The Newsletter is published four times per year by the Houston Archeological Society. Contributions of news items, short articles and information of archeological significance should be sent to the Editor - Alan R. Duke, 1706 Oaks Drive, Pasadena, Texas 77502.

# # # # #

HAS Officers - 1974-75

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# # # # #

HAS Programs - 1975

April - Miss Nancy O'Malley, Texas Historical Commission, spoke on "Soil Science and Its Relationship to Archeology".

May - Jim McMichael, Associate of the Brazosport Museum, presented "An Archeological Survey of the Lower Brazos River".


# # # # #

Archeological Dig and Field School at 41GV66

The HAS Field School, held at the Mitchell Ridge Site, Galveston, Texas from May 31 thru June 13 was quite successful. Fourteen individuals registered for the school and a total of 20 persons participated daily. In addition to the field work, training included a review of the geology of the island by Dr. Rufus LeBlanc, a visit to the Rosenberg Library, a preview of the Galveston State Park and a demonstration of pottery making.

The top of the ridge was tested extensively and three tractor trenches were dug. Four hearths were uncovered and enough charcoal obtained for dating. Other finds included pottery and projectile points.

The elusive "contact" material has not been found but work on the site will be resumed toward the end of July. Barbara Burger, Dig Director, has received financial assistance from the Kempner Foundation and will hire students to continue the excavations. Work, when resumed, will continue thru week-ends and HAS volunteers will be welcome. Contact Barbara Burger, Lou Fullen or John Herbert for information on dates and times.

# # # # #

Coming Events

August 30-31, 1975 - Second Rock Art Symposium, El Paso, Texas
Sept. 7-12, 1975 - 1975 Archeological Field Training School, Ghost Ranch Conference Center, Abiquiu, N.M.
Oct. 31 - Nov. 2, 1975 - Texas Arch. Soc. Annual Meeting, San Antonio, Texas

# # # # #
While preceramic components of multicomponent sites occur fairly frequently in Harris County (Wheat 1953, Patterson 1974a), sites containing no ceramics and significant quantities of diagnostic materials are not found often. Site 41HR250 is one of the few sites found by the writer, in surveys in inland Harris County, which is completely preceramic in nature. This site is located on an eroded bank of a former creek bed, on fairly flat sandy ground. Artifacts have been found over an area of approximately 100 by 200 feet. It is a campsite area, for a hunting and gathering lifeway, occupied a number of times, as shown by different projectile point types. There is evidence of both lithic tool manufacture and use.

No evidence has been found of early Archaic occupation. All projectile point types are of the middle to late Archaic time periods, as established by Wheat's (1953:table 5) excavation sequence for other sites in this region. This report covers artifacts found through March 1975. Chronology given by Aten (1971:fig.10) for this general region would date this site before AD 200, when ceramics use starts. Occupations could represent up to several thousand years, in the middle and late Archaic periods of 3000 BC to AD 200. Projectile point types found on this site are generally most numerous in the late Archaic period in Wheat's sequences, and the ground base points tend to occur earlier (Smith 1969:6) in the middle Archaic period.

The following projectile point types have been found, are are illustrated in Figure 1:

- Gary: 1 tan flint
- Trinity: 1 heat treated brown flint
- Ellis: 1 tan flint
- Refugio preform: 1 brown flint
- Williams: 1 brown flint
- dart point fragments: 2 grey flint

In regard to the Refugio preform, references have been made to asymmetrical stemless bifacial points as being knives, even when a sharp point was present (Wheat 1953:222). While bifacial knives could have this shape, other examples found by the writer are most likely to be projectile points, including one on site 41HR182 with a definite impact flute on the most pointed end. These points follow the Refugio dart point type description given by Suhm and Jelks (1962:241). Wheat (1953:table 5) shows Williams points to have a fairly early occurrence. A Williams point found by the writer on site 41HR206 has a ground base, typical of the middle Archaic period of say 3000 to 2000 BC. The base is broken on the Williams point from site 41HR250. The Gary point from this site is somewhat larger than the typical later Woodland small Gary points. The Trinity point (Suhm and Jelks 1962:253) from this site has a ground base and ground side notches. One of the expanding stem dart point fragments also has a ground base.

Miscellaneous lithic materials found include a quartzite hammerstone, showing much use, a small piece of burnt flint; and flint pebbles, with 5 under 25 mm square and 16 larger.
The lithic flake collection consists of the following:

<table>
<thead>
<tr>
<th>Category</th>
<th>No.</th>
<th>%</th>
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<tbody>
<tr>
<td>gravers</td>
<td>3</td>
<td>2.3</td>
</tr>
<tr>
<td>microliths - end blades</td>
<td>2</td>
<td>1.5</td>
</tr>
<tr>
<td>side blades</td>
<td>16</td>
<td>12.2</td>
</tr>
<tr>
<td>blade core trim flakes</td>
<td>3</td>
<td>2.3</td>
</tr>
<tr>
<td>prismatic blades</td>
<td></td>
<td></td>
</tr>
<tr>
<td>under 11mm wide (microblades)</td>
<td>8</td>
<td>6.1</td>
</tr>
<tr>
<td>11 to 15 mm wide</td>
<td>9</td>
<td>6.9</td>
</tr>
<tr>
<td>15 to 20mm wide</td>
<td>4</td>
<td>3.1</td>
</tr>
<tr>
<td>flakes - under 15 mm square</td>
<td>148</td>
<td></td>
</tr>
<tr>
<td>15 to 20 mm</td>
<td>40</td>
<td>30.5</td>
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<tr>
<td>20 to 25 mm</td>
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</tr>
<tr>
<td>25 to 35 mm</td>
<td>24</td>
<td>18.3</td>
</tr>
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</table>

There is the usual assortment of prismatic blades and microliths, found on sites in this area from several time periods (Patterson 1973). Nine prismatic blades have ground edges at the striking platform, which is a core preparatory technique. Several of the prismatic blades have retouch on the lateral edges, and numerous flakes also have retouch. One noticeable aspect of the flint flakes is the large percentage over 20 mm square, compared to later time period sites (Patterson 1974a).

Flint types utilized are common to sites in this area (Patterson 1974b), including brown, tan and grey colors. There are several flakes of red jasper and one piece of petrified wood. Heat treating was used in many cases.

One microblade core, with multiple striking platforms and all facets less than 11 mm wide, was found. The presence of this core together with blades wider than 11 mm suggests that more than one blade manufacturing technique was used. Replicate experiments (Sollberger and Patterson 1975ms) have shown that true microblade cores can be consistently produced only by direct pressure techniques. Blades wider than 11 mm would likely be produced by other direct and indirect percussion techniques, as pressure techniques for microblades do not produce many wider blades.

This site furnishes some information on a little known period of Harris County archeology, and provides a base for the study of technological developments in later time periods.

References:

Patterson, L.W. 1974a Technological Changes in Harris County, annual meeting, Texas Arch. Society, Dallas
Patterson, L.W. 1974b Harris County Flint Sources, Houston Arch. Society Newsletter 46, pp. 3-4
Suhe, D.A. and Jelks, E.B. 1962 Handbook of Texas Archeology: Type Descriptions, Texas Memorial Museum, Bulletin No. 4
FIGURE 1
SITE 41HR250 ARTIFACTS
ACTUAL SIZE

REFUGIO PREFORM

WILLIAMS POINT

TRINITY POINT

GARY POINT

ELLIS POINT

DART POINT STEMS

MICROBLADE CORE

UNIFACIAL SIDE BLADE

CORE TRIM FLAKE

UNIFACIAL END BLADES

PRISMATIC BLADE
Microblade Replication And Use Experiments - Brent W. Smith

In separate investigations, H. K. Curry, Asst. Professor of Anthropology, Northwestern State University of Louisiana, and Brent Smith, former Grader Teaching Assistant at the same institution, have replicated microblades and microflakes and used these specimens to conduct various deer butchering experiments. The recent reporting of similar results by L. W. Patterson (1975) has prompted the publication of these findings.

One of the recent trends in lithic technology research has been towards the microscopic analysis of use wear patterns on stone tools. Some important previous work in this field includes that of S.A. Semenov (1964), E. N. Wilmsen (1970) and S. A. Ahler (1971).

In H. K. Curry's research an entire deer carcass was skinned and field dressed with one round-edged flake of Alibates chert. This single flake was used to cut between the ribs and to detach them from cartilaginous bones at the vertebrae. In my research, I first replicated microblades and microflakes from local pebble cobble cores. All of the debitage used in my experiments and the single flake used in H. K. Curry's research were manufactured by direct hard-hammer percussion. In my research the head portion of a medium size deer with attached meat, bone and hide was worked on with two flakes and two blades. The separating of the meat from the hide, meat cutting, meat scraping and bone cutting activities were done with separate flakes and blades for each set of activities. The total amount of usage involved between 30 minutes to one hour for each specimen.

In both of our experiments, after these activities were performed, each flake or blade was looked at under a binocular microscope under 30x and less magnifications. The final analysis of wear produced similar results to those of Patterson's. We could observe the following on each specimen:

1) In H. K. Curry's experiments, the small scallops observed after field dressing were enlarged in size and became more irregular in distribution on the lateral edges; 2) Use wear polish on the utilized edges; 3) Random flake scars and edge "nibbling" and crushing; 4) Unifacial use wear retouch along the utilized edges; 5) No striations were observed between 10x and 30x magnification.

One of the original objectives in our experiments was to see if use wear retouch similar to that produced on Jaketown perforators from Poverty Point sites could be observed. We also were interested in experimentally replicating microscopic striations through wear produced by flake or blade use, similar to what we have observed on some archeological specimens of bifaces and scrapers. I conclude, however, that both microscopic use striations and use wear retouch, as observed on Jaketown perforators, were produced prehistorically either through activities other than from deer butchering and related activities or from considerably more usage than was the case in our experiments.

Bibliography:

White Oak Bayou continued (See HAS Newsletter #48) W.L. McClure

41 HR 139 The Gus Wortham Site.

This site is on the upper terrace on the west bank of White Oak Bayou on the outside of a horseshoe bend. A small creek intersects the bayou from the west and forms the north limit of the site. Channel rectification isolated the bend in the stream and left the site undisturbed. Mixed woods covers the site today. The main part of the site is at the confluence of the streams but scattered artifacts were found on the surface for 1000 feet upstream on the bank of the creek and 400 feet downstream on the sandy levee along the bayou bank. Although the site was not disturbed by flood control activities, it has been subjected to a variety of actions that have had an impact. The area back from the bluff apparently was farmed early in this century. During the 1960's, sub-adult male Homo sapiens cut trails through the woods and down the slopes and have operated motorized two-wheeled vehicles thereon. This has initiated and continually stimulates erosion. A borrow pit was dug in the main site to supply fill material for low spots in the trail. Another older borrow pit of unknown origin also cut into the site. On more than one occasion during the past decade, fire pits were dug into the site. Ground fire burned through the area in 1966 and 1968 leaving burned stumps that penetrated the site. The site has been disturbed somewhat by the actions of small mammals and insects.

A short, steep-sided gully cuts through the site. Erosion has revealed that the gully had been used as a dump for recent cultural debris. Across the bayou within the horseshoe bend is another dump of recent material.

Surface elevation is about 55 feet above sea level.

In addition to salvage of the material exposed in the trails and on the eroding surfaces, test pits were dug in the main part of the site. Eight small (2½' x 2½') squares were excavated by trowel after a base line was staked. Three pits were at the edge of disturbed areas and each was excavated as a unit. One pit was excavated in 0.1' levels, one in 0.33' levels and one in 0.5' levels. The others were dug as single units with depth of material recorded. Vertical and horizontal position of artifacts was plotted. The soil was passed through ¼" mesh and some was screened through smaller mesh to recover small flint chips and other minute objects.

The surface soil is a fine sand which varies in depth from nothing to 1.4 feet. Below this is a yellowish silty clay substrate that extends to an unknown depth. Material from one test pit was taken in 3 inch levels and subjected to mechanical analysis. This indicated that there was no difference in grain size of the sand between the surface and the silty clay. There was no observable change in the soil. Recent and prehistoric artifacts were found at all depths within the sand.

Some sherds and flakes were at the surface and nails were 1 foot below the surface. A U.S. penny dated 1942 was found at depth of 6 inches indicating that it was displaced downward in the sand at a rate no slower than 1" in 5 years. In order to test this rate, six pennies dated 1970 were punched with letters HAS and in August of 1970 they were placed at specific spots on the site one inch below the surface. Future investigators may recover these if the site is not destroyed.

The obvious disturbance of the sand makes it pointless to segregate the artifacts vertically in a limited study such as this one.
RECENT MATERIAL:
The cultural debris within the two dumps consists of bone, leather, glass and metal artifacts that date from around 1900. The recent material found in the test pits consists of glass and metal objects. The predominance of bullets, cartridges and cases indicate that the site has been a favorite hunting ground for modern man. This material does not reflect contact with aboriginal inhabitants and it will not be discussed further in this report.

BIOLOGICAL MATERIAL:
Mollusca:
Gastropods: Tests of three species of land snails were found at or near the surface. *Mesodon thyroidus*, *Polygyra texasiana* and *Helicina orbiculata* are common in the area today.
Pelecypods: Shells of *Rangia cuneata* and *Crassostrea virginica* were found on the surface and as deep as 0.5 feet. Since neither the clam nor the oyster is found naturally within 20 miles of the site, they were brought there by humans but probably in recent years.

Reptilia:
Turtle: Most of the plastron and carapace of a box turtle (*Terrapene carolina*) were found eroding from the sand on the bank of the bayou across from the main site about 4 feet below high bank. Cause of death was apparently a projectile of unknown type that perforated the carapace and plastron. The hole roughly oval (8 X 10 mm.). No other modification of the bones is evident. Two other turtle bones were found at the site. This species of turtle has been in the area since Pleistocene times and is very common there now.

Mammalia:
Cottontail rabbit: Teeth and fragmentary bones of *Sylvilagus* sp. were found on the surface.
Bison or cow: One tooth from either a bison or a cow was found. Dr. Dalquest examined the tooth and indicated that it could be either.
Miscellaneous: Several fragments of unidentifiable mammal bones were found.

Bone Artifacts:
Only one artifact made from modified bone was found.

Projectile Point:
Arrow Point:
Unidentified—Unstemmed (1) (Fig. 9, P.)
One arrow point made from a flat piece of bone was found on the eroding slope at the site. Blade sides are arcs of curves having radii of 25 mm. It is unstemmed. Base is straight with a base angle of 11°. Length is 22 mm. Width is 6½ mm. Thickness is 2½ mm. Blade edges are thinned but not sharp.

'Base angle' as used in this report is the degree of divergence of the base from a right angle to the axis of the artifact.
CERAMICS:
The assemblage includes 137 fragments of fired clay that are sherds of vessels. Seventeen (12.6%) are bone tempered wares, one is Goose Creek Incised and the others are Goose Creek Plain. There are also a few pieces of fired clay that are not pottery.

Goose Creek Plain: (119)
Color, paste and consistency are typical. Large vessels are represented as the curvature is slight. However, one sherd is from a vessel with a diameter of 232 mm. Total weight of the 119 sherds is 190 grams.
Rim Sherds: Seventeen rim sherds are present. Thickness varies from 4 to 7 mm. with an average of 5.5 mm. None has any indication of lip notching or other modification. Five types of rim shapes are included. Eight are Type 3 (Fig. 6, A.) which are rounded at the lip with no thinning. Six are Type 4 (Fig. 6, B.) which are tapered with a rounded lip. One is Type 5 (Fig. 6, C.) which is flared outward with thinning from interior and a rounded lip. One is Type 6 (Fig. 6, D.) which has a flat lip with no thinning. One is Type 2 (Fig. 3).

In this report the word 'thinning' means that the thickness of the sherd is reduced near the rim with the change taking place within a distance of less than twice the thickness. 'Tapered' means the change takes place in a distance of more than twice the thickness.

Body Sherds: 100 body sherds are present. Thickness varies from 3 to 8 mm. with an average of 6.2 mm.

Bases: Two bases are represented. Both are rounded at the bottom with only slight thickening, Fig. 6, F. Thickness changes from 6 to 8 and from 8 to 9 mm.

Goose Creek Incised: (1)
Color, paste and consistency are typical.
Rim Sherd: One rim sherd is decorated on the interior concave face of an inwardly curving sherd that has a flat lip and no thinning, Type 7 (Fig. 6, E.)
Decoration consists of three relatively wide and shallow incisions that are nearly parallel to each other and to the rim, (Fig. 6, G.). Thickness is 6 mm.

Bone tempered ware: (17)
This category of pottery has not been named as far as can be determined.
The sherds have sandy paste with crushed bone tempering agent. Grain size of the sand varies from silts to coarse sand with some as large as 2 mm. Bone fragments have the same size range. Some erosion of the surface has occurred. Sherds are relatively harder than the Goose Creek ware. All breaks are angular and only one has parallel fractures that suggest coiling technique. The exposed surfaces, including old breaks, are coated with earth stain and are light brown. On most sherds the interior and exterior color is nearly black (N2). The others are brownish gray (5YR4/1) in the core with slightly lighter color on the exterior. The brownish sherds have finer grained material in the paste and are not as hard as the others. Brushmarks of irregular width are evident on one sherd. Curvature is slight. Thickness varies from 4 to 10 mm. with an average of 5.8 mm.
The assemblage includes 16 plain body sherds and one decorated rim sherd.
Decoration consists of 7 incised lines. Five lines are parallel to the rim. Two lines are above these, parallel to each other and at an angle of about 8° with the rim, Fig. 6, H. Rim shape is Type 5 (Fig. 6, C.).
Rim Shapes:

<table>
<thead>
<tr>
<th>A. Type 3...</th>
<th>B. Type 4...</th>
<th>C. Type 5...</th>
<th>D. Type 6...</th>
<th>E. Type 7...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lip rounded</td>
<td>Lip rounded</td>
<td>Lip rounded</td>
<td>Lip flat</td>
<td>Lip flat</td>
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<tr>
<td>without</td>
<td>with Taper</td>
<td>Interior</td>
<td>without</td>
<td>without</td>
</tr>
<tr>
<td>Thinning</td>
<td></td>
<td>thinning and</td>
<td>thinning</td>
<td>thinning</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Outward flare</td>
<td></td>
<td>Inward curve</td>
</tr>
</tbody>
</table>

Base Shape:

F. Rounded with slight thickening

Incised Patterns:

G. Goose Creek Incised
H. Bone Temper Incised
I. Clay Daub
J. ?

Figure 6

OTHER FIRE-HARDENED PLASTIC MATERIAL:

This category includes non-pottery objects that have been produced by subjecting plastic materials such as clay and silt to enough heat to fuse the particles.

Clay Daub:

A cluster of irregular chunks of crumbly, poorly-fired sily clay was exposed by erosion in one of the trails. Color is moderate reddish-orange (10R6/6). There are a few quartz grains but the most frequent inclusions are small (up to 3 mm.) moderate red (5R4/6) particles. These are rounded and are composed of clay that became harder and redder than the other material. This inclusion may be accidental or may reflect failure to process the material before use. Shape is irregular to wedged, Fig. 6, I.

This material appears to have been placed between rather large cylindrical objects such as logs. The material burned at a time remote enough for it to be buried under the topsoil and above the clay substrate. No residue of wood remains.

Clay Chunks:

Ten pieces of sily clay have been fired in a manner that produced objects that have the color and consistency of pottery but not the shape. They are of various irregular shapes and probably are not parts of vessels. Two of the pieces are interesting because of their shape. They are about 10 mm. in each dimension. One face is convex and the opposite face is concave, Fig. 6, J. The concavity is 6 X 1 mm. They have the appearance of what would be the result of placing a quantity of clay between the thumb and three fingers of one hand and indenting the material with a finger of the other hand. Subsequent firing fixed the shape. This would probably not have been noticed if there had been only one. The shape may be accidental but perhaps they represent trial pieces to test the suitability of local materials for ceramics.
LITHICS:
Concretions:
Numerous ferruginous nodules and a few calcareous nodules were found throughout the site. Shape is irregular but usually sub-spherical. The relative frequency of the two rocks suggests that the iron ore is natural in the sand and the caliche is imported. This indicates that there has been an excess of rainfall over evaporation since deposition of the sandy levee.

There are also several soft rocks that appear to be hardened clay. The shape is very irregular and suggests the form that would result when the clay substrate was penetrated by insect larvae with a displacement of clay upward into the sand where it later hardened by some chemical process.

Siltstone:
A few pieces of siltstone were also found. Color is reddish. This material is found in the bayou bed wherever the lower levels of the silty clay substrate are exposed. No modification was noted. Method of transport to the site is unknown.

Sandstone:
Seven fragments of a very soft sandstone were found in one test pit. The stone has the consistency of talc. Shape was ovoid before it was broken, (Figure 7.). Color is pinkish gray (5YR8/1). There are faint indications of abrasion along the long axis on the flatter side. Wt. = 16 gm.

Unmodified pebbles:
Unmodified hard-rock pebbles are found throughout the site. Size of the 88 that were collected ranges from 10 to 46 mm. Material is flint, limestone and quartzite. Some are fossiliferous. They are rounded, not angular. One flint pebble has been darkened and another has a pinkish hue as though they had been in a fire. One quartzite pebble has smooth surfaces as though it had been rubbed or used for rubbing. None of the others shows indication of alteration. Wt. = 578 gms.

There is no known source of hard rock in the White Oak Bayou watershed. Thus, these pebbles as well as rocks used for tool making at the site have been imported. A possible source is the stream bed of the San Jacinto River about 20 miles to the north where quartzite, flint and silicified wood are found.

The unmodified pebbles are probably too small to serve well as stock for tool fabrication. Some would be the appropriate size to use in a sling. They may have served as pot-warmers. Perhaps they were carried to the site by children who had instructions to collect rocks but did not know what size was minimal or by children who like to play with small rocks.

The actual reason for their presence at the site may never be known.
Modified Pebbles:
The assemblage includes two pebbles that have been fractured. One is flint and one is quartzite. Size is 20 to 25 mm. The pebbles have no indication of use. Wt. = 15 gm.

Bifaces:
S. Alan Skinner in "A Prehistoric Settlement of the De Cordova Bend Reservoir, Central Texas", 1971, Bulletin of Texas Archeological Society, Vol. 42, defined the various stages in production of bifacial tools. A cobble found at a site can be related to the stage of production at which the fabricator rejected it as unsuitable for further modification. Skinner's 'Stages' will be used in this report.

Stage 'A' Bifaces: (7)
These are cobbles from which flakes have been removed by hard hammer percussion technique. Surface is mostly cortex. Cobble shape is not much modified.
The assemblage includes 7 Stage 'A' bifaces that range in size from 43 to 66 mm. The material is flint. Fracture planes on the cobbles generally indicate that the material failed to break in a manner that could be controlled. These could be cores. Wt. = 98 gm.

Stage 'B' Bifaces: (1) (Fig. 8, B.)
These are cobbles from which most of the cortex has been removed by hard hammer percussion technique. Patterned and overlapping scars are typical. Cobble shape is still generally recognizable.
The assemblage includes one Stage 'B' biface that is 40 mm. in length. Material is silicified wood. The proximal end is rounded. Edges are steeply beveled. It was probably rejected because the fractures were following laminations and were not yielding a good edge. Wt. = 15 gm.

Stage 'C' Bifaces: (1) (Fig. 8, C.)
These are cobbles with little or no cortex remaining. Hard hammer percussion technique has been used to shape and thin the biface. Isolated sections of flake scars from stages 'A' and 'B' are evident. The outline of the tool is becoming evident.
The assemblage includes one Stage 'C' biface that is 36 mm. long. Material is silicified wood. The distal end is lost and the break is the probable reason for rejection of the tool. The proximal end is rounded. Wt. = 6 gm.

Hammerstone: (1) (Fig. 8, A.)
One rejected Stage 'A' biface has been used as a hammerstone. The distal end has many small flake scars due to the battering from use as a hammer. The tool would be appropriate for removal of flakes from cobbles. Material is flint. Size is 66 X 34 X 25 mm. Weight is 93 grams.

Note:
Bifaces that have had flakes removed in such a fashion that a stem has apparently been started are included with Unfinished Dart Points.
**Projectile Points:**

**Dart Points:**
Gary, Unfinished: (4) (Fig. 9, A.-D.)
The assemblage includes four dart points that were discarded before being completed. Indications of intent to produce a contracting stem suggest that the Gary type would have been the finished product. Lengths vary from 33 to 52 mm. Widths vary from 20 to 22 mm. Two are flint, one is silicified wood and the other is silicified palm wood. Apparently they were not finished because of poor fracturing of the material.

Gary: (4) (Fig. 9, E.-H.)
Four dart points conform to the description of the Gary type. Blades are broad with straight to convex edges. Shoulders are prominent but not barbed. Stems are contracting. One blade has been resharpened. One has the distal tip missing and one has a portion of the stem missing. One base is rounded and two are straight, unmodified cortex with a base angle of 8°. Two each are flint and silicified wood.

Kent, Unfinished: (1) (Fig. 9, I.)
One Kent type dart point was apparently discarded due to failure to thin the blade. It is narrow with slightly convex blade edges. Stem is slightly contracting to a convex base. Flint.

Kent: (2) (Fig. 9, J.-K.)
Two dart points conform to the description of the Kent type. Blades are narrow with convex edges. Shoulders are prominent but not barbed. Stems are parallel with cortex bases. The distal tip of one is missing. Flint.

Unidentified--Parallel Stem: (1) (Fig. 9, M.)
This is the stem of a small dart point which is probably Kent type. Stem sides are parallel. Base is convex. Flint.

Unidentified--Stemmed: (1) (Fig. 9, L.)
This is the blade of a small dart point. Blade edges are convex. Shoulder is rounded. The stem is missing. Silicified wood.

**Arrow Points:**
Unidentified--Stemmed: (1) (Fig. 9, N.)
This is a small, thin arrow point. It is unifacially worked except for edge shaping. Blade edges are slightly convex and serrated. Barbs are relatively wide and are squared off at right angles to the axis of the point. Notches are basal. Stem and part of one barb are missing. Flint.

Unidentified--Medial Section: (1) (Fig. 9, O.)
This is the medial section of a small, thin bifacially worked arrow point. Distal and proximal parts are missing. Blade edges are straight and serrated. Flint.

Weight of these 15 projectile points is 73 grams.
Bifaces:

A. Stage 'A' (Hammerstone)  B. Stage 'B'  C. Stage 'C'

Figure 8

Projectile Points:


Figure 9

WOB-18
Flakes and Chips:
The lithic assemblage also includes 466 flakes and chips that weigh 329 grams. The width of 404 (86%) of these is less than 15mm. Some indication of use is found on 161 (40%) of these 404 indicating that the small material may be significant. Use scars from cutting are on 150 flakes. Four flakes are lipped. Seven flakes are fire popped. One flake is quartzite, 25 are silicified wood and the others are flint. Table 4 has a tabulation of these flakes by physical characteristics. The 'utilized' category includes all that are described below as well as those that have minute scars indicating use as cutting tools.

Side Scrapers: (3) (Fig. 10, A, B.)
Three small side scrapers were made by removal of small flakes from the dorsal face of flint flakes. One each is on a primary, secondary and interior flake. The bit angle is about 47° on each. The edges are straight to convex.

Prismatic Blades: (7) (Fig. 10, C, D.)
The assemblage includes 7 complete or partial prismatic blades. One is 18 x 54 mm. and has been modified to produce an end scraper and has also been used as a cutting tool. One is 12 x 25 mm. and has been modified by shaping retouch to produce a side blade. Four blades are between 11 and 14 mm. wide and have been used as cutting tools. One microblade is 8 x 19 mm. and also has been used for cutting. Three of the blades have cortex on one facet.

Shaping Retouch: (Fig. 11.)
The technique of shaping retouch has been used to alter 44 other flakes. Five of these are primary, 8 are secondary and 31 are interior flakes. Three flakes have been altered to produce projections which were apparently intended for use as gravers. Three have altered to produce concave edges which apparently were intended for use as notched scrapers. The shapes of the others are as varied as the shapes of the unaltered flakes. The intent may have been to produce a particular type of edge rather than a particular shape. Some of the flakes have more than one type of edge. The altered edge on 29 flakes is convex, on 14 it is concave, on eleven it is straight and on 3 it is denticulate. One is fire popped. One is 30 mm. wide; 2 are between 20 and 25; 8 are between 15 and 20; 26 are between 10 and 15 and seven are between 8 and 10 mm. in width.
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Table 4.

Flake Tools Altered by Shaping Retouch:

A. Graver
B. Notched Scraper
C. Denticulate Edge
D. Straight Edge
E. Convex Edge
F. Concave Edge

Figure 11.
DISCUSSION:
On the basis of the Gary and Kent dart point types, the arrow points, the Goose Creek Incised, Goose Creek Plain and the bone tempered pottery it is apparent that the site was occupied from the late Archaic Period well into the Neo-American Period. There is nothing to indicate early Archaic occupancy.

Relatively late occupation of the site is indicated by the high percentage of bone tempered pottery. This type of pottery was found at all depths as well as throughout the site. None of the Goose Creek wares were found away from the main site. This suggests that the later habitants utilized a larger part of the area. The presence of the clay daub feature in close association with the bone tempered wares may also indicate a more sedentary or at least more permanent residency.

The parallel incised lines near the rim on the bone tempered sherd is similar to decoration on Goose Creek Incised ware.

In H.A.S. Newsletter of March 1975, A.R. Duke pointed out the rarity of interior incising on local pottery. In this particular site one sherd out of 137 has such decoration.

The unfinished dart points and bifaces indicate that tools were produced at the site. As the cobbles had to be imported, this indicates either trade with inland people or collecting trips were made at least 20 miles away.

The presence of lithic debris confirms the production of tools at the site. The use of 44% of these flakes, including even the small chips, as tools probably reflects the value placed on the lithic resources. Having carried the rocks to the site or having traded something of value for them would cause the people to make the best use of the material. It may be that flint debris was picked up to perform the job at hand, altered if necessary, and then discarded again. The technique of 'shaping retouch' has been used to alter 10% of the flakes. This is an efficient way to produce a particular flake tool and may confirm the necessity to use the lithic resources to the fullest. Less than 1% of the flakes are lipped. The soft-hammer technique of thinning bifaces was therefore known but not often used. Perhaps this is due to the small size of the cobbles available.

Silicified wood comprises 28% of the projectile points and bifaces including 26% of the unfinished objects. Only 5% of the flakes are of the same material. The reason for this disparity is unknown.

The bone arrow point and the small pebbles may be significant.

This assemblage of prehistoric cultural material is on land owned by Mr. Gus Wortham. The site is named for him in recognition of his influence on the modern cultural development of the area.
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