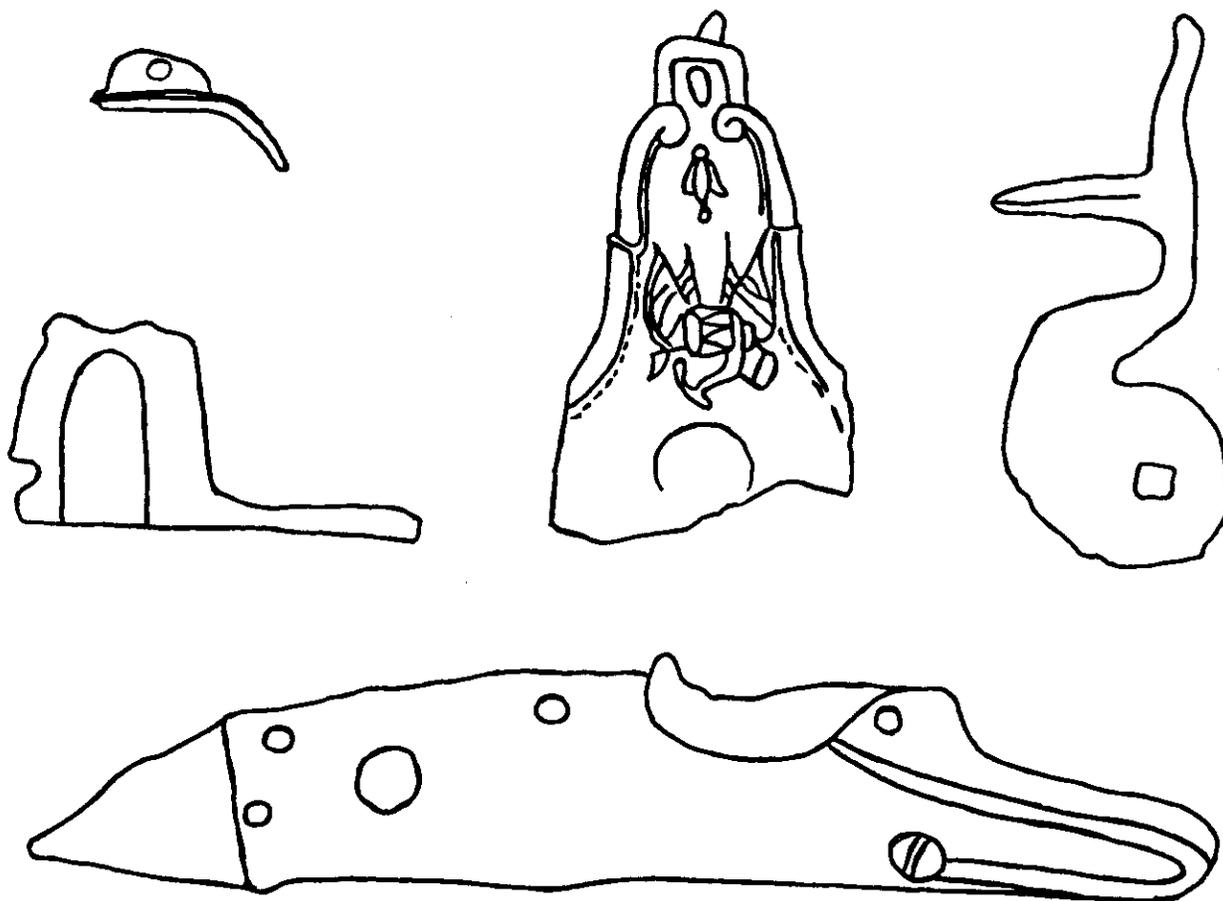




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Gun Parts from Site 41CH161

Houston Archeological Society Journal

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Flintlock Gun Parts from 41CH161

Sheldon Kindall

In 1991-92, the Houston Archeological Society investigated a prehistoric site in Chambers County and reported the results (Kindall and Patterson 1993). The motivation for looking at that site was a report of some artifacts collected from the site which were clearly of Indian origin but appeared to show some modern influence. One in particular was a ceramic mug handle.

The site turned out to have been occupied longer than anticipated; a carbon date funded by Leland Patterson using Rangia shell from near the bottom (but not at the bottom) of the midden in one of the test pits yielded a date of A.D. 290 (± 80 years). But, because the site contained fragments of Archaic time period dart points, the site was estimated by Patterson to possibly date from before the ceramic period.

The interesting aspect of this site is not its start date but its termination date. During the field work in 1991-92, nothing was found that would indicate possible European contact. However, later during the laboratory work, several very small trade beads were found in the fine screen material. These beads, which were of the order of 2 mm in diameter, were reported in this Journal by Melissa May (1993,1994), Houston Archeological Society Laboratory Director.

Once it was clearly established that 41CH161 was a European contact site, the Houston Archeological Society asked the owner for permission to return to the site to see if a better picture of the historic aspect of this site could be obtained. During July and August of 1995, the Houston Archeological Society returned to this site and excavated two additional test pits.

Site Description

This site is owned by Mr. Robert L. Barrow of Baytown. The land has been in the Barrow family for a long time but has been left in a primitive state for hunting and fishing purposes. The Houston Archeological Society is much indebted to Mr. Barrow, not only for giving permission to work on his land two different times, but also for showing extreme patience with how slow the analysis of his artifacts is moving. We are still not finished.

The site is basically a typical coastal shell midden. The main shell midden is now completely submerged due mostly to subsidence, but ceramics erode out of the midden and are deposited along the shoreline. A part of the site extends inland and up an incline. At a point that is about 2 meters higher than the shore, there is a relatively small area where artifacts of all types are especially abundant. It is from this area that the trade beads were found and it is this area that was investigated during the second field season.

Procedure

Two formal 1 meter square test pits were excavated, both in levels of 5 centimeters to a depth of 70 cm. One pit was screened through 1/4-inch mesh screen, but the second was not.

The second test pit requires special discussion: During the first field season, Bill McClure, who does all of the faunal analysis for the Houston Archeological Society, fine-screened a 10 cm by 10 cm column of soil that was extracted from the vicinity of where this second pit was later established (McClure 1994). He recovered an overwhelming number of small bones (and it was this work which first identified the minute trade beads). Because of the results obtained by McClure, the Houston Archeological Society decided to fine-screen the second test pit, one meter square to a depth of 70 cm, and we have been separating small bone ever since.

Before leaving the field, the Houston Archeological Society excavators put in several shovel tests to determine the extent of the site, and the site was mapped.

Results

As indicated, the lab work is not yet complete. The final recovery of bones, lithics, and trade beads is not yet complete, and hence a final report can not yet be submitted. But there were some artifacts found, French flintlock parts, that need to be reported without waiting for the final results.

Flintlock Parts

At a depth of 30 cm in the second pit, several flintlock gun parts were found. There was no order to the cache of parts, they were scattered as if discarded. This depth is out of the effective range of the ordinary metal detector, but it was decided to scan the area with metal detectors, and a few more parts were indeed located within the site boundaries. One item was essentially at the surface and two others were only slightly below the surface. These gun parts are shown in Figures 1 through 5.

Several people have identified the gun parts and there is general agreement. But because Texas is graced by the presence of one person, Mr. Jay Blaine of Allen, Texas, whose opinion on early historic artifacts is accepted by all, it was decided to send the artifacts to Mr. Blaine for identification. Instead of trying to paraphrase Mr. Blaine's words, we reproduce them here verbatim:

Since I can determine the quality as good, but not fine, this particular design origin in both cases can be said to be French (as you suspected) and the guns manufactured on the European continent. Some better than ordinary quality English guns of the same period can also reflect French fashion. A military origin is not indicated. The most likely period of use would be from between ca. 1740 and ca. 1760 to 1770 in my estimation.

Both gunlocks were stripped for parts. I believe broken or weakened springs, frizzen surface failures, and stripped screw threads probably were the most common causes for eventual failures among these flintlocks.

Both the cock and additional flashpan are a proper size for the larger gunlock. The flashpan would indicate an additional gunlock of the same size and type had been cannibalized somewhere. The size remains atypical for the indicated trade origin but I will continue to look for a similar occurrence. (J. C. Blaine, personal communication 1995)

Source of the Flintlock Parts

Given the context of the gun parts at a depth of 30 cm, there is very little question that they are associated with the Indian site. There is no way to know whether they were the personal property of one or more of the inhabitants of the site or the remains of a French trading post activity, or both. Eugene Bolton (1915) reports significant French trade activity near the mouth of the Trinity River, which is where this site is, as early as 1741. See, for example, the famous story of the founding of Mission Nuestra Senora de la Luz at the spot were the French trader, Joseph Blancpain, was

arrested by Spanish authorities in 1754. It is very doubtful that Blancpain's arrest did much to slow down the French trade with the Indians.

Participants

As with all Houston Archeological Society sites, a large number of people have participated and are still participating in the work on this site. Those who came out to dig in July and August were: Karen Acker, Charles Boyle, Bill Csanyi, Jerry Deal, Richey Ebersole, Dick Gregg, Joe Hudgins, Bill Just, Sheldon Kindall, Mike Marshall, Don McReynolds, Bev Mendenhall, Tommy Nuckols, Lee Patterson, Gary Ryman, Bob Shelby, and Roy Whitney. As far as known, everybody survived.

Acknowledgements

An effort such as this which extends over many months incurs indebtedness to many. Special thanks are due to the land owner, Robert Barrow, who has exhibited concern for historical accuracy by allowing us to do this investigation. Also, the HAS is much indebted to one of its members, Harold Graham, who has transferred images of the flintlock parts to magnetic disks such that they can be readily passed to others for examination. Graham's sketches are the basis for the sketches presented in this report.

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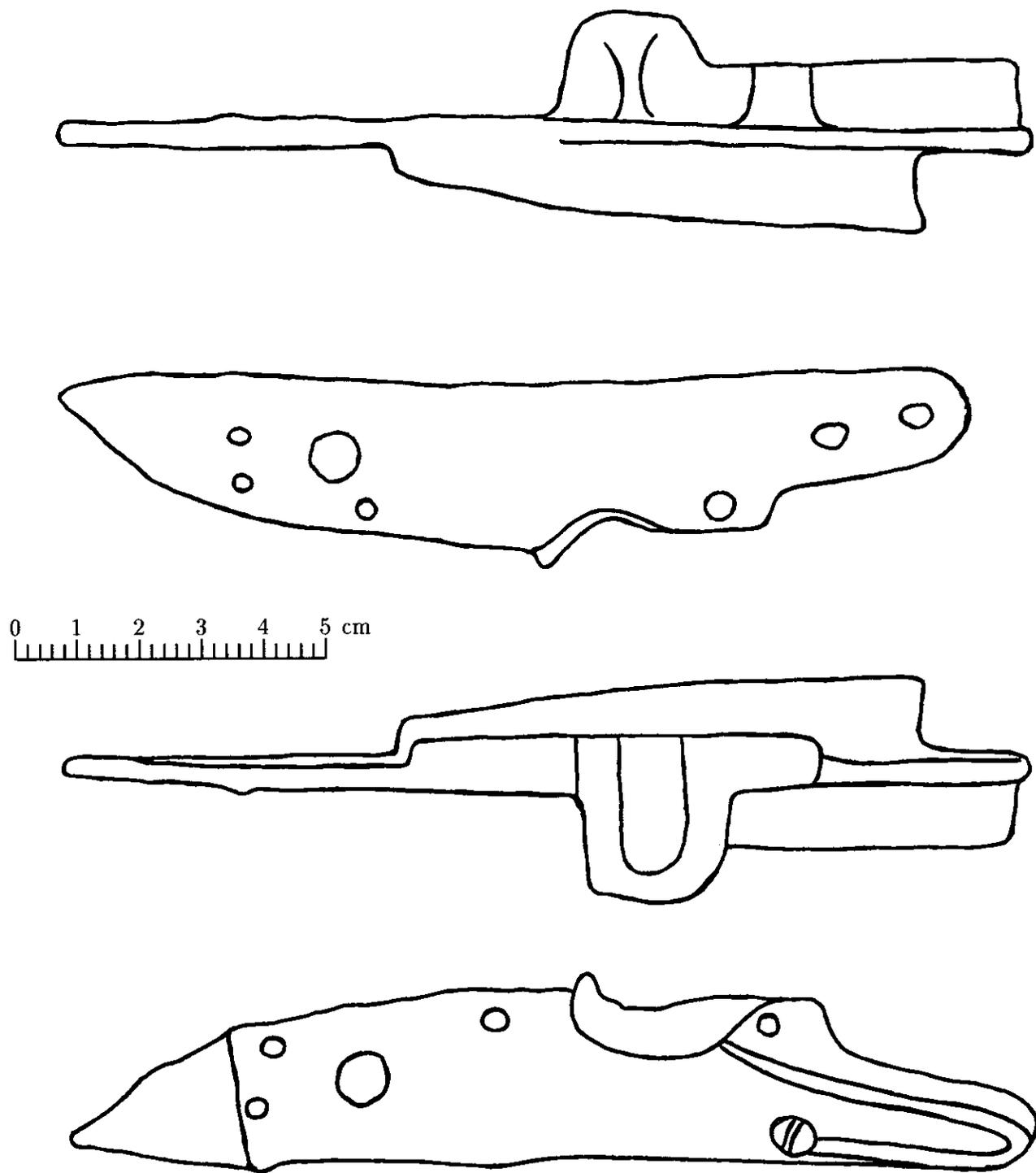


Figure 1. Lockplate A, Four Views

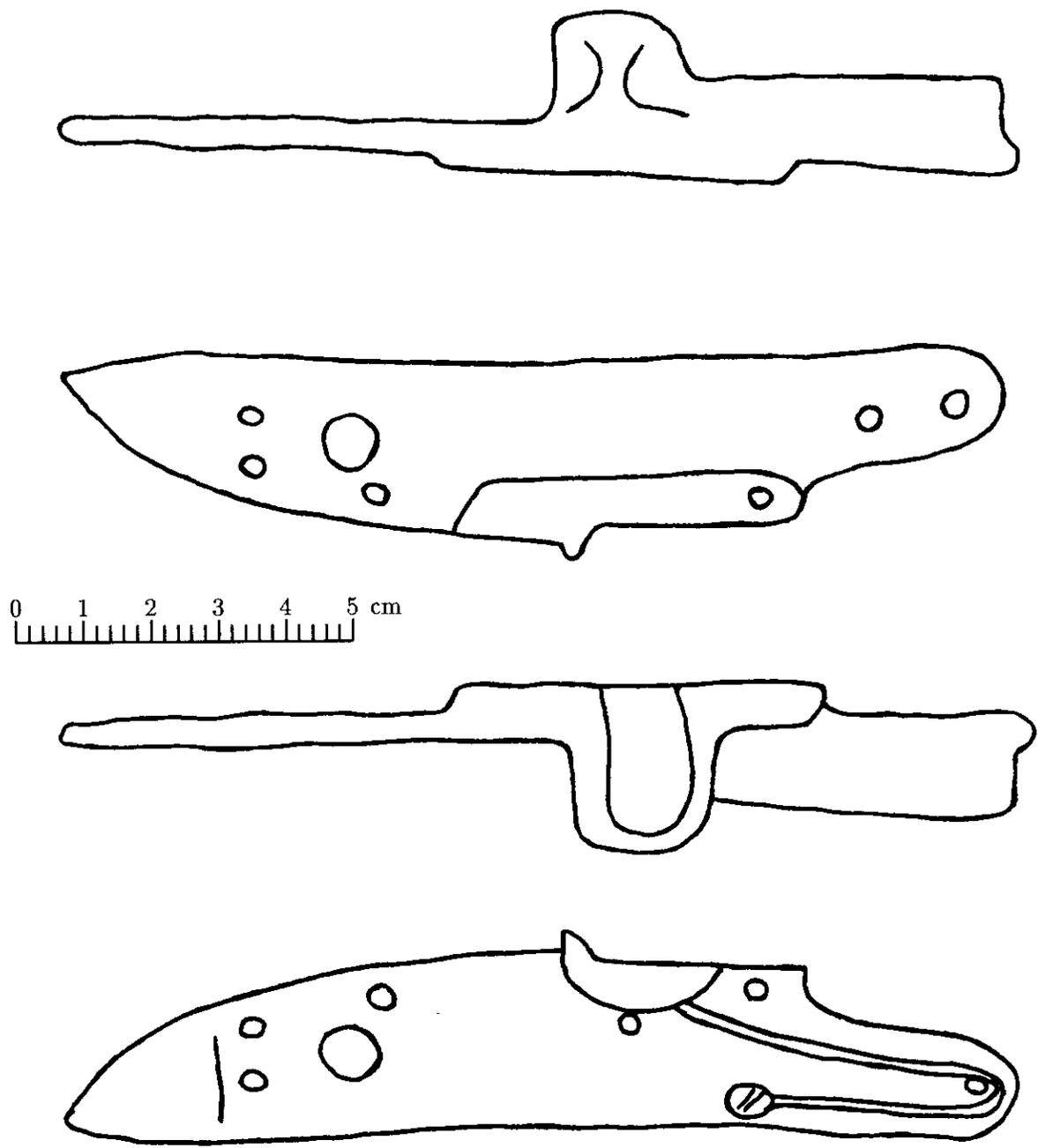


Figure 2. Lockplate B, Four Views

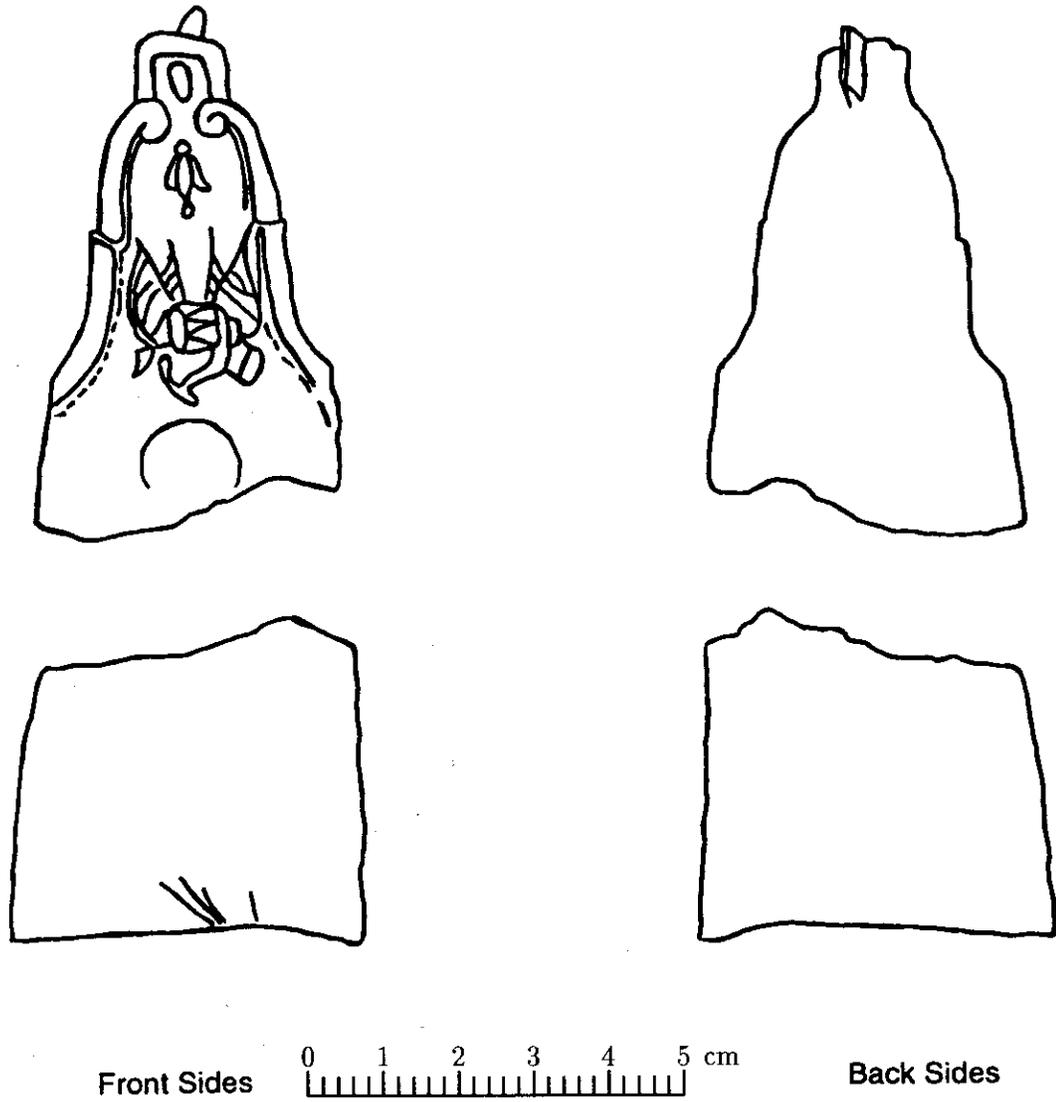
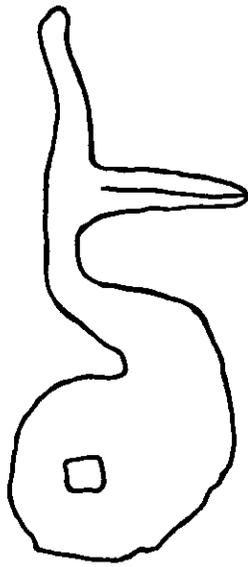


Figure 3. Two Butt Plate Pieces

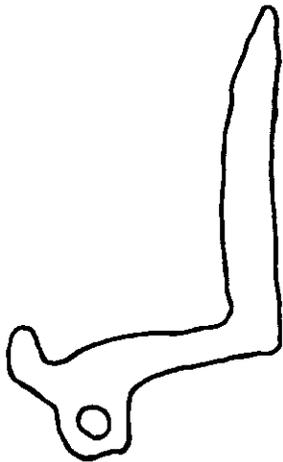


Side View

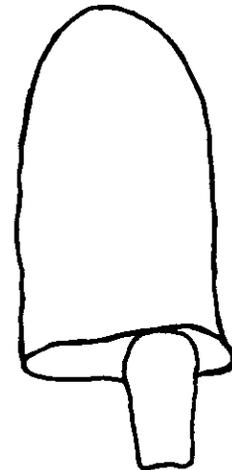


Back View

(a) Cock



Side View

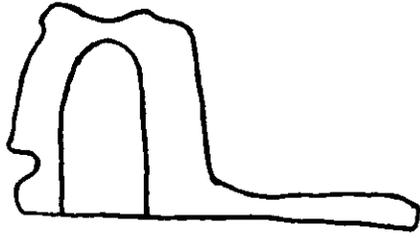


Front View

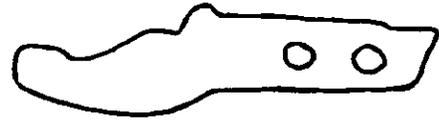
(a) Frizzen



Figure 4. Cock and Frizzen

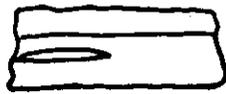


Top View



Side View

(a) Flashpan



Top View



Side View

(b) Trigger Guard Segment



Figure 5. Flashpan and Trigger Guard Segment

Additional Excavations at the Marik Site, Wharton Co., Texas

L. W. Patterson, J. D. Hudgins, and S. M. Kindall

Introduction

Results have been published (Patterson et al. 1994) for previous excavations by the Houston Archeological Society at the Marik site, 41WH38, Wharton County, Texas. This paper describes the results of additional excavations at this site, which served as field instruction for the HAS one-day field school conducted by Sheldon Kindall on April 12, 1997. Work at this site was possible through the courtesy of the landowners, Gene and Pati Marik.

Work at site 41WH38 was supervised by HAS Field Director Joe Hudgins. Sheldon Kindall handled site records and made a map of the excavation layout. HAS members who participated in the field work included Bill Csanyi, Richey Ebersole, Dick Gregg, Joe Hudgins, Sheldon Kindall, Mike Marshall, Don McReynolds, Tommy Nuckols, Lee Patterson, Etta Palmer, Tom Palmer, Gary Ryman, Bob Shelby, and Roy Whitney. Twenty-two field school students participated in this work, including nine students from Fr. Edward Bader's archeology class at the University of St. Thomas.

Previous excavations at this site identified occupations in the Late Paleo-Indian (8000-5000 B.C.) and Early Ceramic (A.D. 100-600) time periods. Occupation in the Late Prehistoric period (A.D. 600-1500) has now also been identified at this location. Even with additional excavations, no occupations in the Archaic period (5000-1500 B.C.) have been found here. This site is located on a stable landform with slow soil buildup. Apparently, later Indians began occupations in the Early Ceramic period directly above Late Paleo-Indian strata. A series of OCR dates have been obtained from soil samples taken during the additional excavations. These dates are in agreement with the Late Paleo-Indian projectile point type sequence of the earliest strata of this site.

As noted previously (Patterson et al. 1994), this site was occupied by nomadic Indians who practiced a hunting and gathering lifeway. The artifact types found here are typical for this type of site in Southeast Texas.

Excavation Details

Additional excavations were done for eight one-meter-square pits, in levels of 5 cm, except for the first level (0-10 cm). All soil was put through 1/4-inch (6-mm) mesh screen. An excavation layout is shown in Figure 1. Because the original base point for previous excavations could not be located, the coordinates of pits in Figure 1 do not match coordinates for previous excavations (Patterson et al. 1994: Figure 1). However, the additional excavations were done in the same area as the original excavations, with no overlaps of pit areas between the two excavation sets.

None of the pits in the additional excavations were completed to the lowest stratum that contained cultural materials, because of time limitations of the one-day field school.

Stratigraphic Details

Excavations at this site were done in arbitrary levels because no natural stratigraphy was apparent. Modern materials found in previous excavations indicated stratigraphic disturbance of 10-20 cm depths in many pits and as deep as 30 cm in a few pits (Patterson et al. 1994: Table 2). In the additional excavations, modern materials (Table 1) were found that indicate about the same amount of stratigraphic disturbance. This means that Late Prehistoric and Early Ceramic artifacts are likely to be mixed. This can be shown by the excavated depth of 2 Late Prehistoric Perdiz

arrow points (25-30 cm) compared to the excavated depth of 2 Early Ceramic Ensor dart points (0-5 cm).

Strata below 30 cm seem to be intact, except for 4 small sherds found below 30 cm in previous excavations, which might be the result of soil disturbance by gophers.

Ceramics

Six potsherds were found in previous excavations, including 1 Goose Creek Plain sandy paste sherd and 5 O'Neal Plain, variety Conway sherds with coarse sand temper. Goose Creek pottery was made in both the Late Prehistoric and Early Ceramic periods, but O'Neal Plain pottery was made only in the Early Ceramic period (Aten 1983: Figure 14.1). The additional excavations at this site recovered only 2 more O'Neal Plain sherds (pit BN 25-30 cm, pit EN 25-30 cm). The use of pottery does not appear to have been too important at this site.

Projectile Points

Projectile points found by the additional excavations at site 41WH38 are shown in Table 2 and Figure 2. Two bifacial Perdiz arrow points represent the Late Prehistoric period (A.D. 600-1500). A unifacial arrow point found here is not time-diagnostic, because unifacial arrow points were used in several time periods, including the last part of the Middle Archaic (3000-1500 B.C.), the Late Archaic (1500 B.C.-A.D. 100), the Early Ceramic (A.D. 100-600), and the Late Prehistoric (Patterson 1992). An Early Corner-Notched dart point with a lightly ground base is from the latter part of the Late Paleo-Indian period (8000-5000 B.C.) (Patterson et al. 1987; Patterson 1996:15). The triangular point shown in Figure 2E is judged to be a preform for an Early Corner-Notched point, because triangular dart points are rare in Southeast Texas (Patterson 1996: Table 8), and because there is no grinding of basal edges that would indicate completion of a Late Paleo-Indian point. Two pieces of asphaltum (pit FN 30-35 cm) may indicate use of natural asphaltum for hafting projectile points.

OCR Dates

Four oxidizable carbon ratio (OCR) dates (Frink 1994) were obtained for soil samples from the lower strata of pit FN. These dates are: 7509 YBP (5559 B.C.) for 25-30 cm, 8090 YBP (6140 B.C.) for 30-35 cm, 8770 YBP (6820 B.C.) for 35-40 cm, and 9049 YBP (7099 B.C.) for 40-45 cm. These dates agree with the conclusion from previous excavations that all artifacts from below 30 cm are from the Late Paleo-Indian (8000-5000 B.C.) time period (Patterson et al. 1994). As may be seen in Table 1, there is no evidence of modern disturbance below 20 cm in pit FN.

General Lithics

Three formal unifacial tools were found (Figure 2, Table 2), including a beaked tool, a graver, and a scraper. A biface fragment (Figure 2F) may be a broken early stage dart point preform.

A total of 284 chert flakes were recovered, as shown in Table 3 for each excavation pit. Two small quartzite flakes (Pit D at 10-15 cm and 15-20 cm) may be from a hammerstone. Only 1 thick chert piece was found (pit H 20-25 cm). Flake size distributions by excavation level are given in Table 4. The percentage of the smallest size flakes, under 15 mm square, decreases in the deeper excavation levels, as was observed for flake size distributions from the original excavations (Patterson et al. 1994: Table 7).

Remaining cortex on flakes over 15 mm square for all excavation levels from 0-35 cm is 4.0% primary flakes (covered with cortex), 26.7% secondary flakes (partially covered with cortex), and 69.3% interior flakes (no remaining cortex). This is similar to remaining cortex on flakes for levels 0-30 cm of the original excavations (Patterson et al. 1994:Table 8). The relatively low percentage (30.7%) of flakes with remaining cortex indicates that little primary reduction of chert cobbles was done at this location during the later occupation periods.

Possible Use of Earth Ovens

Iron concretions with a size range of 15-35 mm diameter were found in three excavation pits as shown in Table 5. A concentration of iron concretions was also found in an excavation pit in the original excavations (Patterson et al. 1994:4). These concentrations of iron concretions may represent use of earth ovens, where iron concretions were used as heating elements in the same manner that fired clayballs were used at other inland sites in Southeast Texas (Patterson 1995). The concretions presumably consist of one or more iron compounds, not elementary iron.

Summary

Additional excavations at site 41WH38 for the 1997 HAS field school were done mainly in the upper levels (0-30 cm) with only two pits excavated to 35 cm depth. A Late Prehistoric occupation component was identified that had been previously undetected. A few additional lithic artifacts from the latter part of the Late Paleo-Indian period were found in the 30-35 cm stratum. Occupation components of this site now include the Late Paleo-Indian, Early Ceramic, and Late Prehistoric time periods. OCR dates show that the initial occupation sequence at this site covers a large portion of the Late Paleo-Indian period. There seems to be a time gap in the occupation sequence with no definite indication of occupation during the Archaic period. Site 41WH38 is classified as a seasonal campsite used by nomadic hunter-gatherer groups. Data from this site are especially significant for the Late Paleo-Indian period of this region.

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Table 1. Modern Materials from Excavations

pit	level, cm	item(s)
CN	0-10	aluminum piece, 3 small metal pieces, wood
DN	0-10	small metal piece
HN	0-10	2 plastic pieces, 1 glass piece, 87 metal can pieces
GN	0-10	3 glass pieces, spark plug, 2 plastic pieces, 4 round nails, 20 metal bolts, 6 metal rings, 22 rifle shell, 6 metal pieces
BN	10-15	6 metal small pieces, 1 glass piece, 2 plastic pieces
DN	10-15	1 plastic piece, 1 shotgun shell
CN	10-15	1 metal piece
GN	10-15	1 metal buckle, 2 aluminum pieces, 1 metal piece, 5 round nails, 7 metal bolts, 1 metal washer, metal gas valve, 7 metal pieces
HN	10-15	70 metal pieces
FN	10-15	2 asphalt shingles, 2 plastic pieces
DN	15-20	5 small plastic pieces, small metal piece
CN	15-20	3 small metal pieces
FN	15-20	2 metal pieces, aluminum poptop, cellophane
HN	15-20	25 metal can pieces, metal piece, wood
BN	20-25	1 small plastic piece
DN	20-25	1 rifle shell, 2 small metal pieces

Table 2. Diagnostic Artifacts

Fig. 1	pit	level, cm	item (measurements in mm)
A	EN	25-30	Perdiz point L-20.8, W-12.1, T-1.9
B	EN	25-30	Perdiz point L-20.6, W-12.4, T-2.5
C	HN	20-25	Unifacial arrow point L-18.6, W-13.7, T- 2.2
D	FN	30-35	Early Corner-Notched point L-34.9, W-NA, T-7.0
E	BN	30-35	preform L-45.3, W-23.8, T-7.9
F	FN	30-35	biface fragment L- NA, W-45.8, T-13.7
G	BN	20-25	beaked tool L-44.6, W-19.6, T-6.3
H	BN	30-35	graver L-31.7, W-13.8, T-2.8
I	BN	30-35	scraper L-34.8, W-31.4, T-5.2
	BN	25-30	O'Neal Plain sherd
	EN	25-30	O'Neal Plain sherd
	FN	30-35	asphaltum

Table 3. Chert Flake Counts

level, cm	pit								Total
	AN	BN	CN	DN	EN	FN	GN	HN	
0-10	7		14	2	2	5	1	8	39
10-15		14	10	14	6	7		5	56
15-20		16	6	26	5	11		10	74
20-25		17	10	16	6	9		5	63
25-30		8	3	9	3	2		1	26
30-35		11				14			25
35-40						1A			1
total	7	66	43	67	22	49	1	29	284

A - partial pit

Table 4. Flake Size Distributions
(percent of flakes)

flake size, mm square	level, cm					
	0-10	10-15	15-20	20-25	25-30	30-35
under 15	59.0	73.2	73.2	71.4	57.8	36.0
15-20	23.0	25.0	23.0	17.5	34.6	28.0
20-25	12.8	1.8	5.4	7.9		12.0
25-30					3.8	4.0
30-35			1.3	1.6	3.8	16.0
35-40	2.6					4.0
40-50				1.6		
60-70	2.6					
count	39	56	74	63	26	25

Table 5. Iron Concretion Counts

level, cm	pit			total
	DN	FN	HN	
0-10	8	5	18	31
10-15		10	24	34
15-20	3	1	23	27
20-25	3	1	2	6
25-30			11	11
total	14	17	78	109

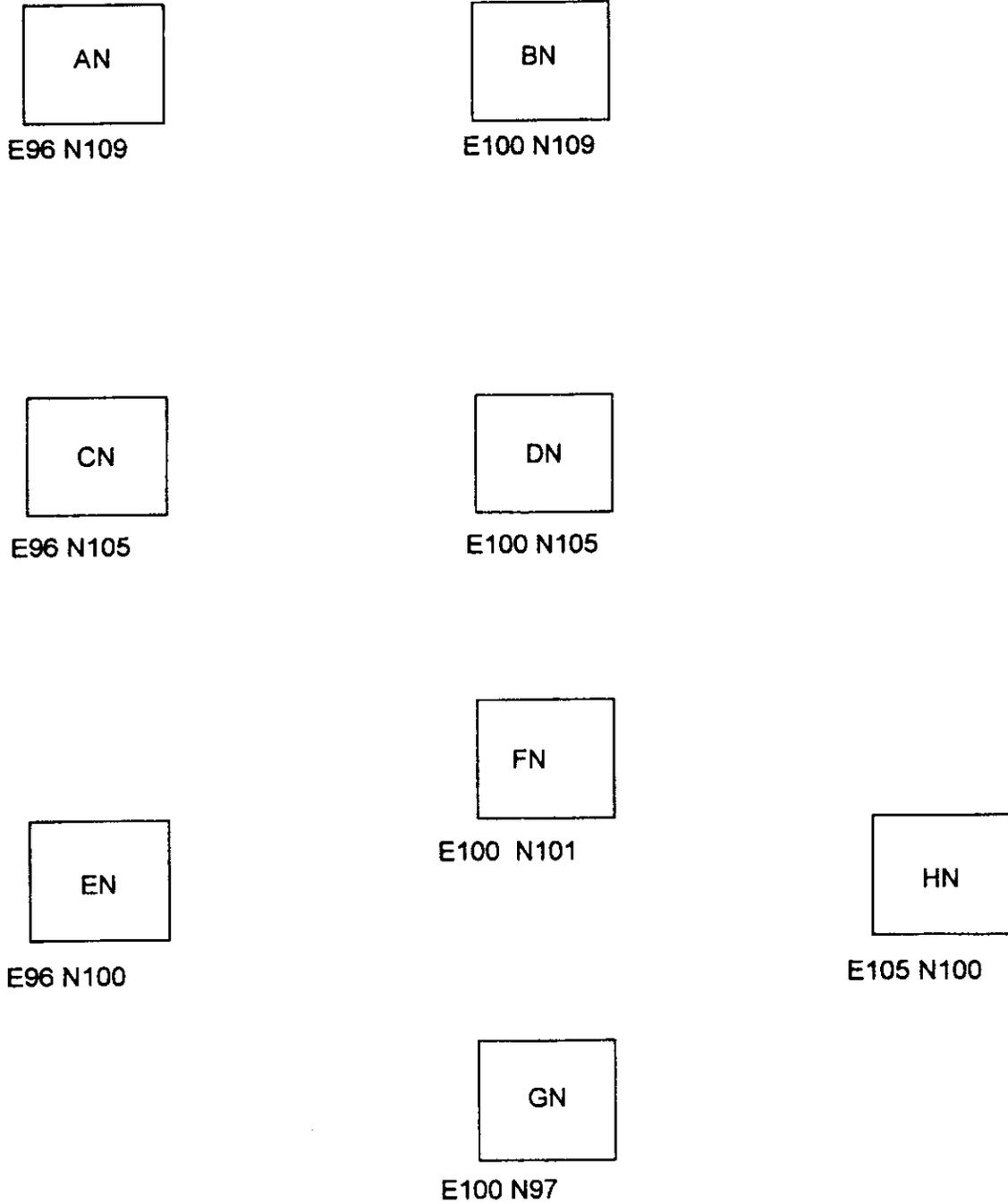
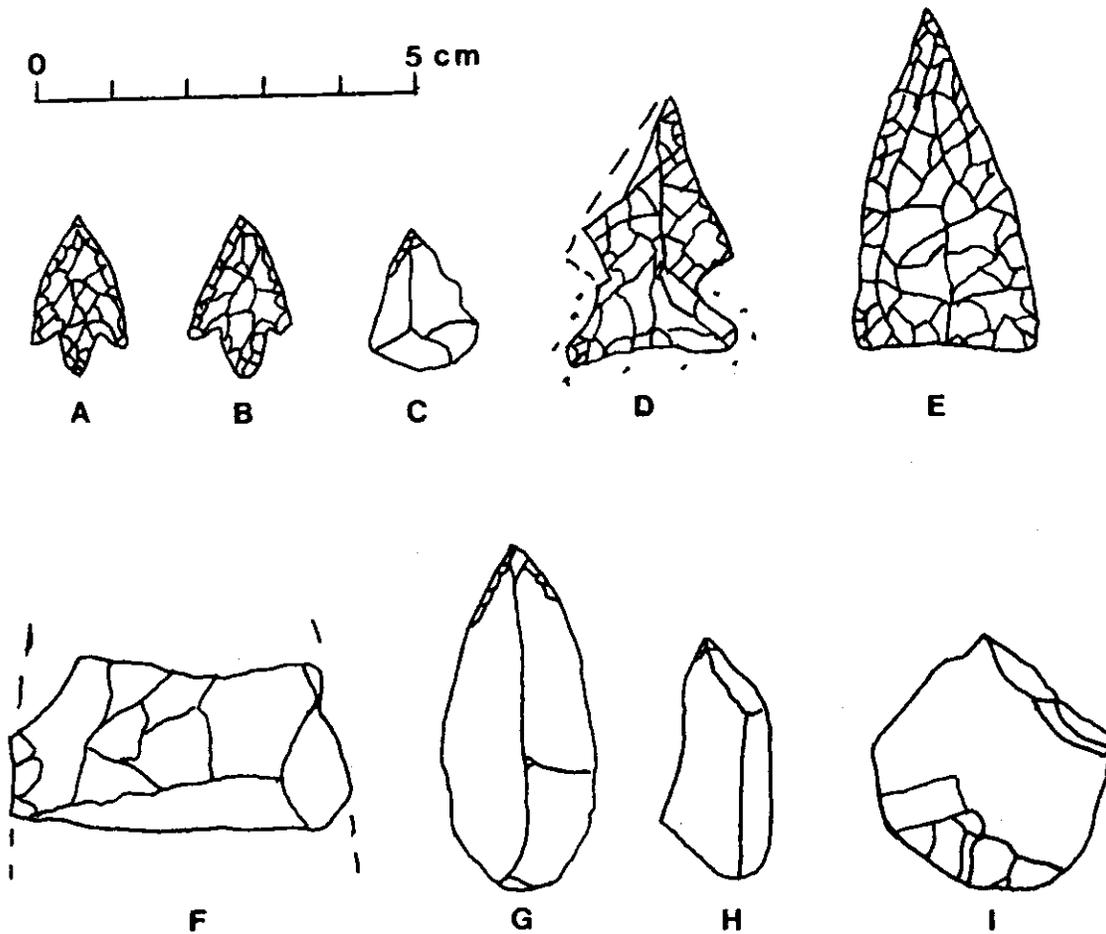


Figure 1. Excavation Layout



A,B - Perdiz points; C - unifacial arrow point; D - Early Corner-Notched point; E - preform; F - biface fragment; G - beaked tool; H - graver; I - scraper

Figure 2. Lithic Artifacts

Report from the Occasional Archeologist

C. R. Ebersole

The State Archeologist has a group of volunteers called "Stewards." They are all experienced amateurs or better. He uses them to supplement and extend his and his staff's own efforts by investigating reports of sites made to him by persons all over the state who have found items they believe to have archeological significance. Some of the items do, others don't. One such report and what happened after he got it is discussed below.¹

The Unofficial Report

At 7:30 A.M. on Sunday, July 17, 1988, a gang of three met at Sheldon Kindall's house in the Clear Creek area of Houston. Sheldon was the leader. He is about 50, a physicist working for Rockwell International, a primary contractor for NASA. He is a veteran of all the space programs from Mercury on and is presently working on the space shuttle missions. His specialty is space navigation, a sort of multidimensional three-cushion billiards problem. He is the field director of our local archeological society. Dick Gregg was there. Also about 50 years old, he has a Ph.D. degree from a yankee college (Ohio State) in electrical engineering, but is really a computer specialist and geophysicist with Shell Oil Company where he works with the most advanced computers in the world. He has experience and interests in many fields and in particular knows his way around in rock and mineral and bone identification. I am a Doctor of Jurisprudence and have had experience in towboating, practicing law, yardwork and two wars. I am a fluent cusser, am 62 years old and I feel every day of it. Kindall and Gregg are younger and politer.

We were charged by the State Archeologist, Bob Mallouf, with investigating some reported Indian mounds said to be located an hour north of Port Arthur. Mallouf, deciding against interrupting an extended honeymoon, had referred a Billy N. to Sheldon, and Sheldon had agreed to investigate the mounds found by Billy. Billy had been bombarding the State Archeologist and his State Senator and State Representative with calls and letters for several months and they were anxious to get him off their backs. Dick and Sheldon are members of the State Archeologist's Stewardship Network, and I believe they asked me to help because I have a car with pretty good tires and gas money.

Billy lives in a frame house down near the Intracoastal Canal in a working class part of Port Arthur. His house is neat but sparsely furnished. He was neatly dressed on the day we saw him and has a crazed, intense look. He treated us first to a collection of his photos of the mounds, which he began to call "Indian Pyramids." Then he pulled out a book, privately printed by a vanity press in San Antonio, written by a goofball, a retired naval officer, our Navy I guess. This press will publish anything at all, the minutes of the Blanco County FFA or the menu from a pig stand if you will pay for the job. I did not read the book but did glance at it, and it seems to be about an ancient Aztec Indian center with monuments somewhere in the vicinity of, and possibly under, Lake Livingston, over west of Cold Spring. The author is crazy. The book is crazy. Anyone who reads it carefully is crazy.

Wrenching Billy away from his collection of photos, we left about 10:15 A.M. headed north, up past Beaumont, Kountze, Woodville and Colmesneil to an un-numbered road in Tyler County

¹Editor's note: This report was written about nine years ago, soon after the events discussed occurred. So some statements are out of date, but it was decided to leave the report as is. It should be noted that Pat Mercado-Allinger has since succeeded Bob Mallouf as State Archeologist, and that the author, Richey Ebersole, has become a member of the Stewardship Network.

running north off of Farm to Market Road 1745 toward the old site of Fort Teran (later Boon's Ferry) on the Neches River. Because there were three of us, we had to take two cars. Thank God. Sheldon rode with Billy in his Chevy pickup, Dick and I followed in my car. Every time we got close to the pickup we could see Billy's jaws pointed at Sheldon and yakking away at top speed. Sheldon cringed on his side of the seat. We congratulated ourselves on getting Sheldon to ride with Billy. Better him than us.

It is difficult to reconstruct the stories of a madman. Narration by a sane person has a logical continuity to it and repeating one part of a story leads one's memory into a recollection of the next event and so forth so that you can usually tell a third party more or less what the narrator said. This was not the case here and Sheldon's recollection of what Billy told him is, as was Billy's story, pretty disorganized. The general thrust, as Sheldon remembers it, was that the original Garden of Eden was right there on the Neches. After Our Heavenly Father gave Adam and Eve the boot from Paradise, and after the flood (the same one that Noah was in) rearranged the stone masonry that Adam and Eve put up before meeting that snake, the Aztecs settled there and constructed three main pyramids. They were the same ones the naval officer talked about in his book except that he got the location all wrong. Later the Aztecs moved to Mexico City. At some point Moses buried the tablets with the Ten Commandments near the pyramids. They (the Ten Commandments we think) are covered with gold and ornamented with 10 varieties of precious stones. People have been around with gold detectors but haven't found them yet. Billy gives this book biblical authority save for the location of the pyramids.

We arrived at the first pyramid around noon, about a mile up a dirt road through scraggly, cut over pine country. It was hot as hell. The mound appears to the uninitiated to be an erosional remnant, rising among other hills from rolling ground. It is more or less circular and the hill has a diameter of about 150 meters and a height of about 50. Boulders were strewn on its sides. They were of a light-colored sandstone, fairly soft and were pretty big, the largest was Volkswagen size. They leaned against each other in places and were lying between trees. Loggers had recently cut all of the pines of any size, and the stumps of the logged trees were small as if the landowner was selling any timber that was big enough to cut and that he did this often. The landowner's name is Billy T. or something like that and Billy N. had talked him into bringing out a front end loader in an attempt to move some of the sandstone boulders from the lower slopes of the prominence so that he could get onto the tunnel system that underlay the pyramid and held treasure, but the loader had broken something in the transmission and Billy T. hadn't fixed it yet. Billy T. was acting funny (Billy N. said) and perhaps was after the gold instead of being there for religious reasons.

Sure enough, there was a broken-down loader on one side of the hill. This is important because it was the only physical evidence we found all day of anything we were told.

At the top of the hill the original two-foot-thick sandstone stratum was still present but due to the leaching away of the clay and sand underlying it the stone had broken. Specifically, there was a stone at the top of the hill roughly six feet square which had broken into three pieces, or so we in our innocence thought. To the adept it was apparent that this was an Aztec Sacrificial Altar and that the three pieces had been carefully carved so as to fit each other. During the course of the day we were shown several of these altars. One had a depression running across the top which Billy said was to carry the blood away.

We climbed around for a while, then got back in our vehicles and drove on up the road for about 10 more miles. The road ended at a state historical marker commemorating the site of the fort. It was on a bluff overlooking the river and about 40 meters above it. The bluff too was crowned with sandstone and boulders littered its side on down to the water and was the second pyramid. The brown river below us flowed slowly toward the south, carrying its cargo of Texas farms into the Gulf of Mexico. Billy capered at the summit for a while and then led Sheldon and Dick down

to the muddy water. I followed for about 10 feet, then came to my senses, turned around and messed around back at the top while they were shown the entrances to nonexistent caves which, were they but cleared of rubble, would lead to the wonders inside the pyramid. There was a dug well at the summit and a heavy iron grill lay across it to keep visitors from falling in. This was the only man-made artifact that we saw older than Miller Lite Beer cans.

About half an hour later my friends reappeared at the top of the bluff, sweating profusely. It was still hot as hell. Sheldon, out of earshot from Billy, told Dick not to argue with Billy as he might be dangerous. Billy told us that we must know that the pyramids were real unless of course we didn't believe in the Bible. Back into the blessed air conditioning of the car. We ate some pears that I had the foresight to steal off a tree in Port Arthur. Marine Corps training had paid off again.

I don't know what happened to the third pyramid. Our guide next took us to a dam, built by the Aztecs or perhaps built by The Creator for the Aztecs. We Philistines had named this place Boon's Ferry and it is, I think, the actual site of Fort Teran. The dam appeared to be a sandstone outcrop creating rapids which were probably the head of navigation on the Neches. Fort Teran was a Mexican Army post established a few years before the Revolution to stop further American immigration into Texas and was occupied by eight or ten Mexican soldiers for two or three years in the 1830s. The sandstone at the rapids was the same rock we had seen in other places in the land of the Tyler County Aztecs. It had eroded away into smooth and rather pleasing patterns in places and had turned black on the surface, it may have had a lead content causing this discoloration. Billy took Dick and Sheldon on an extended tour of what he called the "lava flow." I hung back far enough so I didn't have to listen to him and then, having my fill of the sights, went over and talked to some rubes who had brought their rubettes on a swimming trip and picnic. It was hot as hell. I hinted around some but they didn't offer me any food.

Finally, about 3:30, we had had enough. We had seen no artifacts other than beer cans, the iron grill over the old well and some fried chicken cartons. No sherds. No flint flakes. No points or tools. No bones. Billy headed down to a lake on the river where he said he thought his grandmother would give him some dinner. It was hot as hell. We got back in the car and headed home.

Hunter-Gatherer Theory: A Reply to Ellis

L. W. Patterson

Ellis (1996) has reviewed a report by Ricklis on the Mitchell Ridge Site, 41GV66, on Galveston Island, which is mainly concerned with Late Prehistoric, Proto-Historic, and Historic Indian occupations. Ellis has used his review as a vehicle to criticize some remarks that I have made (Patterson 1996:2) concerning hunter-gatherer theory. This article is in response to Ellis' comments. He appears to have misinterpreted my comments on hunter-gatherer theory. Also, in his zeal to defend hunter-gatherer theory in general, Ellis has done a rather superficial review of Ricklis's (1994) report, with not much discussion on several subjects where significant amounts of data were presented.

Ellis (1996) seems to have interpreted my remarks on hunter-gatherer theory (Patterson 1996:2) as being skeptical of all hunter-gatherer theory. All archeological studies employ some type of theory, because the archeological record requires interpretation. I specifically stated, however, that it is difficult to formulate general rules for hunter-gatherer behavior, because rules of this type usually have many exceptions. Problems in developing general theory for hunter-gatherers are caused by the limited nature of the archeological record, and by the diversity of hunter-gatherer adaptations (Kelly 1995). Prehistoric hunter-gatherer theory can be roughly divided into two categories. These categories are data-based interpretive theory that seeks to interpret the archeological record as far as possible, and behavioral theory which seeks to identify regularities of human behavior. Although perhaps not clearly stated, my comments (Patterson 1996:2) about hunter-gatherer theory were directed at behavioral theory that attempts to have general application. As Renfrew and Bahn (1996:453) have noted, it is difficult to formulate general rules in archeology that are not either trivial or untrue.

A high proportion of published hunter-gatherer behavioral theory is not suitable for general application because theoretical models cannot be or at least have not been adequately tested with archeological data. Many theoretical models cannot be tested because details are beyond the limitations of the archeological record. The following basic limitations of the archeological record apply to prehistoric hunter-gatherers:

1. There is no written record to support theoretical models.
2. The limited nature of archeological data does not permit complete reconstruction of hunter-gatherer behavior or lifeways.
3. Even simple hunter-gatherer lifeways are complex, non-linear systems, where small changes in variables can result in multiple outcomes (Lewin 1992:11; Waldrop 1992:146, 255).
4. Archeological data are statistically uncontrolled data, where cause and effect cannot be proved (Thomas 1976:460).

All development of theoretical and interpretive models for prehistoric hunter-gatherers is subject to the above limitations. No amount of clever speculation can overcome these limitations. Binford (1986:472) has argued that this is an unjustified pessimistic attitude because all facets of the archeological record are not yet understood. My position, however, is that there are basic limitations of the archeological record that can be explicitly stated, and that are not likely to change with future expansion of knowledge. The challenge of archeological research is to extract the maximum amount of information from the archeological record, within the limitations of the archeological record. It

is also necessary to separate speculation (just-so stories) from substantive conclusions that are supported by data.

The literature is filled with theoretical models for hunter-gatherer behavior that probably cannot be tested. For example, Thomas (1986:253-258) notes that models for optimum foraging theory are not likely to be testable with data from the archeological record. As another example, theoretical models that attempt to relate hunter-gatherer mobility with types of lithic technology (Bleed 1986; Odell 1996) have not yet been demonstrated to be suitable for general application. This type of study involves more than one cultural subsystem. Trigger (1989:393) has noted that prehistoric cultures are not uniform enough for change in one subsystem to allow prediction of change in another subsystem.

Most research progress for prehistoric hunter-gatherers has been and continues to be in the area of data-based interpretive models, including culture history. Progress is made in a cumulative manner with the expansion of archeological data, the development of new analytical techniques, and the formulation of related interpretive theory. For example, information on the adoption of horticulture by prehistoric hunter-gatherers in the eastern United States has been obtained mainly by the increased availability of data on plant remains, and the development of analytical methods to identify domestic plant species (Smith 1992). Trigger (1989:395) has observed that successful interpretations of hunter-gatherer lifeways have been mainly in the area of writing culture history.

Not all data-based interpretive theory is of the same quality, but this is a scientific process that is self-correcting, although this may not be apparent at any given time. There are many good interpretive models for regional archeology in North America, such as Thomas's (1973) study of hunter-gatherer adaptation in part of the Great Basin, and studies by Sassaman et al. (1990) for the Savannah River Valley. Hundreds of site reports are published each year that contain data-based interpretive theory.

Ellis (1996) cites several examples of theory development in Ricklis's (1994) report on site 41GV66 on Galveston Island. It may be noted that all of Ricklis's theoretical models are data-based interpretive models for a specific site and subregion (the Southeast Texas coastal margin). These theoretical models are not suitable for general application to hunter-gatherer behavior. These models represent Ricklis's interpretation of a specific scenario, and have some basis from archeological data. For example, Ricklis's opinion that logistical trips were made from the island to the mainland to hunt large animals is based on indications such as bison remains at the island site.

Ricklis (1994) has interpreted the low level of lithic use at site 41GV66 as mainly a function of distance from the nearest lithic source. Distance from lithic source is certainly an important factor, but is not a factor that can be applied to archeological sites in a rigid manner. Ricklis (1994) states that the nearest source of chert for site 41GV66 is located at the Brazos River at a distance of 70 km. Inland Indians in Harris County were traveling over 80 km during the Archaic period to obtain large pieces of chert at the Colorado River, rather than exclusively using small pieces of chert from closer sources (40 km) of the Brazos River area (Patterson 1996:33). It can be noted that there was a low level of lithic use at all sites on the coastal margin of Southeast Texas, regardless of distance from lithic sources (Patterson 1996:34).

Ellis' (1996) review has given superficial treatment to some of the most important substantive and interpretive subjects of Ricklis's report on site 41GV66. For example, Ricklis has presented many data on burial practices and grave goods for the Late Prehistoric, Proto-Historic, and Historic Indian periods which expands information given previously by Aten et al. (1976) for Late Prehistoric burial practices in the Galveston Bay area. Ricklis's report gives the first archeological data that indicates formation of composite bands formed from the remnants of bands that were decimated by disease and conflict caused by European contacts. Also, Ricklis's data indicates early European trade goods obtained by Indians on Galveston Island in the seventeenth century, before major

European presence in this area.

In summary, I am not generally opposed to hunter-gatherer theory as implied by Ellis (1996), but I feel that a distinction can be made between general models of behavior of prehistoric hunter-gatherers which remain largely speculative, and data-based interpretive theory that can be refined as new data and analytical methods become available. My position is that the study of prehistoric hunter-gatherers is best pursued as a matter of regional interpretation of the archeological record, rather than as the formulation of general rules of behavior. Theoretical models that seek regularities in hunter-gatherer behavior can be useful as conceptual tools. However, theoretical models of this type are often presented in the literature without recognizing limitations of the archeological record, or consideration as to whether or not models are testable with archeological data. For readers interested in learning more about the nature of archeological theory, I recommend the definitive book by Trigger (1989).

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