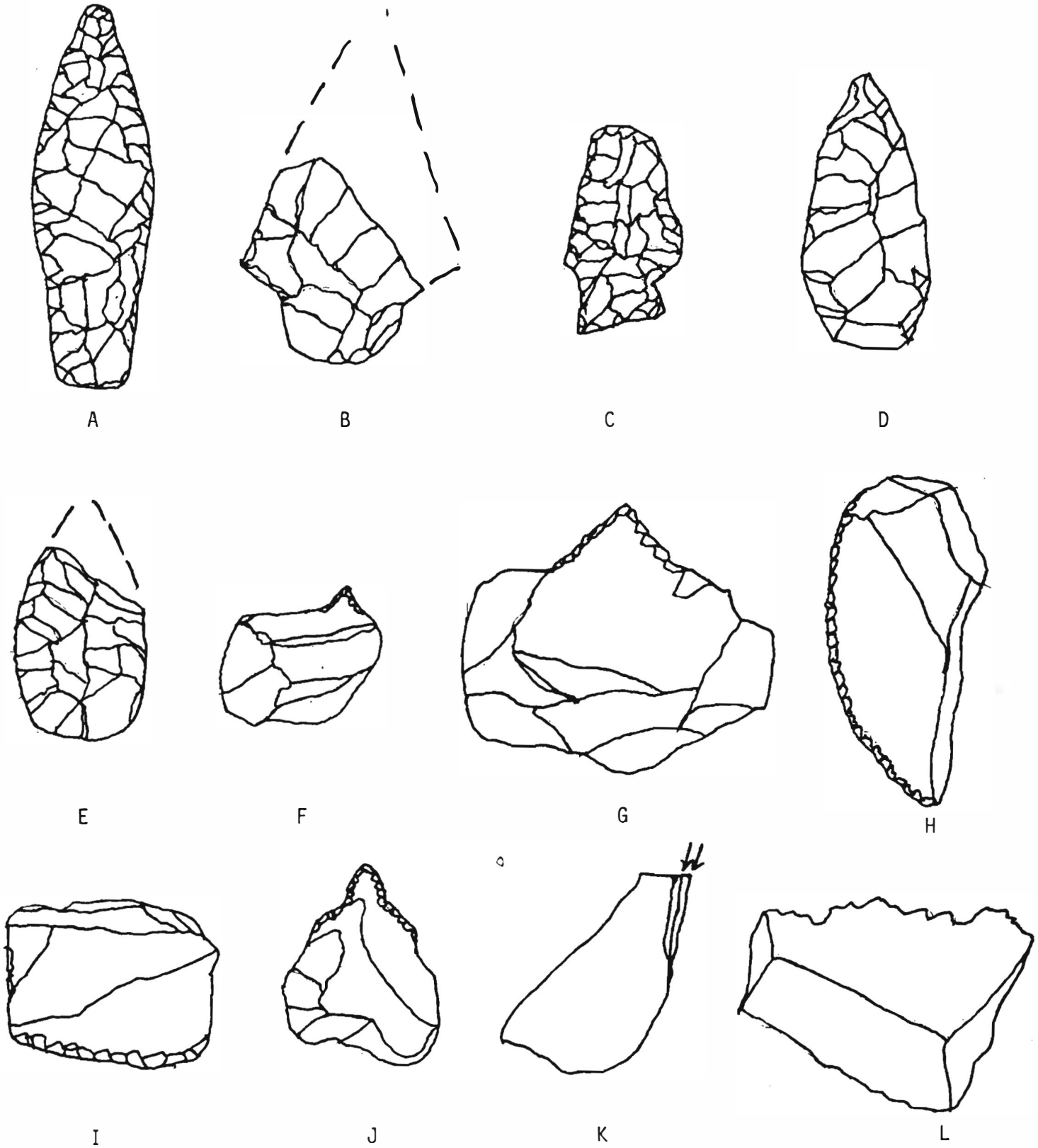


Figure 1. Site 41 PC 94 Artifacts. a, *Angostura*-like point; B, Contracting stem point; C, Reworked dart point; D, E, Preforms; F, Graver; G, Beaked tool; H, I, Scrapers; J, Perforator; K, Burin; L, Denticulate.

LITHIC TOOLS

Several types of stone tools were found, possibly indicating butchering and woodworking activities at this site, as follows:

Miscellaneous scrapers	19
Gravers	2
Perforators	2
Denticulates	4
Burins	8
Beaked tool	1
Notched tool	1

Unifacial scrapers were the most numerous tool type, and occurred in a variety of shapes. Several burins were found. This tool type is well known in the Pecos River area, especially in nearby Val Verde County (Epstein 1960). One possible burin spall was also found. Judging by edge damage patterns, a number of flakes were used for cutting and scraping functions, as can be demonstrated experimentally (Tringham, *et al* 1974).

LITHIC MANUFACTURING

The manufacture of bifaces was a major activity at this site. Aside from bifacial projectile points, other bifacial specimens found include 8 miscellaneous bifacial fragments, 2 dart point preforms, and 14 preform fragments. Another indication of biface manufacturing is the distribution of flint flake sizes. Debitage from biface manufacturing has a distinctive flake size distribution pattern (Patterson and Sollberger 1978:Figure 1), forming an exponential shaped curve, skewed toward higher percentages of smaller flake sizes. This typical flake size distribution for biface manufacturing is shown in Table 1 for this site. The small percentage of flakes smaller than 15 mm square is due to difficulties in recovery of very small size flakes, when screening of soil is not being done.

Flake size, mm square	Number	Percent
under 10	2	0.8
10 to 15	17	6.8
15 to 20	65	26.2
20 to 25	44	17.7
25 to 30	47	18.9
30 to 35	26	10.4
35 to 40	24	9.6
40 to 50	17	6.8
50 to 60	6	2.4
60 to 70	1	0.4
Total	249	100.0

Table 1. Flake Size Distribution

Other indications of lithic manufacturing found include 9 miscellaneous flint cores and 10 thick flint chips. Heat treating of flint was common, as shown by waxy luster, reddish coloration, and "potlid" surface fractures on many specimens. Experimental heat treating of a local flint type, at 525°F, gave a surface appearance similar to some of the archeological specimens here.

The amount of remaining cortex on flakes can be indicative of raw material preparation before transport to a site. The flake collection from this site has 7.7% primary flakes (covered with cortex), 19.4% secondary flakes (some remaining cortex), and 72.9% interior flakes (no remaining cortex). The high percentage of interior flakes probably shows some trimming and shaping of raw materials before transport to this site.

One coarse abrading stone was found. These are often used during biface manufacture for striking platform edge preparation.

SUMMARY

This article has described the results of a surface survey of a rockshelter in Pecos County, Texas, with occupations possibly occurring in the Late Paleoindian and Archaic periods. A hunting and gathering type lifeway was followed, probably of a nomadic nature. Additional research will be required to develop a more detailed outline of the prehistory of this area, particularly more analysis and publication of the large number of sites now recorded in this county.

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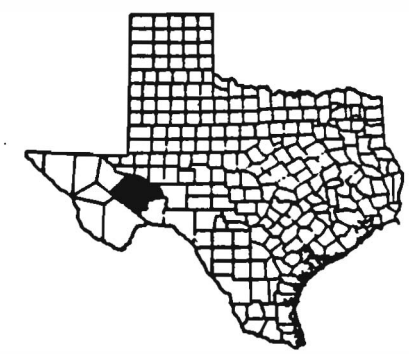

GROUND STONE ARTIFACTS FROM ATASCOSA AND MCMULLEN COUNTIES, SOUTHERN TEXAS

Richard L. McReynolds

INTRODUCTION

Ground stone artifacts are not very common on sites in Southern Texas, but they apparently are not as rare as was once supposed. A variety of such ground stone materials have been documented in recent years (cf. Mitchell 1975; Hester, Schmiedlin, and Birmingham 1978; Hemion 1980, and others). This paper will record two additional ground stone artifacts from sites in Atascosa and McMullen Counties.

Chipping Stone (Hammerstone)

Ben McReynolds has recently found two ground stone artifacts; one is a ground and polished chipping stone (or hammerstone) from Western McMullen County (see Figure 1). Chipping stones made from pink or purplish quartzite are often found on Archaic sites in McMullen County. These chipping stones are usually spherical or egg-shaped and exhibit extensive battering on two or more faces.

The artifact that we report here is a chipping stone which is similar in two respects. It is made from pink quartzite and is heavily battered at three points of its circumference. It differs, however, in that it is disk- or biscuit-shaped with a flat surface at top and bottom. These flat surfaces have been ground or polished. In some ways, it closely resembles a small mano, and, in fact, it may have been used as such. The flatness and glassy polish exhibited on both faces exceed that which would normally be produced by stream action, although this was probably the original shaping agent. The specimen (see Figure 2a) has a maximum diameter of 58 mm and a minimum diameter of 52 mm. Maximum thickness is 30 mm at one edge and 28 mm at the opposite edge. It weighs 162.5 grams.

Waco Sinker

Waco "sinkers" have been reported from various counties in South Texas, including McMullen, Dimmit, Willacy, and Victoria Counties (Mitchell 1975; Hester, Schmiedlin, and Birmingham 1978; Hemion 1980). Such artifacts are very similar to the one noted here from Atascosa County. It was found on a site along San Miguel Creek which has produced artifacts from Archaic and late Paleo-Indian time frames (McReynolds, et al. 1979, 1980).

The "sinker" is made from a hard sandstone concretion of iron oxide, a material which is common throughout the sandy country of Atascosa County. The length of this specimen (see Figure 2b) is 78 mm. Parallel notches at each end are cut crosswise to the maximum widths. The maximum diameter at the center of the specimen is 28 mm, which narrows to 11 mm at each end. The notches are V-shaped to a depth of about 3 mm and are 4 mm across at the widest part of the notch. Weight of the artifact is 111.7 grams.

DISCUSSION

It has previously been suggested that the chipping stone (or hammerstone) resembles a small mano. It may be that it was used to grind or pulverize a substance other than foodstuff. The artifact's small size would seem to make it impractical for food processing, especially as more suitable stones are readily available in the area. The wear patterns and the preferred material from which it is made definitely indicate its use as a knapping tool. Flint knapping is a male oriented function so

that any multifunctional purposes of this tool would probably also be male oriented. Grinding or powdering pigments, herbs, and/or hallucinogens could be examples of such male oriented activities and are possibly even shamanistic purposes. Games and gambling would also be male pastimes which should be considered, since there are some similarities of this artifact to discoidals and gaming stones which are found over much of the continental United States. Regardless of its other possible uses, this artifact was probably primarily a knapping tool, and a unique one.

It is not generally accepted that Waco "sinkers" were used for net or line weights. They would probably function equally well as either. They could easily be tied in horizontal positions on seine type nets, or around the circumference of throw nets. It is not hard to visualize their use on single lines because we still use much the same shape for the same purpose today. These uses are at various times debated, mainly because of the distances that they are sometimes found from suitable aquatic use sites. This probably should not be a deciding factor, because seasonal trips to productive streams were undoubtedly made and necessary equipment was carried both ways. We would have to assume, however, that most lost sinkers would occur at the primary use sites, and it is more than likely that many thousand such lost weights presently rest in stream gravels.

The alternative uses most often cited for Waco "sinkers" are as atlatl weights and bolas. It would be foolish to say that such uses are impossible but they do seem impractical. Atlatl weights would be most functional if they had a flat or concave face for contact with the atlatl shaft. At the back of the stone, transverse grooves or notches would be best for binding the stone to the atlatl shaft or handle. Such grooves or notches would probably be at the center of the stone, or double notches would be at both ends of the stone. A third variety of atlatl weight has a transverse perforation through the center of the stone, through which cords can be passed to attach the stone to the shaft. It is possible that a Texas variety, found along the Lower Pecos River, is disk-shaped with a hole in the center for attachment by a wooden peg or a rawhide knot. All of these possible atlatl weights are more suitable than is the use of our Waco "sinker" as an atlatl weight (Hester, et al 1974).

Bola weights would appear to be more functional in a round or spherical form. Complete grooves around the circumference would be well suited for line attachment. This form would seem to reduce chances of obstructing or entangling the lines. It is more probable that many ungrooved spherical-shaped stones were used as bolas. They could be encased in rawhide and easily attached to entanglement lines. Animal testicle sacks, for example, would be ready-made pouches well suited for such use; such alternative bola possibilities may account for the general lack of spherical grooved stones in South Texas and the Southern Plains. With an abundance of game, the extra stone grooving may have been unnecessary.

A lot of the suggestions in this discussion are hypothetical rather than proven fact; they can never be fully proven. It can be proven, however, that the prehistoric American was ingenious and well adapted to his environment. Given that general concept, it is probable that both the artifacts described here were functional (perhaps even multipurpose) tools, which in some way helped prehistoric South Texans do some task easier.

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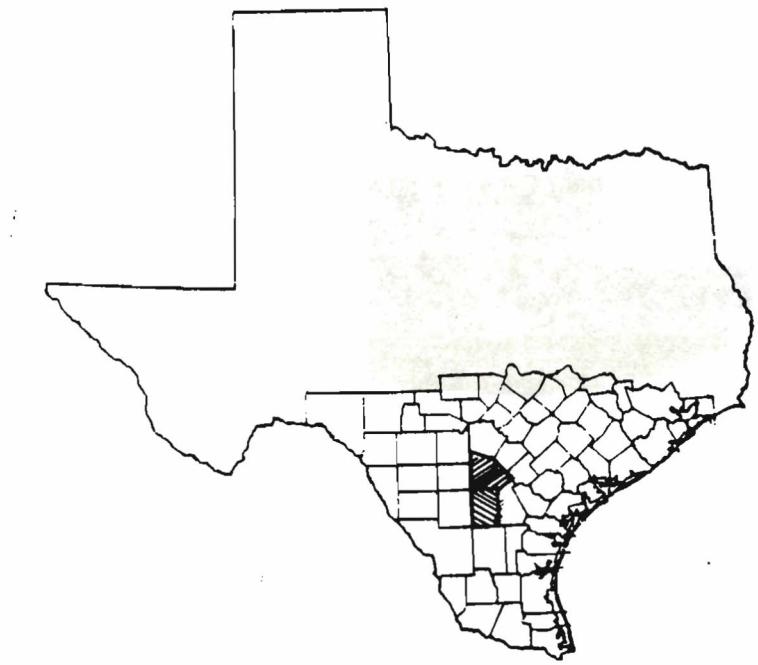
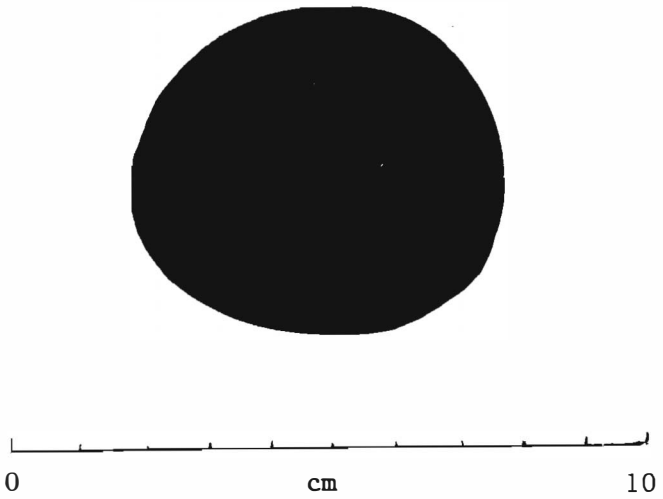


Figure 1. Atascosa and McMullen Counties, Southern Texas. Atascosa County is the northern portion of the indicated area; McMullen County is the rectangular area shown as the southern part of the indicated area.



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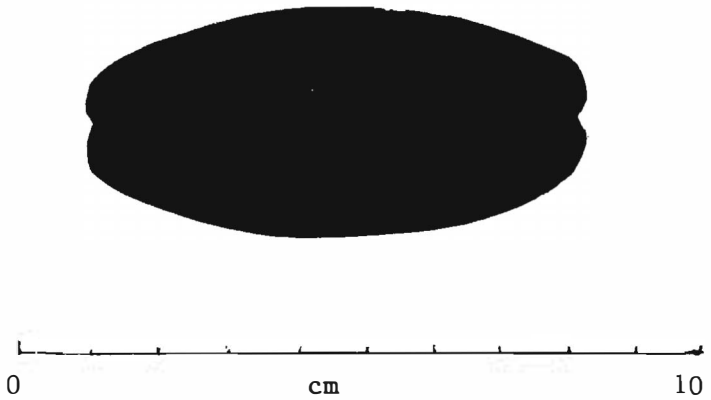

b

Figure 2. Ground Stone Artifacts from Southern Texas: a. Chipping Stone (hammerstone) from McMullen County; b. Waco "Sinker" from a site in Atascosa County, Texas.

SOME OBSERVATIONS ON AVOCATIONAL ARCHAEOLOGY IN TEXAS

Thomas R. Hester

American archaeology has become considerably more sophisticated over the past decade. There has been increasing specialization among its professional practitioners, and particular emphasis has been placed on the development of new theoretical approaches to archaeological research. Many avocational archaeologists have come to question their own roles in the study of prehistory. Texas and the United States have great numbers of such archaeologists, persons who have studied and trained in order to develop archaeological skills. They constitute an entity clearly separate from the relic-collector and pothunter. Texas has especially benefited from the work of the avocationalist. Given its geographic immensity, the state cannot possibly be adequately monitored by the corps of professional archaeologists found in its universities, state agencies, and private firms. It is thus the job of the avocational archaeologist to develop and carry out a variety of activities at the local level, some of which include: (1) protection and preservation of local archaeological sites; (2) the dissemination of information about archaeology to their fellow laymen (e.g., the current Texas Archeological Society traveling exhibit), thereby, one hopes, discouraging the practice of relic-collecting and site vandalism; (3) salvage of resources threatened by destruction, especially when no professional expertise or assistance is available; and (4) continuing site survey programs to fill in gaps in regional knowledge. Most of these activities require the assistance of other avocationalists, and thus in Texas, numerous regional archaeological societies (in addition to the state-wide Texas Archeological Society) have developed. These include the El Paso Archaeological Society, Midland Archeological Society, South Plains Archeological Society, Dallas Archeological Society, Tarrant County Archeological Society, Houston Archeological Society, Southern Texas Archaeological Association, and many others. Without question, these societies have made highly significant contributions to the archaeology of Texas.

What worries me is what I see as a potential schism between some professionals and avocationalists. Professional archaeology has been making a lot of noise in recent years as it underwent an intensive reexamination of its goals and experienced the expansion brought on by contract archaeology. Perhaps because of this, some avocationalists have felt that they were somehow "inferior" or were being ignored and that they could no longer contribute anything of importance to the discipline. For example, when Harry Shafer and I were editors of the Bulletin of the Texas Archeological Society from 1974-1978, we tried repeatedly to get avocational archaeologists to contribute more papers to the journal. We got little response, a pattern that has apparently persisted in the 1979 and 1980 volumes. Perhaps this is because there are now numerous regional avocational publication outlets in Texas. I hope it is not because the avocationalist no longer feels an important part of the overall scheme of Texas Archaeological research. I have also noted the changing attitudes of some professional colleagues toward avocationalists. Some professionals apparantly feel that since we now have dozens of practicing archaeologists in the state, and since federal and state agencies are supplying considerable contract funds for conservation archaeology, the avocationalist is somehow no longer essential. I submit that this attitude is a highly dangerous one. Texas is still very poorly known in many regions, and the avocationalist can be of great help in filling these gaps in the archaeological data base. Texas is still populated by myriads of vandals and pothunters, and only the trained avocational archaeologist can help to preserve the state's rapidly-depleting archaeological resources. I hope the avocationalist does not feel constrained by a "fear of digging" attitude (which seems to stem from well-intentioned efforts at site preservation) and will employ those investigatory skills learned, for example, through

TAS field Schools whenever conservation through excavation is necessary to save a portion of a threatened site. I am convinced that any professional research program, whether done on a shoestring or amply funded through a grant or contract, can be done more thoroughly, more efficiently and more effectively through collaboration with local avocationalists. Here I am not advocating the "exploitation" of avocationalists but rather the continuing team effort of professional and avocational archaeologists that has paid off so handsomely in Texas over the past several decades.

AVOCATIONAL ARCHAEOLOGY: A PROGRESS REPORT

Jim Mitchell

As a supplement to Tom Hester's foregoing article on avocational archaeologists, I thought the STAA membership might be interested in some of the recent events involving this issue. In November, 1981, I was asked by Dr. Kathleen Gilmore to serve, along with Jim Word of Floydada, as an amateur representative on the Committee on Avocational Archeology for the Council of Texas Archeologists. A meeting of the committee was held at UTSA in early 1981, but only three members were able to attend: Danny Fox (Austin), Steve Black (UTSA), and myself. The group labored for most of the day and finally adjourned with each having agreed to author a section of the report. Drafts were circulated among ourselves and forwarded to Kerza Prewitt in Austin for final polishing and publication. The result was a 12-page, single-spaced report which outlined the history of the problem, highlighted current issues, examined some of the semantics, and made at least 14 specific recommendations as to what should be done (Prewitt, Fox, Mitchell, and Black 1981).

The Council of Texas Archeologists met in Austin on April 3rd and 4th for their semi-annual conference. There was an extended discussion of the committee report and an added session on Saturday where members of other committees also attended. Some of the issues raised in the report were not completely resolved, but there were several areas where final recommendations to the CTA could be made. A final one-and-a-half page report was subsequently published (Prewitt 1981). This final report suggested use of the terms "avocational" and "vocational" archaeologists rather than amateur and professional; the committee also recommended TAS representatives be invited to CTA meetings to avoid even the appearance of exclusiveness. Finally, the report called for everyone to work together in the areas of preservation, political action, and educating the general public about archaeology. Simply stated, the future of Texas archaeology depends on the interaction and cooperation among all those who are interested in archaeology.

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A FURTHER EXPERIMENT IN STONE BOILING: A CALCINING PROCESS FOR ACORNS

Courtenay J. Jones

ABSTRACT

This report outlines the results of a stone boiling experiment using limestone (calcium carbonate) cobbles subjected to a heat range of 1100° - 1450°F. The experiment was designed to determine what influence such stones might have in neutralizing tannic acid during acorn processing activities. Measurements of pH taken at intervals during the experiment indicate that limestone cobbles, having undergone a process known as calcining, can be an effective method for neutralizing tannic acid. The implications of these findings may offer some additional insight into cultural features in Central and South Texas known as "burned rock middens."

INTRODUCTION

This experiment was designed to test an idea posited by Richard Welch (San Antonio College Biology Department) in a personal conversation with Max Witkind during Witkind's experiments in stone boiling (1976:207). Mr. Welch suggested that lime in limestone, when released through a calcining process, could act as an agent to neutralize the tannic acid found in acorns. Welch suggested this may be achieved by using the limestone in stone boiling or in earth ovens.

Burned rock middens have been a topic of discussion among Texas archaeologists for many years (see Kelley & Campbell 1942; Kelly 1961; Hester 1970; Valdez & McGraw 1977: McGraw & Valdez 1978; Prewitt, ms). No definitive conclusion has been reached although there appears to be fairly general agreement that such middens represent the remains of some type of food processing station. Such middens may be the remains of temporary earth ovens (Olsen 1967) or of the fires used to heat stones for boiling food as was described by Cabeza de Vaca in protohistoric times (Taylor 1960:286). The purpose of this experiment was to specifically test the physical chemistry involved in the processing of acorns. If a process can be demonstrated which would have been possible for local prehistoric inhabitants, then it may provide us with another possible hypothesis for the presence of so many accumulations of burned limestone rocks in Central and Southern Texas.

BACKGROUND

The calcining process (outlined in Choppin and Jaffe 1965:468) uses heat to convert calcium carbonate to calcium oxide with the by-product carbon dioxide. Upon introduction to H_2O, calcium oxide converts to slake lime with an oxygen by-product. The thermal decomposition of limestone can be illustrated in the following manner:

(1) $CaCO_3$ + heat ⟶ Ca O + CO_2↗

(calcium carbonate) solid — (calcium oxide) solid — (carbon dioxide) gas

(2) Ca O + H_2O ⟶ Ca $(OH)_2$ + O↗

(solid) — (liquid) — (slake lime) — (gas)

This two step process was discussed with Howard Harrison, manager of the lime manufacturing plant owned by the McDonough Brothers Quarry in northwestern Bexar County. In a telephone conversation, Mr. Harrison explained that the commercial procedure used at the plant involved preheating the limestone at a temperature of 1500°F for 1½ to 2 hours followed by exposure to 1800°F for an additional hour. When asked if the same result could be accomplished at lower temperatures (12-1400°F) for longer periods of time, Mr. Harrison agreed that this would probably be possible since early settlers used "L" shaped chambers (dug into the side of a bluff and then straight up and out the top of the bluff) as lime kilns. He stated that this configuration would permit an optimum air flow to constantly feed the fire. By adding wood and limestone to the "elbow" section of the chamber, Mr. Harrison stated that temperatures in the ranges under discussion would not only be possible, but very probable.

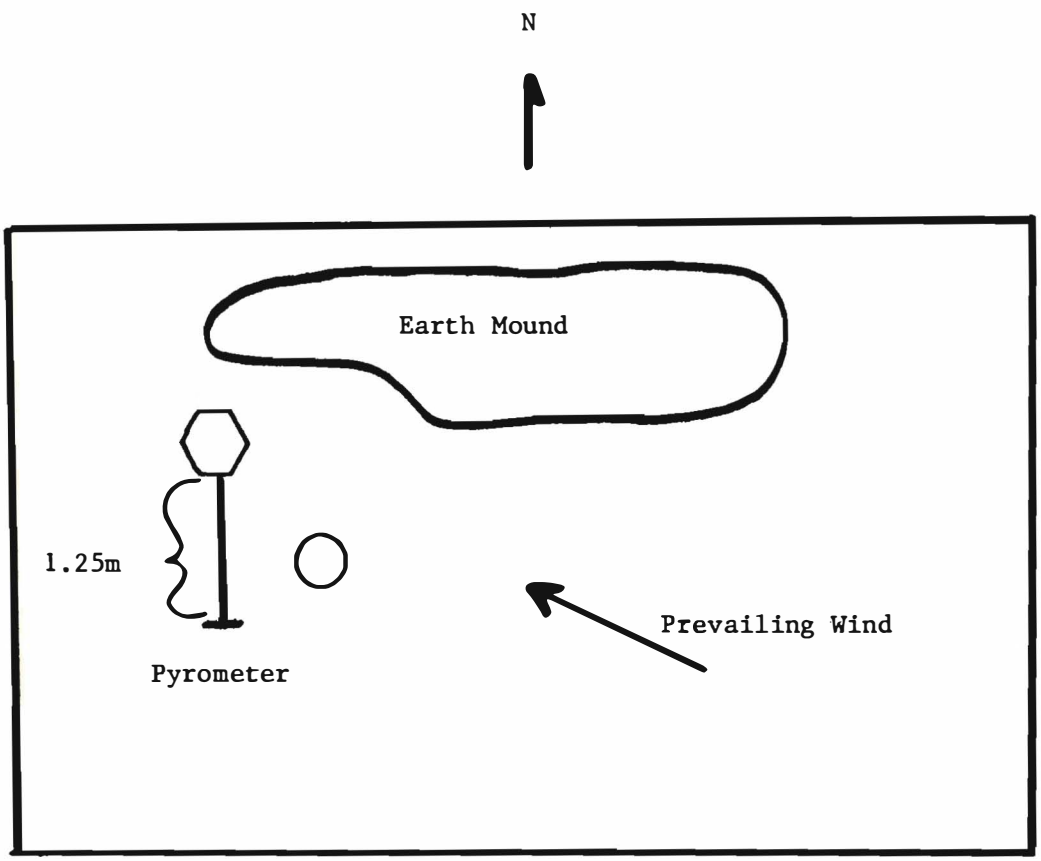
PROCEDURES

The acorn selected for this experiment was from the *Quercus rubra* (Red Oak) species of oak. Identification was accomplished by comparing the acorn and the leaf from the selected tree to species identified in *Gray's Manual of Botany* (Fernald 1970:546) and the identification was later confirmed by Mr. Welch (San Antonio College). Although Central Texas lies on the western edge of this species' habitat, and the Red Oak is not as well represented as the more abundant Live Oak, the Red Oak was selected for this experiment because of its more astringent taste, supposedly due to higher tannic acid content. It was felt that in a quantitative analysis fluctuations in acidity would be easier to detect if a higher tannic acid proportion existed.

The three limestone cobbles used in this experiment were selected from the Panther Springs Creek drainage in northwestern Bexar County. Several prehistoric sites have been recorded along this drainage, including 41 BX 228, at which the author assisted during field excavation activities conducted by the Center for Archaeological Research, The University of Texas at San Antonio (1979-80). Large burned rock middens were recorded at this site.

The cobbles were labeled A, B and C for identification. Pre-firing weights and colors and post-fire weights were obtained for each cobble as a control measure. Color determinations were made through the use of Munsell Soil Color Charts and taken from the darkest area of each cobble. Post-fire color determinations were not made due to the variation in colors as the cobbles fragmented. The cobbles were reassembled after the experiment and have been retained for possible comparison studies with cobble fragments recovered from burned rock middens (as proposed by Stephen L. Black, of the UTSA Center for Archaeological Research). Color readings and weight values are listed in Appendix B. Since fragmentation did not occur during the test period of 15 minutes (however, cracks were observed), the rocks were alternated between fire and cool/warm water until fragmentation was achieved. This information is also listed in Appendix B under "cycles."

The limestone cobbles were heated in a medium sized (approximately 60 cm diameter) mesquite wood fire. A chromel-alumel thermocouple was placed at the southern edge of the fire. The prevailing wind was southeast to northwest, so this would put the thermocouple on the downwind side of the fire. All temperature readings were obtained via a Pyrometer which registered a 70-2500°F range. The Pyrometer was attached to the thermocouple by a 2-lead wire approximately 1.25 m in length. All temperature readings were obtained by measuring the southern edge of the fire (though still in the coals) and it would seem reasonable to expect temperatures 100°-150° higher (minimum) in the center or upwind edge of the fire. The fire was bordered on the northern edge by a mound of dirt, but no effort was made to create a channel or chute to control air passage (see Figure 1 for diagram). The following temperatures were recorded during the stone heating and the boiling stages of the experiment:



: Boiling Vessel

: Mesquite Fire
(approx. 60cm dia.)

Figure 1. Diagram of Experimental Setting.

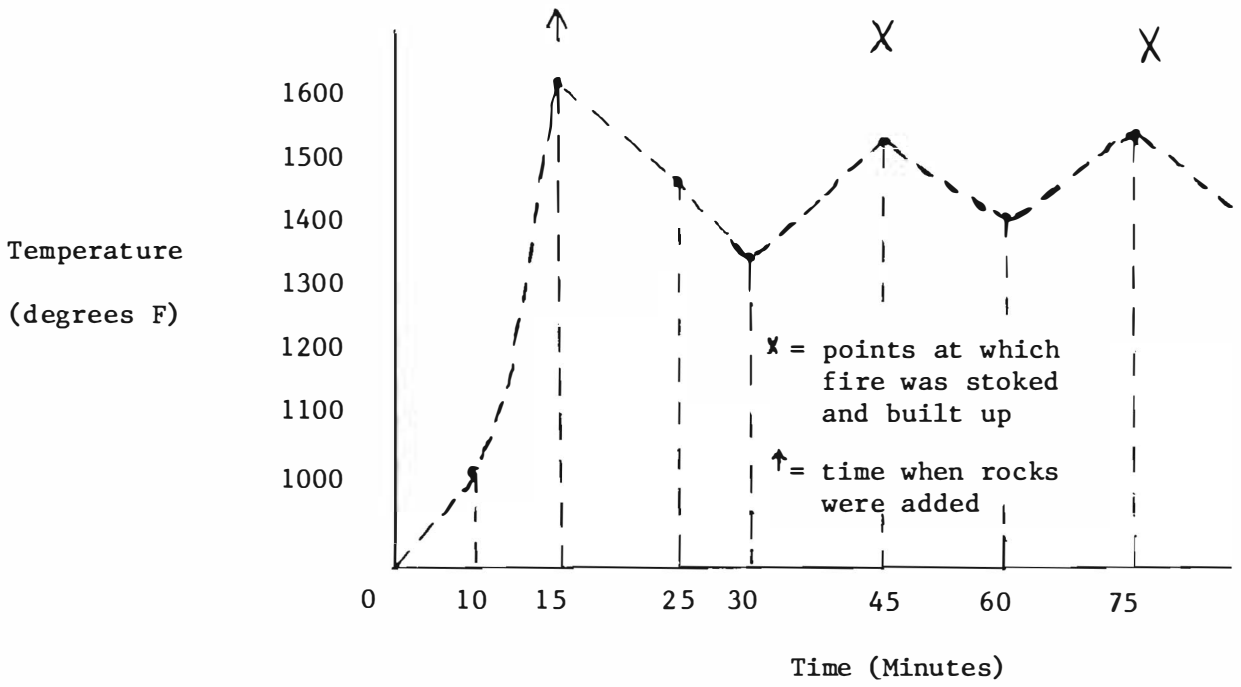


Figure 2. Experimental relationship of heat versus time prior to the boiling process.

The cobbles were added 15 minutes after the fire was started. Seventy-five minutes into the experiment (after the rocks had been heated for one hour) the boiling process was started and the cobbles were rotated between the fire and the cooking vessel for 15 minutes. After 15 minutes of cooking (90 minutes into the experiment), the cooking vessel was withdrawn while the rocks continued to be rotated between the fire and a second vessel containing ordinary water. This was continued until the cobbles fractured (approximately 20-25 minutes longer).

The cooking vessel was a plastic utility pan into which was placed 485 g of ground acorn meal. To this was added 2.4 liters of water which, when mixed lightly, produced a thin, gruel-like mixture. Initial water temperature was approximately 75°F. Boiling temperatures were monitored with an ordinary kitchen thermometer. The first cobble (specimen B) was added to the mixture and the mixture started a slight simmer. The second cobble (specimen C) was added two minutes after the first cobble. At 2 minutes and 12 seconds, a hard boiling action was noted. At the 8-minute mark, cobble B was replaced by cobble A. Cobble C was removed at the 9-minute mark and cobble A was removed at the 13-minute mark. Cobble B, having been reheated, replaced cobble A and cobble B was removed at the 15-minute mark. Following the heavy boiling period mentioned earlier (approximately 4 minutes long), a moderate boil was maintained for the duration of the experiment. At the end of 15 minutes, the mixture was set aside and allowed to cool.

Readings were taken with ColorpHast brand indicator paper strips at four different times: initially with plain water; after the acorn meal had soaked for 20 minutes; after the acorn meal had soaked for 40 minutes; and after the acorn meal had been cooked. On each occasion three pH scales were used independently by two observers. The author served as the primary observer and those readings are listed in Appendix A. Values noted by the second observer which <u>differed</u> from those of the first observer are also included in Appendix A.

As an additional note, a sizable amount of fatty, oily substance was observed on the surface of the water. This may be of significance in investigating burned

rock middens since often the matrix within some middens appears greasy (personal observation at 41 BX 228). In his synopsis of research on burned rock middens, Prewitt (ms.) also mentions this, as does Huskey (1935:105-114).

FINDINGS

In reviewing the data from this experiment (Appendix A), it appears that the tannic acid in the acorn meal was sufficient to lower the pH level by 2 points on the scale. Since the pH scale is logarithmic, this is interpreted as an increase in acidity by one hundrefold. Following the 15-minute boiling cycle, the pH value was returned to its initial value (7) on one scale and slightly higher alkaline values on the other two scales. Minimal precautions were utilized to prevent wood ash from being introduced into the mixture, and it is felt that the small amount which did enter the mixture was insignificant. The fact that a calcining process of sorts occurred after only one hour of heating, and at a lower temperature than cited by Mr. Harrison, is evidenced by the rapid neutralization of the increased acidity caused by the acorns. Knowledge of the benefits of using limestone rocks in acorn processing (eliminating the need for a leaching process to remove the acid prior to cooking) could easily have been gained by aboriginal peoples without requiring an understanding of the mechanics of calcination.

DISCUSSION

In personal communications with Dr. Don Lewis of the Center for Archaeological Research, a testing procedure is being considered which would permit qualitative assessments to be made regarding the relationship of limestone and tannic acid. The procedure will most likely involve one or more extraction processes which would permit isolation of the tannic acid itself. Once this component is isolated, precise measurements can be made under controlled conditions. In this manner, samples of different species, as well as samples of the same species but mixed in different proportions of limestone, water and acorn meal, can be compared. These comparisons may offer more insight into the burned rock midden phenomena of Central Texas. Future studies in fracture patterns occurring in limestone cobbles may offer other data which can be used for the same purpose. Experiments utilizing the rock oven technique are also planned and will be useful in comparing the efficiency of this method to stone boiling.

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APPENDIX A

pH Readings*

Reading	Scale	Value	Second Observer
Initial H_2O reading	1-14	7	
	5-10	7	
	4- 7	7	
After 20 min acorn soak	1-14	5	
	5-10	5.5	
	4- 7	5	
After 40 min. acorn soak	1-14	5	
	5-10	5- **	
	4- 7	4.7	(4)
After 15 min. cooking at boiling temp.	1-14	7.5	(8)
	5-10	7	
	4- 7	7+	

* ColorpHast Indicator Stick, manufactured by E. M. Laboratories, Inc. E. Merck, Darmstadt, Germany, were used for the experiment.

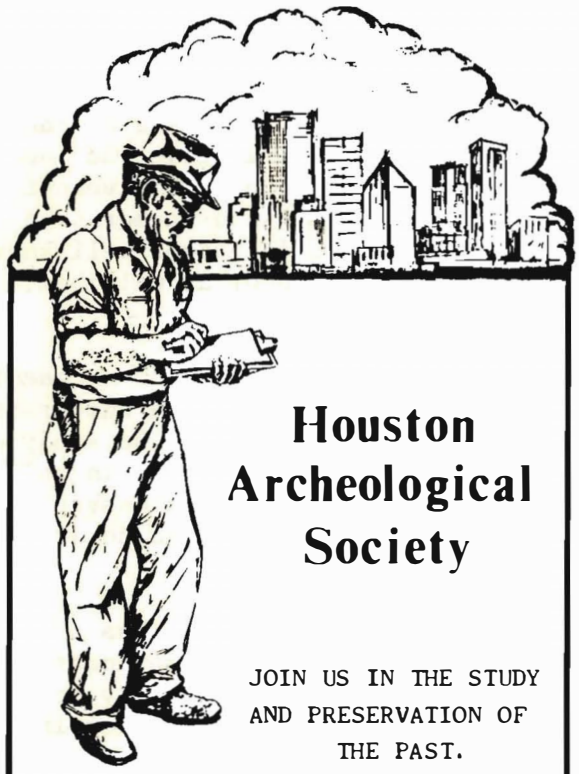
** The minus (-) sign and the plus (+) sign indicate that the color values observed appeared to exceed the limits of the scale used: i.e., 5- would indicate a value of less than 5 would have been recorded had that scale contained values less than five. The inverse is true for the 7+.

APPENDIX B

Color and Weight Characteristics of Cobble Specimens

Cobble	Pre-fire wgt.	Post-fire wgt.	Wgt. loss*	Pre-Fire Color	Cycles
A	1512g	1456g	-56g	10YR6.1 (grey)	5
B	1568g	1512g	-56g	10YR6.1 (grey)	6
C	1400g	1372g	-28g	10YR4.1 (dk. grey)	5

* Note: Some of the weight loss is due to the inability to recover tiny fragments. This was evident when the cobbles were reassembled.



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AUTHORS

COURTENAY J. JONES is a student in archaeology at the University of Texas at San Antonio. An avowed "Army brat" who has spent much of his life in the local area, Courtenay is renowned for his quiet, dedicated, intense involvement in the study of archaeology and his somewhat devilish sense of humor (who locked who in what part of the CAR lab?). He has recently become well known and appreciated by participants of the 1981 TAS Field School at Calliham, Texas, where he assisted Lynn Highley in running the TAS Lab.

THOMAS R. HESTER is no stranger to readers of this Journal. Professor of Archaeology and Director of the Center for Archaeological Research at the University of Texas at San Antonio, Tom continues to be the major force in the study of the archaeology of Southern Texas. As is obvious from his article in this issue, he continues to be concerned and considerate of the relationship between those who practice archaeology for a living and those who do it for love alone.

RICHARD MCREYNOLDS is a Civil Service employee at Kelly AFB, Texas, who has an abiding interest in the artifacts manufactured by prehistoric Americans in Southern Texas. Richard is also becoming well known for his ability to illustrate such artifacts and for his paintings of the prehistoric environments and inhabitants of Texas.

JIM MITCHELL is the Editor of *La Tierra* and in this issue reports briefly on recent activities of the Council of Texas Archeologists, the state-wide group of vocational archaeologists, concerning the relationships among various types of archaeologists in the state.

LELAND PATTERSON of Houston is also no stranger to *La Tierra* readers. Lee continues to be an active force in the Houston Archeological Society as well as an active participant on the national scene, having just returned from the annual convention of the SAA. In this issue, Lee reports on some of his earlier work in the Pecos region of West Texas.

"SMITTY" SCHMIEDLIN is the 1981 Chairman of the Southern Texas Archaeological Association, and a very active proponent for archaeology in the region. Smitty lives and works in Victoria, Texas, where he and his co-workers have taken a very active role in policing area sites (thus serving as an example for us all).

HARVEY P. SMITH, JR. is a San Antonio architect who has graced the pages of this Journal several times in the past year, with articles on Espada Mission. Harvey has just returned from a tour of Spain, and is currently fully involved in the cataloguing of his father's architectural papers prior to depositing them with the University of Texas at Austin. Harvey has been most gracious in sharing with us some of his father's artwork depicting historic Spanish sites in San Antonio, which puts us all very greatly in debt to him.

THE SOUTHERN TEXAS ARCHAEOLOGICAL ASSOCIATION

The Southern Texas Archaeological Association brings together persons interested in the prehistory of south-central and southern Texas. The organization has several major objectives: To further communication among amateur and professional archaeologists working in the region; To develop a coordinated program of site survey and site documentation; To preserve the archaeological record of the region through a concerted effort to reach all persons interested in the prehistory of the region; To initiate problem-oriented research activities which will help us to better understand the prehistoric inhabitants of this area; To conduct emergency surveys or salvage archaeology where it is necessary because of imminent site destruction; To publish a quarterly journal, newsletters, and special publications to meet the needs of the membership; To assist those desiring to learn proper archaeological field and laboratory techniques; and To develop a library for members' use of all the published material dealing with southern Texas.

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