

TEOC CREEK

**A Poverty Point Site
in Carroll County, Mississippi**

by

**John M. Connaway
Samuel O. McGahey
Clarence H. Webb**

**With Geological Analysis by
Roger T. Saucier**

**Mississippi Department of Archives and History
Jackson, Mississippi
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PREFACE

The limited but fairly widespread distribution of the Poverty Point Culture has only recently been recognized. With the increasing number of known sites in the Lower Mississippi Alluvial Valley and the rising interest in more in-depth archaeological studies of all aspects of prehistoric cultures, attempts are now being made to beat the agents of destruction to some of the more important remaining sites. One of these is the Teoc Creek Site near Greenwood, Mississippi. Since 1966, the site has been tested three times by professional archaeologists, with the official sanction of the Mississippi Department of Archives and History. The following text is a summary of these tests and excavations carried out by the late Dr. James A. Ford of the Florida State Museum; Robert S. Neitzel, then of the Mississippi Department of Archives and History; Dr. Clarence H. Webb of Shreveport, Louisiana; Thomas H. Koehler, then of the University of Mississippi Department of Sociology and Anthropology; and John M. Connaway and Samuel O. McGahey of the Mississippi Department of Archives and History. Geological investigations were undertaken by Dr. Roger T. Saucier of the United States Army Corps of Engineers Waterways Experiment Station in Vicksburg, Mississippi.

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We are also grateful for the expenditure of time and effort given by the crew of the University of Mississippi summer field school in archaeology. The crew members included John Bowen, Richard Winterholler, Sam Brookes, Jason Fenwick, Don Browning, Beth Gillis, Harold Hill, Byron Inmon, Lisa Larson, John Poulsen, Larry Robinson, Angela Rodrigue, and Terry Stone. Other participants included William Hony, Jack Mallette, Bob Morgan, and Charles Scott.

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THE TEOC CREEK SITE

The Teoc Creek Site (22-Cr-504) is on the plantation of the late Eugene H. Neill of Avalon, Mississippi, about 10 miles (16.09 kilometers) northeast of Greenwood, in Carroll County. Situated in a cultivated field on high ground formed by an old natural levee crest and backslope, the site is surrounded on all sides but the north by a large, shallow swamp. This swamp was produced by the Teoc Creek depositional fan which projects into the Yazoo Basin from the nearby hill margin a few miles to the east. About 200 yards (183 meters) west of the site, the creek flows into the Yalobusha River, which is presumed responsible for the natural levee on which the site is situated. At this point the Yalobusha enters an abandoned loop of a large river course, thought to have been the Ohio-Mississippi. The levee, about 10 feet (3 meters) in height at its crest, slopes eastward and is interrupted south of the site by the lowlands of Teoc Creek.

The surface manifestations of occupation form a semicircle of dark midden from the crest down the backslope of the levee, the semicircle measuring nearly 1,000 feet (305 meters) in diameter along the levee (Fig. 1). Varying from 60 feet to 100 feet (18.29 - 60.96 m) in width, the midden around the arc is continuous except for two short gaps in the southern end. Within the midden are several circular or oval areas of darker soil, varying in diameter

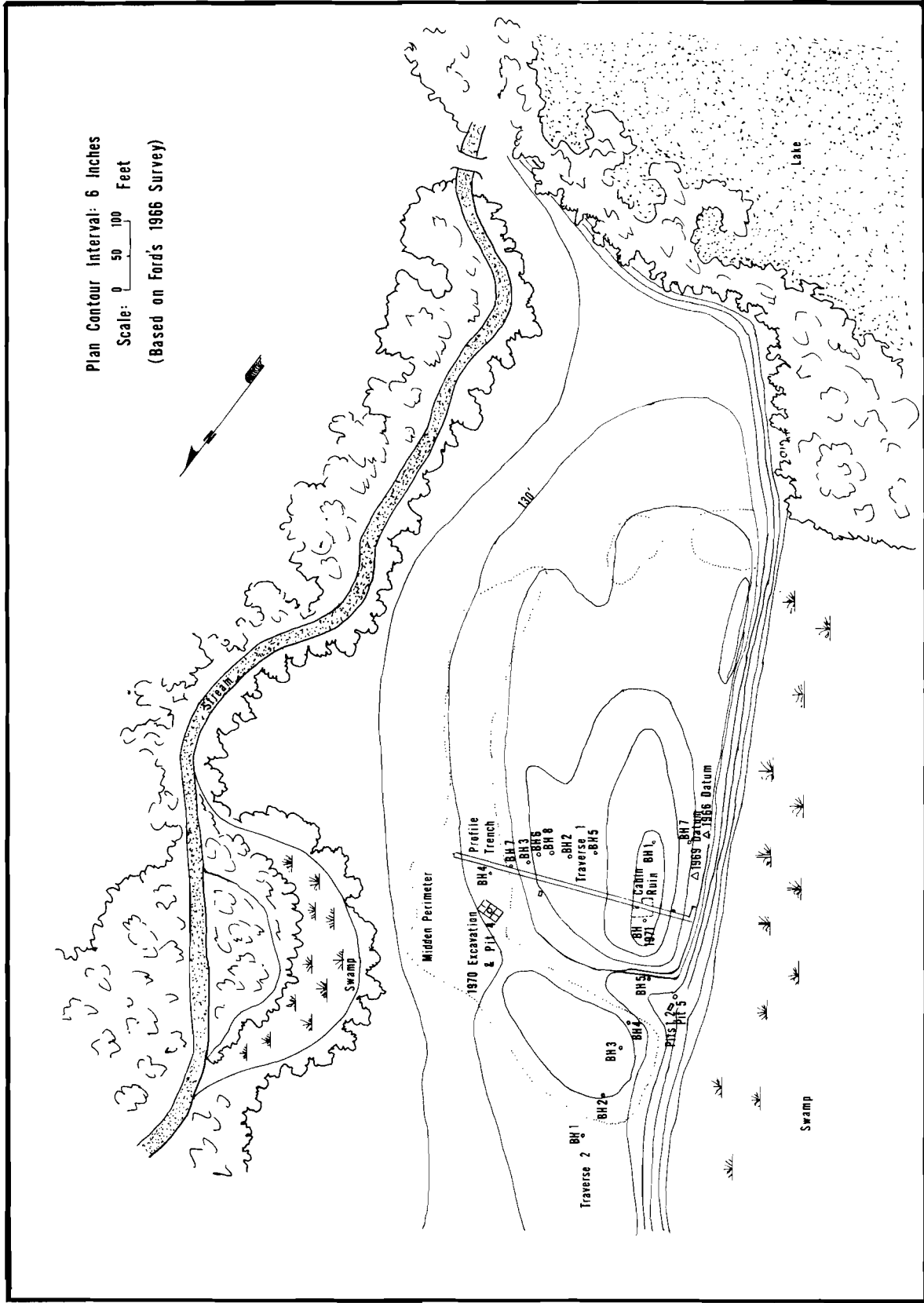


FIG. 1. TEOC CREEK SITE (22-CR-504)

from 50 feet to 100 feet (15.24 - 30.48 m), which suggest individual occupations, although they could as well have been specialized cooking areas or areas of longer or more intense habitation. The surface midden is darkest in the northeastern segment of the arc. The margins, sharp along the eastward segment, are wider and thinned out at the northern and southern ends, probably as a result of cultivation in recent times. The densest occupational debris coincides with the darker soil areas, heaviest in the eastern and northern sectors. Some midden stain and artifacts, however, occur in the center of the semicircle and around the periphery, covering a total of approximately 10 acres (4 hectares). The northern sector of the site is bisected by a drainage gully which breaks through the levee crest. Immediately south of this gully and on the crest of the levee are remains of a recent dwelling in the form of darkened soil, bricks, broken glass and crockery, and occasional fragments of metal tools. Otherwise, the occupational debris seems to be primarily confined to Poverty Point Period materials.

In effect, the site has the surface appearance of a great arc, the inside of which faces the river channel. This configuration has a strong similarity to the midden arcs at the Poverty Point Site in Louisiana and the Claiborne Site in southern Mississippi. Recent findings, however, indicate that deep beneath the present levee crest the inside of the arc may have been completely filled with midden soil, thus forming a habitation area in the shape of a semicircle. The present crest was then built up over that part of the site on low ground nearest the river, leaving the arc and evidently the area of longest occupation exposed on the backslope. The form of this midden arc now appears to indicate a gradually expanding semicircular settlement plan, which will be detailed later. The present natural levee crest is approximately 133 feet (40.54 m) above sea level, with the covered portion of the older midden 8 - 10 feet (2.44 - 3.05 m) below it. As with Jaketown and

many other sites of Poverty Point affiliation in the Yazoo Basin, the Teoc Creek Site is on a high bank on the outside of an old river bend. Village sites throughout the alluvial valley are so located because of the prospects of avoiding river floodwaters.

EXPLORATIONS AND EXCAVATIONS

1966 Explorations

Clarence H. Webb, Robert S. Neitzel, and L. B. Jones visited the Teoc Creek Site and the nearby Neill Site with the owner, Eugene H. Neill, in March, 1966. Surface collections were made and the owner's collections, largely confined to the two sites but only partially separated, were reviewed. The object of this one-day visit was exploratory--to confirm the local opinion that the sites indeed represented components of the Poverty Point Culture. Tentative conclusions were reached that both were virtually unicomponent sites of the Poverty Point Period, that objects from the two sites showed close similarities, and that there were no evidences of Archaic components and minimal indications of subsequent cultures. The Teoc Creek Site was deemed the more significant of the two, and further investigation was planned.

During June 7-9, 1966, James A. Ford, Webb, and Neitzel, with the consent and cooperation of Neill and with a group of three laborers secured through the Greenwood Employment Agency, mapped both of these sites, made more extensive studies and collections, and conducted subsurface testing by borings.

At the Teoc Creek Site, Ford made a plane table map from a fixed datum station, marked by a temporary stake, between the plantation road and the

swamp bank on the western edge of the site. Contours were established by 1-foot (30.48-cm) decrements from an arbitrary 100-foot (30.48-m) elevation. Figure 1 is based on Ford's map, with the addition of subsequent excavation locations. Favorable soil and climatic conditions facilitated recognition of the semicircular arrangement of the dark peripheral midden, which Ford and Webb plotted on the map. Concurrently, using a hand soil auger, Neitzel ran two borehole traverses, which were also plotted on the map. Neitzel interpreted the cores and kept the borehole logs; all three investigators collaborated in the final interpretation of the traverses and projection of the presumed stratigraphy.

Traverse 1 consisted of four borings (BHs 1-4, Fig. 1) at intervals that varied from 60 feet to 130 feet (18.29 - 39.63 m), for a total traverse of slightly more than 250 feet (76.20 m) from the top of the natural levee northeastward down the levee slope to a sector of the dark midden which seemed to be rich in artifactual content. When evidences of two midden zones were found, four additional borings (BHs 5-8) were interspersed to narrow the intervals and clarify the midden levels. The stratigraphy from this traverse is not illustrated in the present report, as the levels were established with more exactness by the 1970 trench (Fig. 2), which paralleled Traverse 1.

Neitzel's Traverse 2 (Figs. 1, 2), in a nearly north-south alignment, consisted of seven borings from the northernmost midden periphery to a point near Ford's datum location on the western slope of the levee. These borings were spaced at intervals varying from approximately 37 feet to 100 feet (11.28 - 30.48 m), including one boring in the levee crevasse, and were terminated near the initial boring (BH 1) of Traverse 1 for a total of more than 400 feet (121.92 m).

The water table was found 6 feet (1.83 m) below the surface at the north end of Traverse 2 and approximately 9 feet (2.74 m) below the levee

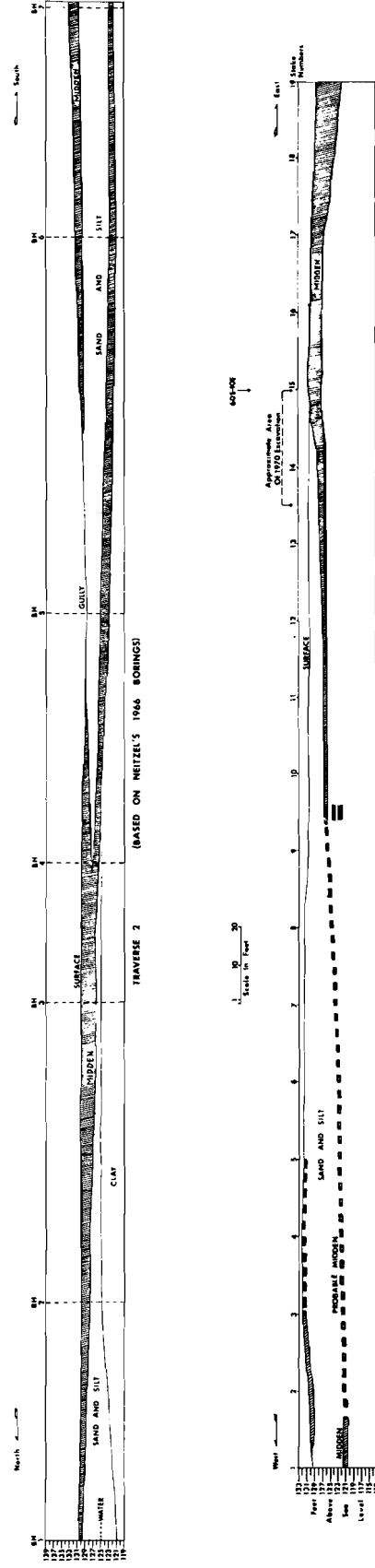


FIGURE 2

crest at BH 1 of Traverse 1. A leached gray clay surface was found at a depth of 5.9 feet (1.8 m) in BH 5 of Traverse 2, at 10.4 feet (3.17 m) in BH 6, and at 12.5 (3.81 m) feet in BH 1 of Traverse 1 (Fig. 2), with immediately overlying black midden soil 1.5 - 2 feet (45.72 - 60.96 cm) in thickness. Between this deep midden and the surface midden were deposits of gray, tan, or brown sandy silts with varying amounts of clays.

A tentative stratigraphy (Fig. 2) was projected which would place a localized aboriginal occupation on the pre-levee gray clay near the stream, at a level of 11.5 - 12.5 feet (3.50 - 3.81 m) below the present levee crest and 3.5 - 5.9 feet (1.07 - 1.80 m) below the trough of the crevasse, which evidently cut through the natural levee after its formation. Since this occupation zone showed consistently in three borings and is regularly atop the gray clay, with sandy silts above the midden, it was postulated that original occupation occurred before deposition of the levee.

From boreholes 8, 6, and 3 of Traverse 1 it was demonstrated that two habitation zones existed along the backslope: a surface zone that represents occupation after the levee had been formed; and a deeper midden at 2.5 - 4 feet (76.20 cm - 122 cm) below the present surface, with depositional sands and clays above and below it, indicating that habitation occurred during formation of the levee. Fragments of baked clay objects from the deeper midden in BH 3 suggested a Poverty Point identification for this level. There was no certain evidence of continuity between the deep midden underlying the levee crest and the lower midden found 150 feet (45.72 m) downslope, east of the crest. The surface midden was thin and showed few materials for this distance, then became darker at BH 8 and denser and thicker at BHs 7 and 4. Further analysis of the occupational sequence will be given in the discussion of the 1970 trench.

The surface artifacts collected during the two visits to the Teoc Creek Site in 1966 were retained, cleaned, and analyzed by Webb. The results of his

analysis are included in the descriptions of surface materials from subsequent explorations (Chapter 3).

1969 Explorations

Limited excavations during July 4-7, 1969, were carried out under the direction of Webb and Thomas H. Koehler of the University of Mississippi. Assisting were volunteers from the field parties of the university and from the Mississippi Department of Archives and History. Another surface collection was gathered, and five exploratory pits (Fig. 1) were excavated to varying depths.

The purposes of the test pits were: (1) to confirm the presence of deep middens below the levee crest and adjacent to the arc of surface midden in the northeast sector, indicated by previous borings; (2) to establish the nature of the superficial and deep midden occupations; and (3) to determine whether Poverty Point occupation occurred before or during the time when the active river was depositing the natural levee.

Daily logs were maintained by Koehler. Notes, profiles, sketches of features, and general descriptions were made by the excavating teams and, because of frequent personnel changes over the holiday weekend, continuity of notes was supervised by Koehler and Webb, who were also responsible for surveying and photography. Excavations were generally by 6-inch (15.24-cm) vertical increments, executed by trowel or thin shovel slicing, depending on the nature of the soils. Midden soils were sifted in Test Pits 1, 2, 3, and 5, but sifting was impossible in Pit 4, where the hard soil was removed with small picks. Artifacts, placed in labeled bags, were taken by Koehler to the university laboratory for cleaning and labeling and then sent to Webb for classification. Final storage will be at the Mississippi Department of Archives and History in Jackson.

An attempt was made to correlate the excavation pits with the site map and borehole traverses of 1966. Ford's datum stake, in the shade of a willow tree on the stream bank, had disappeared, as had the tree. A datum station for the 1969 explorations was established between the farm road along the levee and the swamp bank near the remains of a dead willow. Subsequent checks with landmarks and midden outlines showed that this datum point was approximately 55 feet (16.76 m) north northwest of the Ford datum point (Fig. 1), and adjustments were made in mapping.

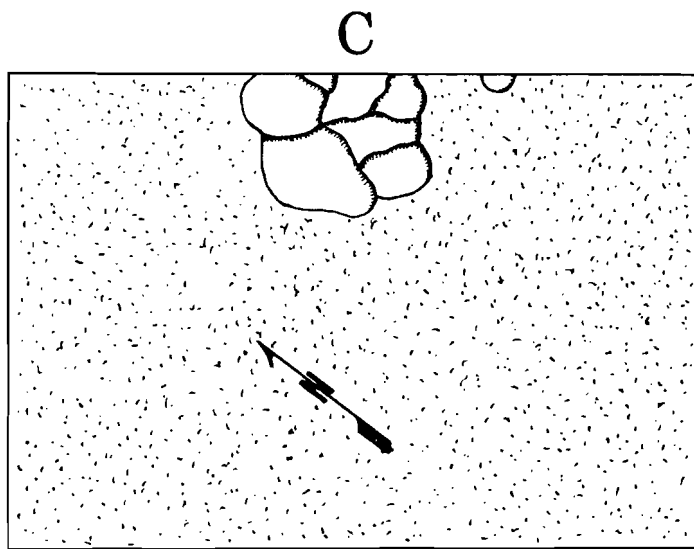
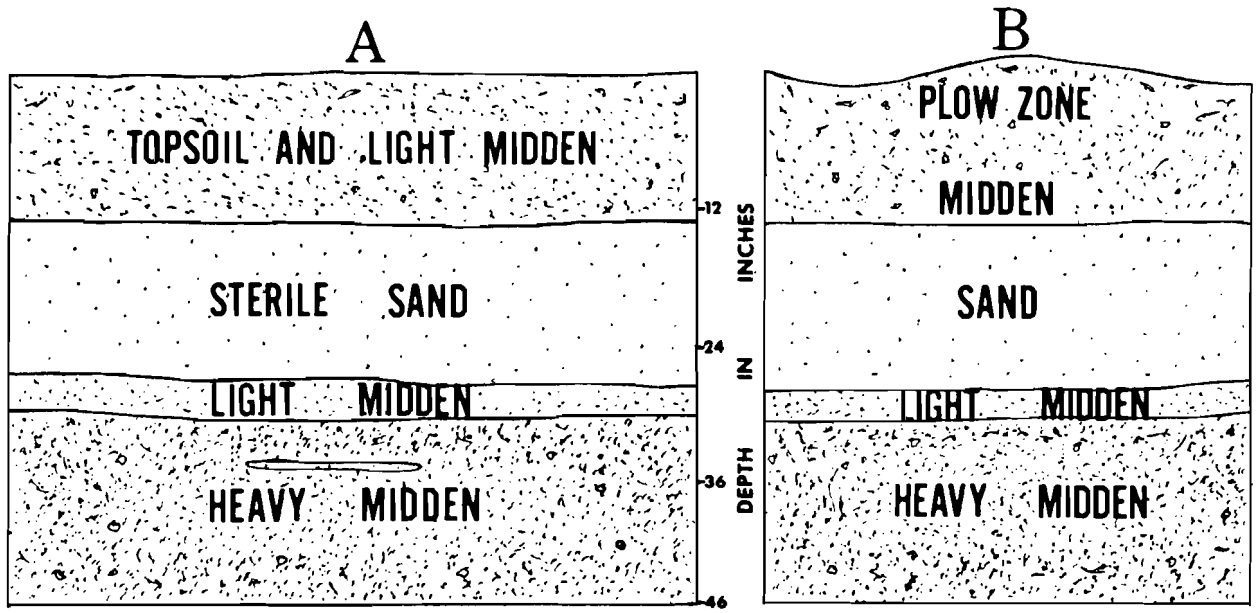
It was obviously neither feasible nor safe to sink small pits to a depth of 10 - 12 feet (3.05 - 3.66 m) from the levee crest. An attempt was therefore made to reach the deep midden under the levee by placing pits in the floor of the crevasse, which was 5 feet (1.52 m) below the crest. Test Pits 1 and 2, each 5 feet (1.52 m) square, were laid out adjoining and in a line 8° west of north from the 1969 datum stake. The northwest corner of Pit 1 was 200 feet (60.96 m) from the datum point. Topsoil, talus wash, and midden material were removed by 6-inch (15.24-cm) levels, using shovel slicing and screening of the mixed soil. Throughout the two levels removed on the first day, the soil remained a dark gray tan sandy clay with charcoal streaks, artifacts, and refuse--aboriginal and modern. On the second day a soil auger was available, and a borehole in Pit 1 showed slightly mixed soil but no midden layer to a depth of 4 feet (1.2 m), where the water table was reached. Since this was above the presumed deep midden, Pits 1 and 2 were abandoned and filled.

Test Pit 5 was then established 9 feet (2.74 m) south of the southern edge of Pit 2, on the crevasse slope. Midden soil was removed in a similar manner to a depth of 12 inches (30.48 cm); artifacts and aboriginal debris were found in larger numbers. Auger boring revealed a tan gray sandy loam between the 12-inch (30.48-cm) and 36-inch (91.44-cm) depths, and slightly

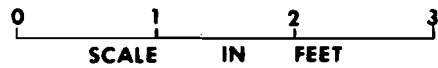
darker soil between 36 inches (91.44 cm) and 42 inches (106.68 cm). Because water was again struck before reaching the black midden, Pit 5 was also filled and attempts to reach the deep midden under the levee were discontinued.

Meanwhile, Test Pits 3 and 4 had been established in the field down the levee slope. Pit 3 (Fig. 3) was placed in the area west of the northeast black midden sector, 225 feet (68.58 m) northeast of the 1969 datum point and near the location of BH 8 of Traverse 1, which had shown two midden levels. To avoid crop damage, Pit 3 was located in a skip row. It was 5 feet (1.52 m) in length and 3.5 feet (1.07 m) in width, with the long axis paralleling the rows and directed 35° west of north.

The first few inches of powdery soil were removed and sifted readily, but the soil then became harder and dry--a yellow buff sandy loam containing small amounts of cultural debris down to 12 - 14 inches (30.48 - 35.56 cm) below the surface. The plow zone lay in the upper 6 - 7 inches (15.24 - 17.78 cm). Between the 14-inch (35.56-cm) and 25-17-inch (63.50-68.58-cm) depths a homogeneous layer of buff-colored sandy clay was void of artifacts or debris. This was succeeded by a 3-inch (7.62-cm) zone which exhibited small flecks of charcoal and occasional flakes or clay ball fragments, as in the top zone. At the 28-30-inch (71.12-76.20-cm) depth, dense black midden containing artifacts and abundant cultural debris appeared. The clay ball fragments, lamellar microflint blades, a microflint core, jasper spalls, and several tools or bifaces found were typical of the Poverty Point complex. At the 34-inch (85.36-cm) level, within the black midden, a horizontal area of packed and hardened buff-colored clay, covering an area 12 inches x 15 inches (30.48 x 37.70 cm) and 0.5 inch (1.27 cm) thick, with a smooth upper surface was found (Fig. 3 C). Originally interpreted as a segment of packed floor, this feature is now considered to have been a hearth similar to the many found in subsequent excavations. At the same level several half-inch (1.27-cm) circles of light soil were noted in



- A. NORTHEAST PROFILE
- B. SOUTHEAST PROFILE
- C. HEARTH AT 34" DEPTH



**FIG. 3. DETAILS OF TEST PIT 3
(1969)**

the black midden; it was uncertain whether these had resulted from aboriginal activities or from such natural causes as insect burrows. The homogeneous black midden continued below this level to a depth of 46 inches (1.17 m), with no change in the nature of the refuse. Excavation had to be terminated at this depth, since an auger boring had shown the water table to be just below the 48-inch (121.92-cm) level.

Test Pit 4 was placed 82 feet (24.99 m) northeast of Pit 3, 307 feet (93.57 m) from the datum point and within the black surface midden area. At this point an empty cotton row provided space for a 5-foot (1.52-m) square, aligned parallel to Pit 3. Excavation proceeded as for Test Pit 3, with one exception. The plow zone soil, beneath the top few inches of powdery dry loam, was too hard and compact for trowel slicing and sifting, so it was loosened with trowel point or picks and searched for artifacts. At about a 9-inch (22.86-cm) depth the plow zone changed to a moister and very compact black midden with numerous clay ball fragments, flakes, debris, preforms, and spalls, and a moderate number of artifacts, including two Pontchartrain points, chipped tools, and several projectile point fragments at the 12-13-inch (30.48-33.02-cm) level.

At the 12-inch (30.48-cm) level an area of flat, packed, and hardened clay was found in the northeast corner, the buff color of the top surface contrasting with the black midden. At the 14-inch (35.56-cm) level several more such features were found (Fig. 4, Square O-CL, Pit 4 outline), including one in the northwest corner, which was followed beyond the pit boundary and found to rise to a level 12 inches (30.48 cm) below the surface. Because these areas of packed or fire-hardened clay, all near the same level, were interpreted to be segments of a habitation floor, they were left intact for extended investigation after the crops had been gathered. John M. Connaway and Samuel O. McGahey accepted this responsibility, and to facilitate reloca-

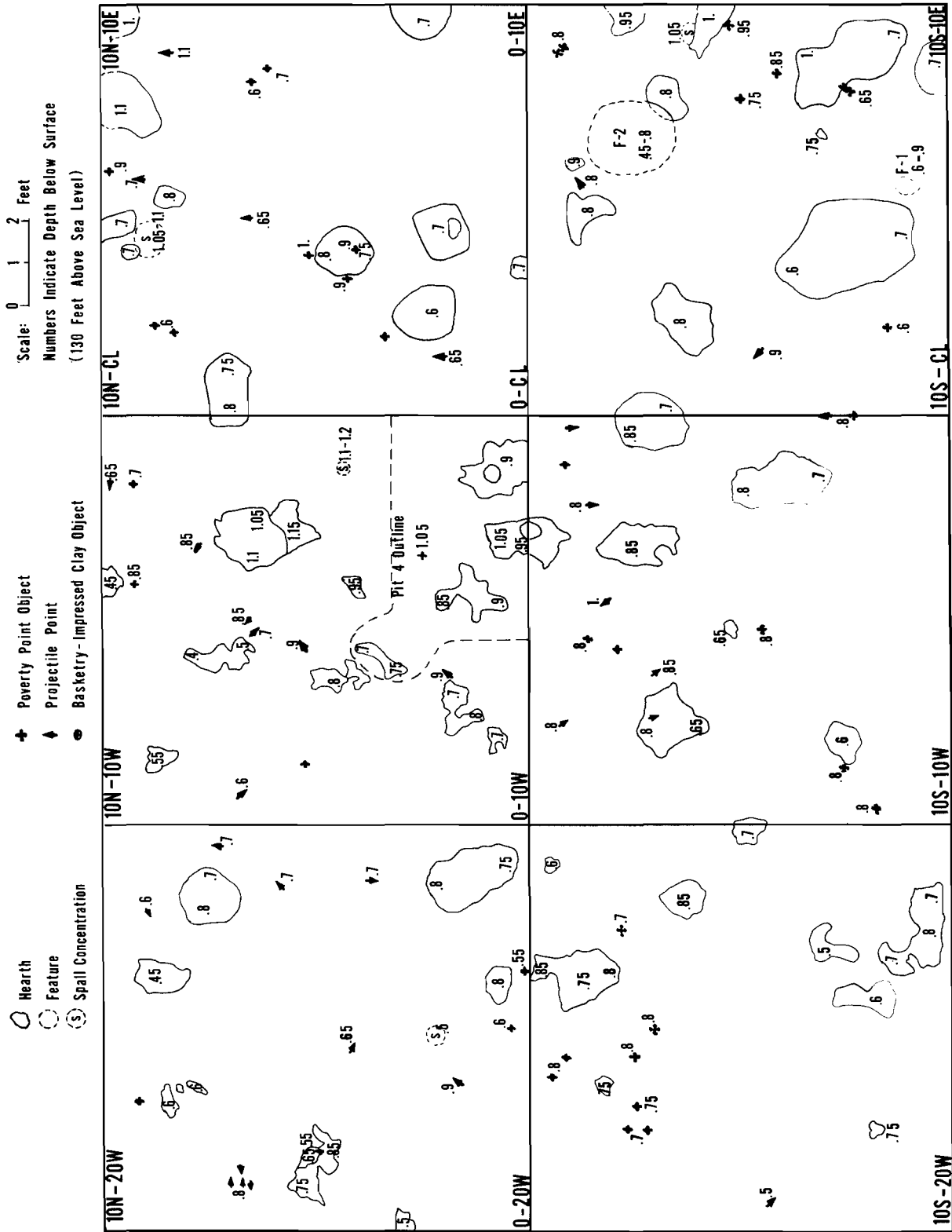


FIG. 4. HORIZONTAL PLAN, LEVEL 1

tion of these features, the southeast corner stake of Pit 4 was driven well below the surface and triangulated with two trees on the east edge of the field. Pits 3 and 4 were filled, the site was cleared of excavation debris, and all stakes were removed except the one at Pit 4 and the datum stake.

Although the 1969 excavations failed in one major objective--the reaching and examining of the deep midden below the levee crest--other objectives were attained: (1) evidence by excavation that the surface midden is almost exclusively of Poverty Point derivation; (2) demonstration of a deep Poverty Point midden on the levee slope, separated from the surface midden by a sterile sand layer, thus confirming sequent Poverty Point occupations during and after deposition of the natural levee; (3) evidence of the absence or extreme rarity of pottery in the subsurface occupation levels; (4) demonstration of packed clay surfaces in the black midden, interpreted at that time as a packed floor of a house structure (later shown to be multiple hearths).

1970 Excavation

Datum Location

Excavation on the site by the Department of Archives and History began the last week in January, 1970. The primary purpose at this time was to investigate further the fired clay surfaces found in Webb's Test Pit 4 in 1969. It had been suggested that these might be remnants of house floors, and that if so, subsequent analysis and description of Poverty Point Period structures might be possible. It was decided, then, that excavations should be centered around Test Pit 4 and that the southeast corner would be utilized as a secondary datum point for establishing a grid. The location of this point had been established in 1969 by triangulation, using measurements from two large trees, a willow 238.6 feet (72.73 m) to the northeast and an oak 346.5 feet (105.61 m) to the southwest. Employing these measurements, the corner stake, which had been driven deep in the ground, was found and replaced with a new, temporary stake. Later,

a more permanent iron pipe was driven in at this point for future reference. With the use of a transit, a primary datum point was established on the near side of the fifth power line pole south of the entrance gate to the site. The pole, situated on the east bank of a swamp which separates the site from a paved road, is the only one between the swamp and the dirt road leading into the site. The secondary datum point, designated O-CL, is located 546 feet (166.42 m) from the pole at an angle of south $43^{\circ} 45'$ east.

Excavation Procedures

Because of limited time and the disturbed condition of the first few inches of soil, the 9-inch (22.86-cm) deep "plow zone" was removed with a tractor from an area of approximately 1600 square feet (148.8 sq. m) around the secondary datum point. A grid of six 10-foot (3.048-m) squares, oriented north and south, was then laid out, with square numbers identical to each southeast corner stake (Fig. 1). Arbitrary levels of 0.4 foot (12.19 cm) were used in the subsequent excavation. Levels of all recognizable artifacts and features were recorded with reference to 130 feet (39.62 m) above sea level, the assumed level of the ground surface at stake O-20E--an assumption based on the proximity of the contour line for that level as seen on the Greenwood Quadrangle. A partially disturbed subsoiler zone, designated level 1, was found underlying the plow zone and terminating at a depth of about one foot (30.48 cm).

The consistency of the extremely dark midden deposit, compounded by the lack of time, labor, and dry weather would not permit the use of screening procedures. All excavation was therefore carried out with shovels and trowels, care being taken to scrape off extremely thin layers of soil and to leave all artifacts and features in place for recording. All six squares were uncovered to a depth of about one foot (30.48 cm), the bottom of the subsoiler zone, in the hope of locating the perimeter of a house pattern. When this effort proved unproductive, the two easternmost squares, O-10E and 10S-10E were dug

through level 6 to the termination of the midden at a depth of 3 feet (91.44 cm).

Features

Features which were recorded and given identifying numbers consisted of four concentrations of Poverty Point objects and one possible remnant of a refuse pit. Other recorded features, including hearths, midden areas of darker color, and possible post molds, were not given numbers because of their uniform characteristics, but were simply plotted on the horizontal plans for their respective levels. A brief description and discussion of each of these features follow.

Feature 1 was a concentration of Poverty Point objects in level 1 of square 10S-10E (Fig. 4). Types included five cylindrical grooved, two cylindrical grooved fragments, and one biconical plain. Grouped closely together in a pile 0.3 foot (9.14 cm) high, these objects may have been in a small pit, but no evidence of one could be distinguished in the dark midden soil. This could have been just a pile of objects over 0.3 foot (9.14 cm) high, although it would seem more likely that the feature was in a pit, because, had it been left at ground or floor level, the chances are much greater that it would have been dispersed by various human or natural forces such as the play of children or flooding. The surface upon which the objects rested was 0.2 foot (6.10 cm) below the surface of an adjacent hearth, and the close proximity of the hearth to the objects may indicate a functional relationship between the two. The total weight of unidentifiable Poverty Point object fragments in the feature was approximately 14 grams. In comparison, the average weight of a whole Poverty Point object from this feature was 107.5 grams.

Feature 2 was a larger concentration of Poverty Point objects, consisting of eighteen biconical plain, five biconical plain fragments, one biconical punched, three spheroidal, three cylindrical and very slightly grooved,

two melon-shaped plain, two amorphous, one eroded and probably spheroidal, many small unidentifiable fragments, and four unused spalls. Found in square 10S-10E in level 1 (Fig. 4), this feature was possibly a shallow pit, but, as with Feature 1, no outline could be detected and its perimeter was determined only by the limits of the artifact concentration. This concentration dissipated at a depth of 0.8 foot (24.38 cm), the same level as the surfaces of two small adjacent hearths, again suggesting a functional association. The total weight of unidentifiable Poverty Point object fragments was approximately 566 grams. The average weight of a whole object from this feature was 49.9 grams, half the weight of those found in Feature 1.

Feature 3, a very dark circular area about 2.2 feet (67.06 cm) in diameter containing recognizably more specks of charcoal than the surrounding midden, was at first thought to be a refuse pit and was numbered accordingly. Initially recognized in square 0-10E at a depth of 1.3 feet (39.62 cm), the circle suddenly disappeared through subsequent excavation at a depth of 1.4 feet (42.67 cm) (Fig. 5). No artifacts were recorded within this area, and it remains unexplained.

Feature 4 was another concentration of Poverty Point objects found in level 2 of square 10S-10E (Fig. 5). The artifacts, which included four biconical plain and four fragments, four biconical extruded and one fragment, and a few small unidentifiable fragments, were all found at a depth of 1.3 - 1.4 feet (39.62 - 42.67 cm). A small hearth was recorded about 0.5 foot (15.24 cm) to the north at the same level, indicating another possible functional connection. Again, no pit outline was discernible. The unidentifiable Poverty Point object fragments weighed approximately 14 grams, and the average weight of a whole object from this feature was 56.6 grams, slightly heavier than those in Feature 2.

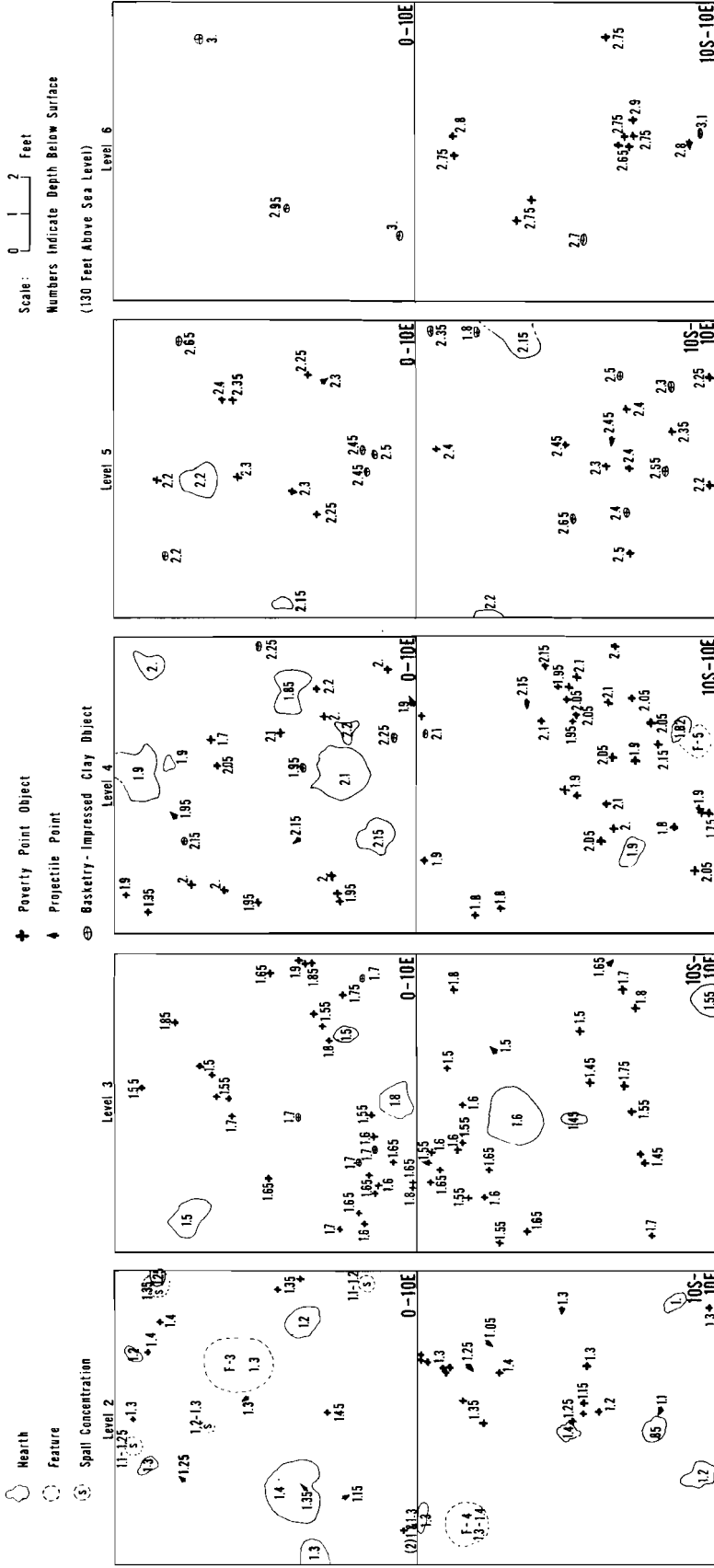


FIG. 5. HORIZONTAL PLAN, LEVELS 2-6

Feature 5, the fourth and smallest concentration of Poverty Point objects, was found in level 4 of square 10S-10E (Fig. 5). It contained four biconical fragments and several small unidentifiable fragments, as well as half of a Poverty Point object of amorphous shape. There was no noticeable pit outline for this feature, which adjoined a small hearth. The unidentifiable Poverty Point object fragments weighed approximately 85 grams.

Hearths were not given feature numbers, but were recorded individually on the horizontal plans of each excavation unit (Figs. 4, 5). As mentioned previously, these unnumbered features, uncovered during Webb's 1969 excavation, were at that time thought to be part of a floor, and the potential discovery of a house pattern prompted the 1970 investigations. It was thought that the six excavation units surrounding Test Pit 4 would afford a sufficiently large area to reveal any pattern to these burned clay surfaces, as well as any pattern of post molds around them. The 1970 excavation, however, revealed that these relatively small clay segments were randomly scattered throughout the undisturbed midden, that their surfaces varied considerably in elevation, and that there were no associated post mold patterns. It was therefore concluded that they were hearths.

Cross sections showed that the hearths were not burned spots on unaltered ground, which would have exhibited a lessening of firing discoloration as one progressed downward. Usually about 0.1 foot (3.04 cm) thick (Plate 1), they were constructed of prepared clay, possibly puddled. The firing discoloration, ranging from reddish orange to black, was usually uniform through the entire thickness of the clay, and always ended abruptly at the well-defined inferior surfaces of the hearths. The upper surfaces of some of the larger ones were not uniformly level, sometimes dropping over 0.2 foot (6.10 cm) from one end to the other. Most of the hearths were small and irregular in outline. Small,

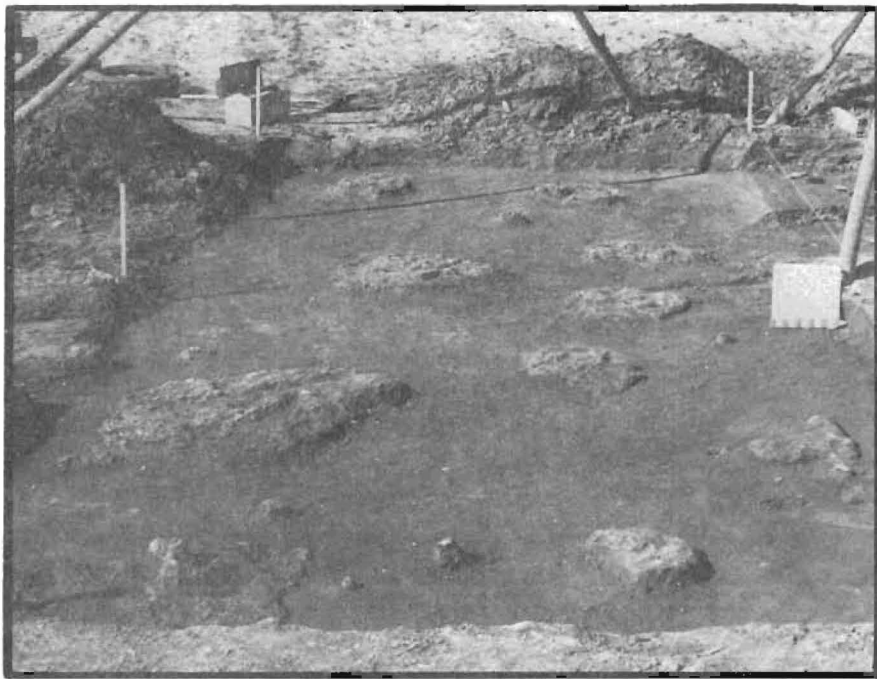


PLATE 1

1970 EXCAVATION SHOWING HEARTHS

almost round holes seen in some of them could not be identified as post molds, but may be areas where portions of clay were removed for unknown reasons.

Several darker areas of varying diameter in the midden were recorded. Like Feature 3, they were not deep enough to be pits, but, unlike Feature 3, their contents were not noticeably different from that of the surrounding midden. They were therefore recorded without being assigned feature numbers. Perhaps they were simply areas where grease or some similar organic cooking residue was discarded.

Twenty-one round spots, ranging from 0.2 foot to 1.05 feet (6.10 - 32 cm) in diameter, were recorded in level 1. These were investigated as possible post molds, but most were ruled out because they were light in color and contained soft dirt, unlike known post molds found previously in the same type of soil. Several proved to be tree root holes or rodent burrows, and others were suspected of being the same. Eight were recorded in level 2 and one continued through level 5, where it forked and disappeared. Throughout the entire excavation, no definitely recognizable post molds were found.

Another interesting aspect of the excavation was the discovery of small concentrations of spalls, encountered at eight different locations in levels 1 and 2 (see Figs. 4, 5). These concentrations ranged from 0.3 foot (9.14 cm) to approximately 0.6 foot (18.28 cm) in diameter, with a thickness of up to 0.15 foot (4.57 cm). These tight clusters of spalls or flakes (10-177 in each concentration), had the appearance of having been swept together or buried in a small pit. As with the numbered features, however, no pit outlines were recognizable. It should be noted that all but one of these concentrations were restricted to level 2.

Most of the flakes in each concentration were apparently from two or three different pebble cores. In the three cases where there were a large

number of flakes (177, 90 and 58), the specimens ranged from large, thick examples with considerable cortex (40 mm x 20 mm x 6 mm) to much smaller, thinner ones with little or no cortex (9 mm x 4 mm x 0.25 mm). Many of the smaller flakes were struck from specially prepared ground edges. This variation in flakes seems to indicate a progression in tool manufacture from core or thick biface to thin biface or projectile point.

Distribution and Associations of Artifacts and Features

The association between the hearths and certain adjacent artifacts, such as Poverty Point objects, is not clear. Figures 4 and 5 show the horizontal distribution of these artifacts and features in the six excavated levels. Vertical distribution is represented by numbers giving the depth or range of depth for each. A certain amount of artifact clustering can be seen. The term "cluster" is used here to denote a group of similar artifacts loosely scattered about a limited area on essentially the same plane. Such a cluster should have a recognizable perimeter and separation from other clusters. By the arrangement of the artifacts, regardless of their number, a purposeful use-area should be indicated, possibly through association with features which suggest particular activities. The four numbered features consisting of Poverty Point objects are differentiated from these clusters in that their contents were arranged in closely grouped concentrations. The only such "feature" which may have been directly associated with a "cluster" of Poverty Point objects was Feature 5 in level 4.

A small cluster of Poverty Point objects was found in level 1 around some hearths on the north side of square 10S-10W (Fig. 5). A large cluster can be seen in level 3 where the two excavation units join (Fig. 5). The Poverty Point objects in level 3 range in depth from 1.5 feet to 1.8 feet (45.72 - 54.86 cm), with adjoining hearth surfaces at 1.6 feet and 1.8 feet (48.77 cm and 54.86 cm). This large cluster may have originally been two clusters, one

around each hearth. In level 4 there is a heavy clustering in the south half of square 10S-10E, possibly associated with two hearths at depths of 1.9 feet (57.91 cm) and 1.82 feet (55.47 cm). The range of depth for Poverty Point objects in this group is from 1.8 feet to 2.15 feet (54.86 - 65.53 cm) below surface. Smaller clusters may be noted in levels 2, 5, and 6, but, except for one in level 2, these do not appear to be associated with any particular hearths.

Projectile points and basketry-impressed clay objects, both of which will be described in detail later, were scattered throughout the midden and did not show any apparent clustering or direct association with particular features or Poverty Point object clusters. All of the basketry-impressed objects were fragmentary and any apparent clustering, such as was found in level 5, can be disregarded, since such a small group of fragments may only represent one or two whole objects. The small group of points in the northwest quadrant of square 0-10W, level 1, represents three drills, one of which was broken in two pieces (Fig. 4). This group may have been part of a small tool kit which escaped the plow.

Of the spall concentrations, which were restricted vertically and horizontally, seven of the eight were found between 1.05 feet and 1.35 feet (32.00 - 41.15 cm) below surface or within 0.3 foot (9.14 cm) of each other vertically. The same seven also occurred in a horizontally restricted area. Five were found in square 0-10E, and two others appeared in nearby portions of squares 0-CL and 10S-10E (Figs. 4, 5). It seems possible that six of the eight concentrations were deposited at approximately the same time. The two exceptions include the one in square 0-10W, which is rather widely separated from the others vertically and horizontally, and the one in square 0-10E, which lies at a depth of 1.05 - 1.1 feet (32.00 - 33.52 cm). The latter is very close to another deeper concentration, but their vertical relationship is inconclusive. The contemporaneity of the two features is questionable,

since the contour of the "living floor" at the time of deposition of these concentrations could not be established.

Figures 4 and 5 are included in this report primarily as a horizontal and vertical record of the distribution of certain types of artifacts in the excavation. The small size of this area prohibits anything but general deductions concerning the clustering of artifacts and features and their interrelationships. It is hoped that this record will provide a valuable reference for comparisons with future expanded excavations and subsequent publication of data.

There may be a functional relationship between the clusters or concentrations of Poverty Point objects and the hearths, possibly involving cooking or the manufacture of baked clay objects. Since such activities are believed to have been the function of women, the hearths and baked clay objects in the excavation area would indicate the presence of these female-oriented activities. A direct relationship between Poverty Point objects, fire pits or earth ovens, and cooking has been demonstrated at the Poverty Point Site, as well as at some other sites of that period (Webb 1968:308). No fire pits or earth ovens have been found at Teoc Creek, but this may be accounted for by the small size of the excavation area. The actual cooking and preparing of food may have been undertaken a short distance away and would not be recognized without further investigation. As can be seen in Figure 1, the excavation area was near the periphery of the surface midden.

The presence of flaked tools, projectile points, cores, blades, and small concentrations of spalls throughout the same area indicates that male-oriented activities were carried out here simultaneously with those of the female. It is thus apparent that the social organization of the group did not require a real separation on the basis of sex for domestic activities. Webb has suggested that the site may have been occupied during the winter months, since it

appears that all of these activities were engaged in around the campfire. However, year-round occupation of the site is not precluded, especially in view of the limited excavations, as other parts of the site could have been used separately by the men during warm seasons. In fact, the homogeneous nature of the extremely dark midden and the distribution of artifacts and features throughout suggest the possibility of a permanent, rather than intermittent, occupation. The only direct evidence of intermittency is midden lensing in the natural levee, seen in Plate 2, presumably due to flood conditions and not necessarily to seasonality.

More definite conclusions have been avoided, pending the excavation of a much larger area of the site for comparison. Much more evidence is needed before questions about intra-site activities and distributions can be answered adequately and specific conclusions can be reached.

1970 Profile Trench

Borehole traverses made by Neitzel in 1966 indicated the presence of a midden buried up to 12 feet (3.66 m) below the surface of the natural levee crest. Attempts by Webb in 1969 to reach this midden through test pit excavation had failed because of the high elevation of the water table. With this in mind, Connaway and McGahey attempted to uncover it using a backhoe in a larger excavation area. At the same time, a profile trench across the site was planned to expand on Neitzel's Traverse 1 and to learn more about the relationship between the deep midden and that showing on the surface. Neitzel's Traverse 1 had not shown a clear connection between the two. The collection of a radiocarbon sample and cultural debris from the deep midden was also a possibility.

In preparation for the trench, a stake (no. 15) was set at 60S-10E for reference and a line of fourteen stakes at 20-foot (6.09-m) intervals was laid out from this point in a southwesterly direction at an angle of south 70°



PLATE 2
1970 PROFILE TRENCH

west. Several more such stakes were placed in the opposite direction at an angle of north 70^o east. The trench was to be dug along the south side of this line to form an east-west profile of the site, reaching from just beyond the levee crest to the far side of the midden semicircle (Fig. 1). With the cooperation of Carroll County Supervisor Bill Kellum, a backhoe was obtained, and the trench was dug in March, 1970, exposing a 360-foot (109.73-m) cutaway view of the central portion of the site (Plate 2).

Begun at the west end of the line of stakes, the trench was initially 4 feet (1.2 m) wide. It was soon discovered, however, that the high water table and sandy texture of the soil caused the sides to cave in badly, so the trench was widened somewhat to allow room for the soil to fall without filling in the trench. Water was encountered at approximately the same level as in 1966 and 1969, well above the deep midden. As a result, the depth of the deep midden had to be recorded quickly before cave-ins covered it up. The only cultural remains recovered were taken from loads of dirt brought up by the backhoe and placed in the spoil bank. A complete profile was not realized because of the high level of the water table in the west half and low, wet ground at the east end.

Figure 2 shows the trench profile, with the shaded areas representing midden. The area of the 1970 excavation was 50 feet (15.24 m) north of the trench, and its approximate location with respect to the trench is shown between stakes 13 and 15. In the excavation area, the curving midden reaches the surface farther to the west than at the trench. The segmented section between stakes 2 and 9 represents an area where the midden was below the water table and accurate measurements could not be made, although occasional deeper probes by the backhoe showed the midden to be present. During one of these probes, an accurate depth measurement was made halfway between stakes 6 and 7. Another probe between stakes 9 and 10 revealed three

distinct middens separated by 1 - 1.5 feet (30.48 - 45.72 cm) of sterile sandy silt. The origin and extent of the two lower ones remain unexplained. Although the segmented line is shown joining the upper midden in Figure 2, it may connect with any of the three.

The solid shaded area (Fig. 2) between stakes 9 and 19 represents a homogeneous dark midden deposit that was recorded above the water table. From west to east the midden definitely rises between stakes 9 and 15, levels off, and remains constant between 15 and 17, exhibiting a gradual thickening from 17 to 19. At the latter point it is approximately 6.25 feet (1.9 m) thick and apparently goes deeper. At the opposite (west) end of the trench, modest quantities of cultural debris and charred plant remains were recovered from a portion of the deep midden depicted as a solid shaded area. A sample of charcoal was taken for radiocarbon dating and several soil samples were collected for pollen analysis. Some evidence of a shallow surface midden could be seen above this area along the front slope and crest of the natural levee. Most of this, however, had been disturbed by plowing. No midden could be detected at the surface between stakes 5 and 14, except for a sparse amount of cultural debris incorporated into the plow zone.

Between stakes 1 and 3 and above the water table, four separate lenses of dark soil were recorded (Plate 2), ranging in depth from 1 foot to 5.5 feet (30.48 - 167.64 cm) below the surface and from 0.25 foot to 0.7 foot (7.62 - 21.34 cm) in thickness. Two large stones, one with a depression pecked in the center, were found halfway between stakes 2 and 3 at a depth of 3.3 feet (1 m) below the surface. Other than this, no cultural debris was found in this area between the plow zone and the deep midden. It is possible that these lenses were the result of light intermittent occupations, but more probably they originated from flood conditions, silt deposition, and humus buildup.

Since the profile trench was essentially a more detailed examination of Neitzel's Traverse 1, the latter was not included in Figure 2. However, a comparison between the 1970 east-west profile and the 1966 north-south profile provided by Neitzel's Traverse 2 resulted in some interesting observations. For this reason, Traverse 2 has been redrawn on the same scale and included with the trench in Figure 2. Neitzel's borehole 6 was located somewhere near the south edge of the trench between stakes 2 and 3 (Fig. 1), thus forming a point of intersection for the two profiles. The estimated locations of the Traverse 2 middens, represented by the solid shaded area in Figure 2, are based entirely on the results of Neitzel's borings in 1966.

Two definite middens were located in borehole 6, both closely corresponding to what was found in the trench. As in the trench, the deep midden of Traverse 2 tends to rise toward the north until it joins the surface midden. The area between boreholes 1 and 4 represents the northern sector of the visible surface arc and corresponds to the area between trench stakes 14 and 19 in the eastern sector. If the two profiles are accurate and are representative of the rest of the site, it would appear from a three-dimensional viewpoint that the deeper midden radiates outward in a semicircle from a point somewhere beneath the front slope of the levee and central to the arc. It would likewise appear that this midden gradually rises in elevation as it expands and is continuous from the central point to the far side of the surface arc.

One possible explanation is that the earliest inhabitants lived in a small area close to the river bank. As the size of the population grew, the settlement expanded outward from the river in an arcuate form. Upon reaching maximum settlement size, the outlying arc continued to be occupied for a long time during and possibly after the formation of the natural levee. This would account for the much greater midden thickness near the perimeter of the arc. In effect, a three-dimensional view of the midden would give the

appearance of a half saucer with thickened rim (deep midden and arc), filled with sandy silt, with a thin cap of surface midden in the center.

Pollen Analysis and Plant Remains

In an effort to learn something of the floral environment present during the occupation of Teoc Creek, eight soil samples from the site were sent to Dr. James Schoenwetter, Palynological Laboratory, Department of Anthropology, Arizona State University, for pollen analysis. Six of these were taken from the deep midden approximately 8.5 feet (2.59 m) below the natural levee crest, one was collected from just above a hearth at a depth of 2 feet (60.96 cm) in square 0-10E, and the last was a control sample from beneath the leaf zone in the woods to the east of the site. Steps were taken by the collectors, as well as in the laboratory, to prevent contamination. The following excerpts from Dr. Schoenwetter's report will summarize his findings.

The samples were all subjected to the same procedures of pollen extraction. These procedures are essentially those described by Mehringer (1967) which have proved successful in the extraction of pollen from organic deposits in Arkansas and Mississippi River flood-plain deposits in Illinois. They involve flotation separation of the light fraction of the sample, sieving of the light fraction to remove particles larger than pollen grains, digestion of inorganic materials with HCl, HF and HNO₃, digestion of cellulose with H₂SO₄, and treatment with lye. Because of the highly inorganic character of the light fraction of these samples, additional HF treatment was deemed necessary. Identical extraction techniques have been utilized with great success on similar samples from both the Old and New World.

Examination of the residuum of the extraction process revealed extremely little pollen in the seven midden samples and abundant pollen in the surface sample. Since the pollen extraction procedures were identical, it is clear that the lack of pollen in the midden samples is not a function of laboratory error. Either pollen was never deposited in these sediments during the period of their accumulation, or it was destroyed in situ at that time or since that time. In any case the midden samples are effectively pollen-sterile. The result of our pollen study of the samples is thus wholly negative.

It is of course possible to determine the number and type of pollen grains occurring in the various fossil samples, as some pollen does occur. This would not constitute an analysis of any value, however, since the number of pollen grains would be statistically meaningless in

any of the fossil samples. Further, the lack of any specific pollen type (e.g. maize pollen) could not be construed as significant negative evidence because of the prospect of differential pollen destruction in these samples, and the presence of any specific pollen type could not be demonstrated to be other than the result of long-distance transport. In light of these factors, research on the specimens was halted when the negative results became apparent, rather than pursue determination of precisely what pollen did yet remain in the samples.

The question of why there should be so little pollen in the fossil samples yet a sufficiency for analysis in the surface sample remains perplexing. My best guess is that oxidation of pollen may occur as a sediment undergoes physiochemical changes during its development as a B soil horizon from an A soil horizon under temperate climatic conditions. I realize that this argument should not be wholly suitable for the lower midden horizon which seems never to have been other than the equivalent of a superficial organic soil before becoming entrapped by some feet of river silts. Experimental evidence is needed to resolve this matter.*

Other plant remains were found on the site in the form of charred seed and nutshell. Presenting some evidence of food sources utilized by the inhabitants, these have afforded a small glimpse of Poverty Point Period human ecology. Found in level 1 of all squares were 64 fragments of hickory nut shell, 4 of walnut shell, 7 unidentified but probably walnut or hickory, and 4 of persimmon seed. In level 2 there were 4 walnut shell fragments and 8 unidentified. A larger sample was collected from the deep midden at the west end of the profile trench. This included 278 fragments of hickory nut shell, 7 of walnut, 1 of acorn, and 106 unidentified, probably hickory or walnut. There were also 8 whole persimmon seeds and 23 fragments, 3 acorn meats and 4 possible acorn meats, and 2 unidentified whole seeds. The total collection was found on only two small areas of the site and, since the nutshell

*Soil samples collected by Carl Alexander from several locations in middens and mound fill at the Poverty Point Site and submitted by Webb for pollen analysis were reported similarly sterile by William H. Sears, Florida Atlantic University, in 1968.

fragments were rather small, represents only a small portion of food remains. It does appear, however, that a substantial majority of recovered plant remains were hickory nuts. Since these grow in abundance in the nearby hills, and no evidence of agriculture has been found, it seems possible they were a major food source and supplement to fresh meat.

Other than a few extremely small fragments of burned bone, no faunal remains were recovered. It appears that the soil and climatic conditions at the site were not favorable for preservation, and that bone and shell were totally dissolved. Thus, no information was secured on burials, bone tools, or faunal food sources.

ARTIFACTS AND RAW MATERIALS

The following section lists and describes all classes of artifacts so far found at the Teoc Creek Site. Measurements of the various classes are restricted to the surface collection unless otherwise stated.

Tables 1, 2, 3, 4, and 6 indicate the vertical distribution of the various categories of lithic material, and Table 5 lists the raw materials from which the chipped stone objects were made. Table 7 shows the vertical distribution of Poverty Point objects by type, and Table 8 gives metrical data on basketry-impressed baked clay objects.

It should be noted that the figures listed in the tables under level 1 include items recovered in six 10-foot (3.048-m) squares, while the lower levels represent only squares 0-10E and 10S-10E, except for those designated as level 8 and deep midden. Level 8 is the location of a pair of Poverty Point objects 3.4 - 3.8 feet (1.03 - 1.16 m) below stake 13 in the profile trench, and the deep midden is the deeply buried occupation zone at the western end of the profile trench.

Core Tools

The chipped stone industry at Teoc Creek consists of bifacial and unifacial tools made almost entirely from pebble or cobble cores. All stages

in the manufacture of tools are present, from unaltered pebbles through finished projectile points (Plate 3 A-M). In most cases, the unfinished specimens of the various stages either are broken or have some fault in the material which would make further work futile. Apparently, all of the bifacial tools of local material were made from cores, since no large flakes or blades were found. See Table 1 for distribution of the core tools by level and Table 5 for the raw materials from which they were made.

Cores (Plate 3 A-D, O-P): 179 specimens

The cores may be divided into two categories: (1) lamellar blade cores showing several narrow parallel scars originating from the same striking platform (Plate 3 O-P); (2) the remaining cores which appear to form a developmental continuum varying from specimens on one end with a few random flakes removed (apparently in testing the flaking qualities of the material [Plate 3 B, C]), to cores which have begun to take the form of crude bifaces (Plate 3 A, D). Some in the latter category are basically pebbles, which are fairly thin initially and therefore require less work in the reduction process.

In the tabulations, lamellar blade cores are listed separately, and biface cores make up group 2. The biface cores vary from 55 mm to 80 mm in length, from 25 mm to 45 mm in width, and from 12 mm to 45 mm in thickness.

Thick Bifaces (Plate 3 E-F): 176 specimens

This subjective grouping is an arbitrary segment in the developmental continuum from core to projectile point or finished tool. It is difficult to separate thick bifaces from cores on one end of the continuum and from thin bifaces on the other end.

Fifteen of the surface sample of 142 are transversely broken. Thirty of them exhibit some smoothing of the edges, which is usually localized at two or three places, although on some specimens an extended area of continuous

smoothing is seen. Striations were not visible under the microscope to indicate whether these edges were used for cutting, sawing, or scraping. It is well known among flint knappers that a ground or crushed edge facilitates removal of flakes or blades from a core of biface, and some of the smoothed areas seem attributable to that practice. The writers' personal observations have indicated that such edge preparation commonly leaves a thickened edge easily visible to the naked eye. Most of the smoothed areas on the Teoc Creek material, however, are clearly visible only under a microscope. This edge smoothing is noted on a much greater percentage of the thin bifaces and completed projectile points and is evidently related to some activity other than tool manufacture.

The dimension ranges for this category are: length, 55 - 84 mm; width, 25 - 55 mm; and thickness, 11 - 28 mm.

Thin Bifaces (Plate 3 G-I, N): 106 specimens

Approximately 45% of these objects are broken transversely, compared with only 11% of the preceding category. In the manufacture of core tools, thin bifaces are much more easily broken than are the earlier stages. This type of accident, probably due to percussion flaking in the process of manufacture, may account for many of the broken specimens. Seventy-four percent, however, show the slight edge smoothing mentioned in the discussion of thick bifaces, which seems to indicate that many were used, and a number could have been broken in use. Thin bifaces range from 33 mm to 89 mm in length, from 19 mm to 48 mm in width, and from 7 mm to 20 mm in thickness.

Circular Bifaces (Plate 3 R-T): 18 specimens

These objects which are not part of the core-projectile point continuum, are crudely percussion flaked, usually with remnants of pebble cortex on both faces, and are approximately circular in outline. Four of the seventeen surface specimens show some slight dulling of isolated portions of the edge.

	Biface Cores	Thin Bifaces	Thick Bifaces	Circular Bifaces	Adzes
Surface	105	65	142	17	4
Level 1	26	17	18		
Level 2	5	7	12		
Level 3	3	4	2		
Level 4	11	1			1
Level 5	5	2	1		
Level 6	1		1		
Test Pit 1, 0-12" (0-30.48cm)					
Test Pit 2, 0-12" (0-30.48cm)	5				
Test Pit 3, 0-6" (0-15.24cm)		1	1		
Test Pit 3, 6-12" (15.24-30.48cm)					
Test Pit 3, 12-24" (30.48-60.96cm)	1		1		
Test Pit 3, 30-36" (76.20-91.44cm)					
Test Pit 3, 36-42" (91.44-106.68cm)					
Test Pit 4, 0-6" (0-15.24cm)	7		1	1	
Test Pit 4, 6-12" (15.24-30.48cm)	2		1		
Test Pit 4, 12-18" (30.48-45.72cm)	5	2			
Test Pit 5, 0-12" (0-30.48cm)	3		3		

TABLE 1. CORE TOOLS BY LEVEL

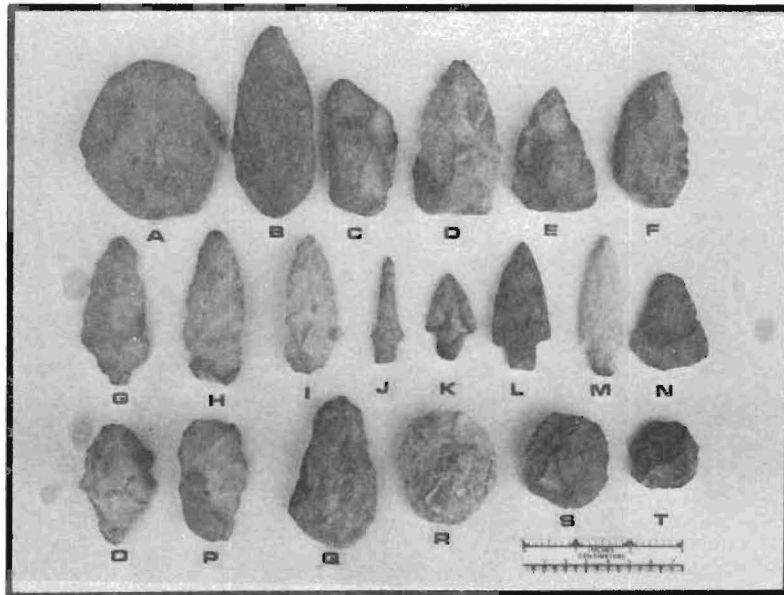


PLATE 3

CORES AND BIFACES. A-D, biface cores; E-F, thick bifaces; G-I, N, thin bifaces; J-M, finished drill and projectile points; O-P, lamellar cores; Q, chipped adz; R-T, circular bifaces.

Similar objects are found in many Late Archaic cultural assemblages. This sample ranges from 32 mm to 60 mm in diameter and from 15 mm to 25 mm in thickness.

Adzes (Plate 3 Q): 5 specimens

Of the five adzes found, four were from the surface and one, transversely broken, came from the excavation (Table 1). The term "adz" is used here with caution since beveling of the bits is only slight. Four show evidence of use with a variable amount of polish around the bit on both faces and dulling of the bit itself. The fifth example was evidently not completed because of hinge fractures on both faces. These five objects range from 40 mm to 70 mm in length, from 30 mm to 43 mm in width, and from 11 mm to 20 mm in thickness.

Projectile Points

There are 225 classified projectile points from the site, 189 from the surface, and 36 from the excavations. In addition, there are 208 unclassified broken points or fragments. Approximately 56% of the items in this category exhibit the previously mentioned light edge smoothing. Four of the group exhibit continuous smoothing along the entire length of one edge. On one, which shows smoothing visible to the naked eye, a cutting or sawing use is suggested by striations that can be seen under the microscope. The individual types, with the primary reference for each type description, are listed below, together with comments about variations from type descriptions. For distribution of the projectile points and drills, and the raw materials from which they were made, see Tables 2 and 5.

Pontchartrain (Ford and Webb 1956; Plate 4 A-F; Plate 6 F-M, S-W, Y-Z, AA, DD-EE): 142 specimens. The typical narrow Pontchartrain point merges with a shorter, broader variety at Teoc Creek. The length of these variants may be less than twice the width, although the type description indicates a length-

width proportion of 2 - 3.5 to 1, with 3 to 1 being characteristic. Measurements of the Teoc Creek specimens are: average length, 59.7 mm; length range, 40 - 96 mm (88 specimens); average width, 25.1 mm; width range, 17 - 34 mm (116 specimens); average thickness, 9.6 mm; thickness range, 7 - 14 mm. Fifty-nine percent of the 118 specimens from the surface collection exhibit pebble cortex remnant on the base of the stem. The general level of workmanship is inferior to that at the Claiborne and Poverty Point sites.

Kent (Suhm, Krieger, and Jelks 1954; Bell 1960; Plate 4 K-L, Plate 6 A-C, BB, FF, II): 26 specimens. These points resemble the Pontchartrain in many ways, the main differences being the rough appearance and the absence of pressure flaking along the edges of the Kent points. It seems possible that the examples at Teoc Creek are unfinished Pontchartrain points, but on a wider comparative basis it is more likely that along the lower Mississippi the Pontchartrain type is a specialized and well-made variant of the more widespread Kent type. On several of the Kent points, the process of primary percussion flaking has left hinge fractures around the edges, which would have made pressure retouch extremely difficult. Measurements are: average length, 57.4 mm; length range 45 - 78 mm; average width, 22.7 mm; width range, 19 - 30 mm; average thickness, 10.2 mm; thickness range, 8 - 12 mm.

Gary (Suhm, Krieger, and Jelks 1954; Bell 1958, Plate 4 Q-R, Plate 6 HH, JJ-KK): 12 specimens. Measurements of these specimens are: average length, 51.2 mm; length range, 45 - 62 mm; average width, 26.2 mm; width range, 21 - 31 mm; average thickness, 9.4 mm; thickness range, 7 - 12 mm.

Delhi (Ford and Webb 1956; Plate 5 L-M): 4 specimens. Workmanship on these four points was above average for the site. Measurements are: average length, 67.25 mm; length range, 64 - 75 mm; average width, 30.5 mm; width range 21 - 31 mm. All were 8 mm thick.

Marshall (Suhm, Krieger, and Jelks 1954; Bell 1958; Plate 4 M-N): 3 specimens. Measurements of these specimens are: average length, 52 mm; length range, 45 - 58 mm; average width, 38.7 mm; width range, 35 - 43 mm; average thickness, 6.7 mm; thickness range, 6 - 7 mm.

Maçon (Ford and Webb 1956; Plate 5 E-F): 2 specimens. Both of these points are large and well made. Measuring 65 mm x 39 mm x 9 mm and 63 mm x 35 mm x 9 mm, they are somewhat wider than most Maçon points at the Poverty Point Site. They also resemble the Florida Archaic Stemmed subtypes Levey and Alachua (Bullen 1968). Points like the specimen shown in Plate 5 E and similarly made of white mottled orthoquartzite are the resident type at a Choctawhatchee Bay site (Gagliano and Webb 1970), where Poverty Point materials are found. They are also present at the Claiborne Site on the Mississippi Gulf Coast.

Ellis (Suhm, Krieger, and Jelks 1954; Ford and Webb 1956): 1 specimen. The single Ellis point from the site measures 45 mm x 23 mm x 8 mm.

Motley (Ford, Phillips, and Haag 1955; Plate 5 N): 1 specimen. The single specimen of Motley measures 86 mm x 36 mm x 9 mm. Although primary flake scars are large, secondary retouch is good and the finished object is above average in workmanship for the site.

Lozenge-shaped (Ford, Phillips, and Haag 1955; Plate 5 I): 1 specimen. The only example found measures 65 mm x 28 mm x 10 mm. It seems probable that lozenge-shaped points constitute a variant of the Gary type.

Madison (Scully 1951; Perino 1968; Plate 5 A): 1 specimen. The single point of this type probably belongs with the few scattered Mississippian sherds found on the site. It measures 20 mm x 18 mm x 5 mm.

Group I (Plate 4 O-P): 6 specimens. These are relatively wide projectile points with deep basal or corner notching which results in rectangular stems and distinct barbs. Two of the sample are very well made, but the

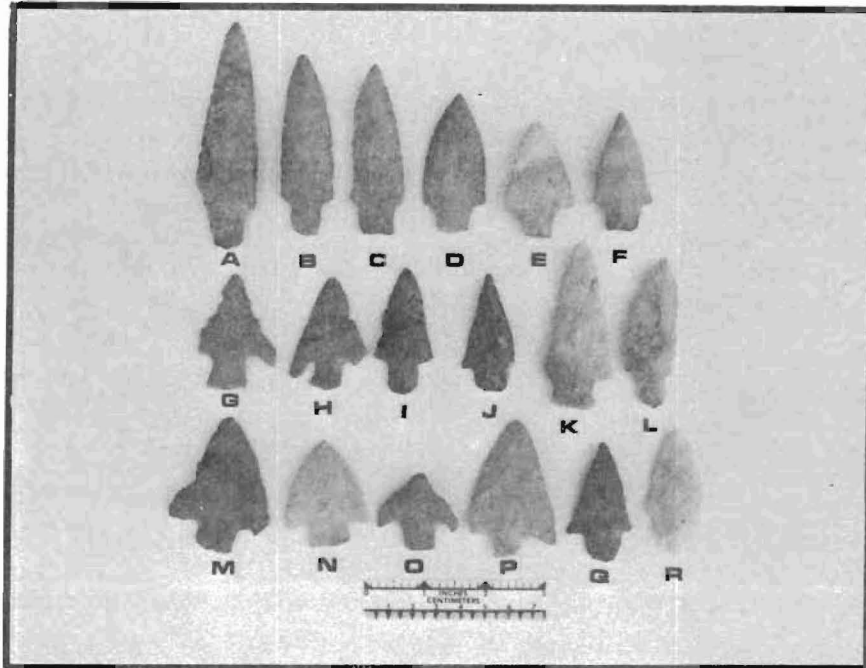


PLATE 4

SURFACE PROJECTILE POINTS. A-F, Pontchartrain; G-H, similar to Calf Creek; I-J, Group III; K-L, Kent; M-N, Marshall; O-P, Group I; Q-R, Gary.

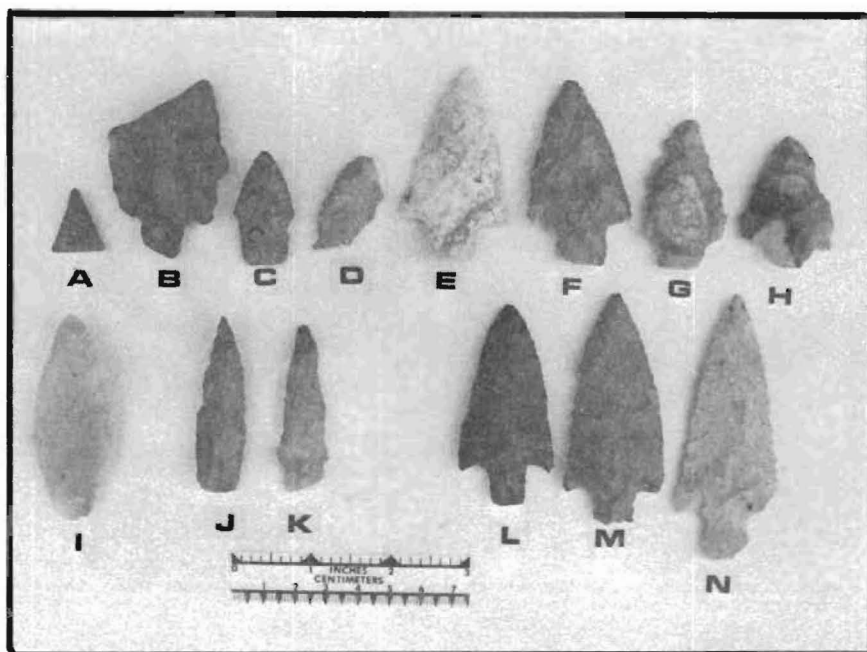


PLATE 5

SURFACE PROJECTILE POINTS. A, Madison; B, Specimen A; C, Specimen B; D, Specimen D; E-F, Maçon; G-H, Group II; I, Lozenge-shaped; J-K, Group IV; L-M, Delhi; N, Motley.

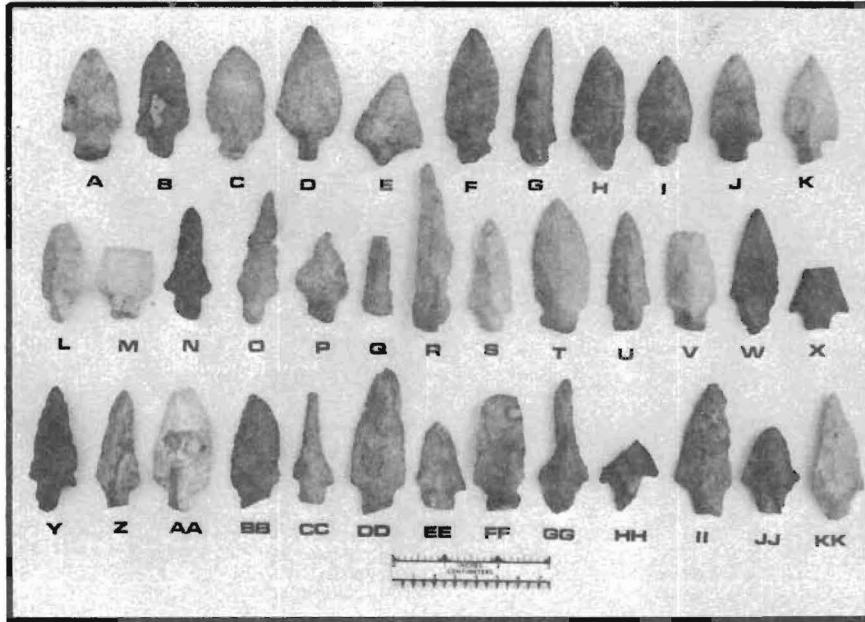


PLATE 6

PROJECTILE POINTS FROM 1970 EXCAVATION BY LEVEL.
A-Q, Level 1; R-X, Level 2; Y-CC, Level 3; DD-HH,
 Level 4; II, Level 5; JJ, Level 6; KK, Deep Midden.

others exhibit rather poor workmanship. Measurements are: average length, 59 mm; length range, 58 - 60 mm (2 specimens); average width, 31.7 mm; width range, 23 - 26 mm; average thickness, 9.16 mm; thickness range, 8 - 10 mm.

Group II (Plate 5 G-H): 14 specimens. Group II points have triangular bodies and straight short stems. They are crudely percussion flaked with no evidence of pressure retouch. Measurements are: average length, 48.1 mm; length range, 42 - 55 mm; average width, 28.7 mm; width range, 25 - 35 mm; average thickness, 9.2 mm; thickness range, 8 - 10 mm.

Group III (Plate 4 I-J): 2 specimens. Each of these thin, well-made points has a straight stem with rounded corners, a triangular blade, and evidence of pressure retouch. They may relate to Belmont's Edwards or Mabin types (Phillips 1970, pt. 1:311). Their dimensions are 49 mm x 23 mm x 6 mm and 53 mm x 25 mm x 7 mm.

Group IV (Plate 5 J-K). 2 specimens. These points resemble the type known in northern Alabama as Bradley Spike (Kneberg 1956; Cambron and Hulse 1964). Apparently the base of one was at one time used as an end scraper, since it is beveled and exhibits a considerable amount of use polish. Dimensions are 55 mm x 15 mm x 8 mm and 56 mm x 17 mm x 10 mm.

Group V (Plate 4 G-H): 2 specimens. These two points have some resemblance to the Calf Creek (Dickson 1968; Perino 1968) and Shumla (Suhm, Krieger, and Jelks 1954; Bell 1960) types. Both are well made, with specimen H exhibiting some well-executed pressure ripple flaking. Both points are 50 mm long, although G appears to have been reworked. Both are broken, but 38 mm and 42 mm are probably reliable estimates of their widths.

Specimen A (Plate 5 B). Specimen A is a large, heavy, crudely flaked point with a relatively small stem. A group of similar points (provisional type 11) were found in the Sardis Lake Survey (McGahey 1968). These points are possibly related to those at Jaketown termed "Heavy Blade" (Ford, Phillips, and Haag 1955:131). Specimen A, which is 58 mm long to the break, may have been about 90 mm long originally. It is 37 mm wide and 11.5 mm thick.

Specimen B (Plate 5 C). This point is small and well made, with a triangular body and rectangular stem. The stem is approximately the same length as the blade, which is finely retouched along the edges. The base and stem sides are lightly ground. The specimen is almost identical to a group of points found in the Sardis Lake area about 60 miles (96.54 km) to the northeast. These points (provisional type 6) are also frequently ground lightly around the stem and base edges (McGahey 1968). The dimensions of Specimen B are 36 mm x 19 mm x 9 mm.

Specimen C (Plate 6 D). Specimen C has a long, ovate body and small, narrow, rectangular stem with rounded corners. There is a superficial resemblance to Specimen A, but Specimen C is more carefully made, displaying retouching around the blade edges and being thinner over most of the blade. The dimensions of Specimen C are 66 mm x 33 mm x 11 mm. Thickness over most of the blade is about 8 mm, with one thicker spot (11 mm) just below the stem where hinge fractures on each face evidently prevented thinning.

Specimen D (Plate 5 D). Specimen D is a small dart point with low, shallow side notches, concave base, grinding in the basal concavity and notches, bifacial fluting, and serrated, beveled edges. This point is an example of the serrated variety of the San Patrice type frequently found to the east of the Yazoo Basin in central and northern Mississippi. It measures 6 mm in thickness and is estimated to have been about 35 mm in length. San Patrice points are thought to be several thousand years earlier than any of

the other points thus far obtained at the Teoc Creek Site. A date of ca. 6000 B. C. is suggested (Webb, Shiner, and Roberts 1971:47). The presence of this point may represent prehistoric collecting of artifacts.

Specimen E (Plate 6 X). This specimen is a small, well-made dart point with a contracting stem, triangular blade, and concave, thinned base. Beveled on both sides of each face apparently by pressure flaking, it is 30 mm wide, 5 mm thick, and was probably about 45 mm long before the blade was broken.

Specimen F (Plate 6 E). Specimen F strongly resembles the Morrow Mountain Rounded Base type (DeJarnette, Kurjack, and Cambron 1962; Cambron and Hulse 1964). According to Cambron and Hulse, Morrow Mountain Rounded Base is considered an Early Archaic type in northern Alabama, but a very similar if not identical form is thought possibly to belong to the Poverty Point Culture context at the Poverty Point Site. The types Gypsum Cave, Almagre, and Morrow Mountain are considered to be "part of a typologically related continuum" and to last through most of the Archaic Period (Webb, Ford, and Gagliano 1971:66). This point measures 48 mm x 34 mm x 11 mm.

Drills (Plate 7 A-E, Plate 6 N-R, CC, GG): 50 specimens

Most of the "drills" appear to have been projectile points at one time. The stem and shoulder portions often exhibit characteristics suggestive of one projectile point type or another, especially Pontchartrain and Kent, as well as Group I and possibly Gary. Seven of the group do not have typical projectile point shoulders (Plate 7 E). Such specimens, with the exception of one that seems to have been made directly from a thin biface, may at one time have had shoulders which were lost through use or reworking. This seems possible since the amount of shoulder area remaining on the shouldered drills varies considerably from completely intact to none at all.

Thirty-six of the fifty specimens exhibit smoothing along the edges. On five, definite rotary motion striations appear near the distal end. Two others

	Surface	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Deep Midden	Test Pft 1, 0-12" (0-30.48cm)	Test Pft 2, 0-12" (0-30.48cm)	Test Pft 3, 0-6" (0-15.24cm)	Test Pft 3, 6-12" (5.24-30.48cm)	Test Pft 3, 12-24" (30.48-60.96cm)	Test Pft 3, 30-36" (76.20-91.44cm)	Test Pft 3, 36-42" (91.44-106.68cm)	Test Pft 4, 0-6" (0-15.24cm)	Test Pft 4, 6-12" (15.24-30.48 cm)	Test Pft 4, 12-18" (30.48-45.72cm)	Test Pft 5, 0-12" (0-30.48cm)		
Pontchartrain	118	8	5	3	2	1															
Kent	19	3		1	1	1							1								
Gary	9				1			1													
Motley	1																				
Lozenge-shaped	1																				
Ellis	1																				
Marshall	3																				
Macon	2																				
Delhi	4																				
Madison	1																				
Group I	6																				
Group II	14																				

(cont. on next page)

TABLE 2. PROJECTILE POINTS BY LEVEL

	Surface	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Deep Midden	Test Pit 1, 0-12" (0-30.48cm)	Test Pit 2, 0-12" (0-30.48cm)	Test Pit 3, 0-6" (0-15.24cm)	Test Pit 3, 6-12" (5.24-30.48cm)	Test Pit 3, 12-24" (30.48-60.96cm)	Test Pit 3, 30-36" (76.20-91.44cm)	Test Pit 3, 36-42" (91.44-106.68cm)	Test Pit 4, 0-6" (0-15.24cm)	Test Pit 4, 6-12" (15.24-30.48cm)	Test Pit 4, 12-18" (30.48-45.72cm)	Test Pit 5, 0-12" (0-30.48cm)		
Group III	2																				
Group IV	2																				
Group V	2																				
Specimen A	1																				
Specimen B	1																				
Specimen C		1																			
Specimen D	1																				
Specimen E			1																		
Specimen F	1																				
Broken	179	18	3	2	1					1								2			
Drills	44	4	1	1	1																

Table 2 (cont.)

show definite sawing or cutting striations near the distal end. Twenty-nine others have varying amounts of light smoothing along the edges, with the direction of motion undetermined.

Blade Tools (Tables 3, 5)

Lamellar Blade Cores (Plate 3 O-P): 6 specimens

These items do not bear a close resemblance to those from Jaketown. The major differences are: (1) two or more striking platforms on the Teoc Creek cores, in contrast to a single platform per core for the Jaketown specimens (Ford, Phillips, and Haag 1955:138); (2) a platform angle of from 60° to 78° on the Teoc Creek cores, in contrast to an average of 55° on the Jaketown cores. The six cores ranged from 50 mm to 81 mm in length, from 33 mm to 38 mm in width, and from 20 mm to 38 mm in thickness.

Because numerous blades and blade tools were found at Teoc Creek, the question naturally arises as to why only six cores were found. The answer may be that some of the blades were struck from the cores used in biface manufacture. Thinning flakes on some of these items sometimes leave long, narrow, parallel-sided scars. It is also possible that much of the manufacture took place at the source of the raw material and that most of the exhausted cores were left there.

Unused Lamellar Blades: 155 specimens

Measurements of fifty-seven surface specimens are: average length, 32.1 mm; length range, 19 - 52 mm; average width, 15.4 mm; width range, 6 - 37 mm; average thickness, 4.12 mm; thickness range, 2 - 9 mm. The width-length index is 0.48 and the width-thickness index is 0.27. The collection from Jaketown ranged from 20 mm to 50 mm in length, from 8 mm to 23 mm in width, and from 3 mm to 5 mm in thickness. The width-length and width-thickness indices were both 0.33 (Ford, Phillips, and Haag 1955:139).

The blades from Teoc Creek more closely resemble those at Denton, an Archaic site about forty miles (64.36 km) to the north, than they do those at Jaketown. The Denton Site dates about 1,400 years earlier than the Teoc Creek Site. The width-length index at Denton is 0.41. Other Archaic sites in the northern Yazoo Basin yielding blades similar to those at Teoc Creek are Longstreet (22-Qu-523) and Gates (22-Pa-521). The blades at Teoc Creek thus appear to fall within a tradition different from that of the proportionally narrower, thicker examples from Jaketown.

Forty-six percent of the specimens in this category were secondary decortication blades, as compared with 35% of the blades, utilized blades, and blade tools.

Utilized Lamellar Blades: 165 specimens

Blades showing evidence of use generally exhibit a section or sections of blade edge where flakes have been removed unifacially. These areas cover a variable distance along the blade edges, but are never continuous along an entire edge. The unifacial quality of the flake scars indicates a scraping activity. The collection of utilized blades may be divided into three groups: (1) those showing use on the sides--about 67% of the total; (2) those showing use on the sides and ends--about 22% of the total; and (3) those showing use on the ends--approximately 11% of the total.

Blade Side-scrapers and End-scrapers (Plate 7 H-I): 25 specimens

The items in this category differ from the utilized blades in having continuous edge work on sides, ends, or both. The flaking in this case is of an even nature and seems to have resulted from deliberate fashioning rather than use. Eight of the tools in this category are end-scrapers (Plate 7 I) and fifteen are side-scrapers (Plate 7 H). Two are combination side and end-scrapers.

Perforators (Plate 7 F): 9 specimens

Unlike the situation at the Jaketown and Poverty Point sites, where the perforator was the numerically dominant tool of the microlithic assemblage, only nine perforators have been found at Teoc Creek. The nine specimens recovered do resemble the Jaketown perforators slightly, although two of them are flaked from one side of each face instead of both sides being flaked from one face. Such a change in the orientation of flaking was found by Gibson and Webb on 6.4% of the perforators at the Poverty Point Site (unpublished study) and some perforators from the Denton Site exhibit the same characteristic. Perforators were also a decided minority at Denton.

Gravers (Plate 7 G): 6 specimens

Three gravers are on blades, two are on flakes, and one is on a broken thin biface. The graver tips on these items range from 2 mm to 5 mm in length. One of the blade gravers, like two of the perforators, is flaked from one side of each face.

Notches: 8 specimens

Of the eight notched blades recovered, six were flaked from the ventral or flat surface of the blade, and the other two from the opposite face. All had single notches on one edge, varying from 1.5 mm to 5 mm in depth and from 5 mm to 20 mm in length.

Flake Tools, Flakes, and Chipping Debris (Tables 4, 5)

Utilized Flakes: 423 specimens

Used flakes exhibit the same flaking patterns as the used blades, and it seems reasonable to assume that they, like the blades, were used for scraping and cutting purposes. Approximately 61% show side use, 23% show end use, and 16% show both side and end use.

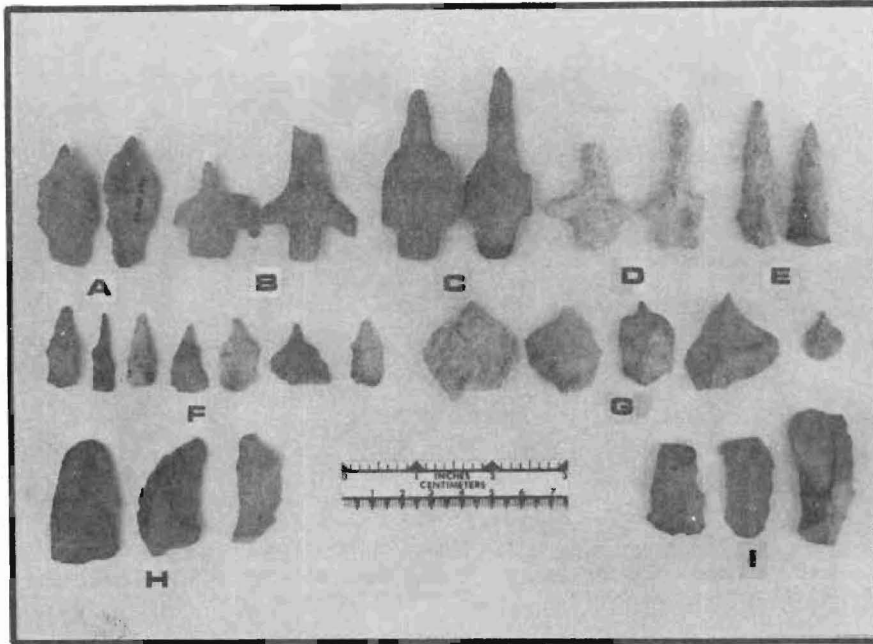


PLATE 7

DRILLS, PERFORATORS, GRAVERS, AND BLADE TOOLS.
A-E, drills; F, perforators; G, graters; H, side-
scrapers; I, end-scrapers.

	Blade Cores		Unused Blades	Utilized Blades	End-scrappers	Side-scrappers	Perforators	Gravers	Notches	Side and End Scrapers
Surface	5	61	124	7	5	9	3	8		
Level 1		49	22	1	6					
Level 2		17	5		1					1
Level 3		10	1		3					
Level 4		4	5							
Level 5		11	2							1
Level 6			1							
Test Pit 1, 0-12" (0-30.48cm)										
Test Pit 2, 0-12" (0-30.48cm)										
Test Pit 3, 0-6" (0-15.24cm)										
Test Pit 3, 6-12" (15.24-30.48cm)		1								
Test Pit 3, 12-24" (30.48-60.96cm)										
Test Pit 3, 30-36" (76.20-91.44cm)	1	1								
Test Pit 3, 36-42" (91.44-106.68cm)		1								
Test Pit 4, 0-6" (0-15.24cm)										
Test Pit 4, 6-12" (15.24-30.48cm)				1						
Test Pit 4, 12-18" (30.48-45.72 cm)				3						
Test Pit 5, 0-12" (0-15.24cm)				1						

TABLE 3. BLADE CORES, BLADES, AND BLADE TOOLS BY LEVEL

Flake Side-scrappers and End-scrappers: 54 specimens

Flake side-scrappers outnumber end-scrappers 43 to 11. As with the blades, the main difference between utilized specimens and specimens in this category is that these are worked continuously along the edges and the flaking is of an even nature as if done by deliberate preparation. All are flaked from the ventral surface. Approximately 50% of the side-scrappers are worked on two edges, while all of the end-scrappers are worked on only one end.

Transverse Flake Scraper: 1 specimen

The single specimen of this category was a flake that was shorter from the bulb of percussion to the opposite end than from side to side. The worked area is opposite the bulb.

Denticulates: 8 specimens

These are small flakes, 23 - 37 mm in greatest measurement, which have one edge serrated by a series of saw-tooth projections 1 - 2 mm in elevation. The projections are produced by the removal of two to five small flakes with pressure from the flat ventral face, or by the snapping off of crescentic flakes from a thin edge in such a way that sharp points remain. No use polish or microscopic linear scorings were discerned on the faces, but the saw-tooth tips of three objects are moderately smoothed. Some cutting or sawing maneuver is suspected.

Flake Graver: 2 specimens

The gravers have been described along with blade gravers in the preceding section (see p. 52).

Sidescraper-graver: 1 specimen

The sidescraper-graver is a combination tool with one edge beveled.

Notches: 9 specimens

The technique of manufacture and size of the notches are similar to those of the notches on blades.

	Unused Flakes and Chipping Debris	Utilized Flakes	End-Scrapers	Side-Scrapers	Denticulates	Notches	Side-Scraper-Craver	Gravers	Transverse Scraper
Surface	155	178	5	27	7	9		2	
Level 1	520	21	1	2					
Level 2	517	16		3					1
Level 3	116	6		1					
Level 4	38	5	1						
Level 5	38	6	1						
Level 6	26								
Test Pit 1, 0-12" (0-30.48cm)	17	5							
Test Pit 2, 0-12" (0-30.48cm)	12	8							
Test Pit 3, 0-6" (0-15.24cm)	31	17	1						
Test Pit 3, 6-12" (15.24-30.48cm)	2								
Test Pit 3, 12-24" (30.48-60.96cm)	2	1	1						
Test Pit 3, 30-36" (76.20-91.44cm)	12	2							
Test Pit 3, 36-42" (91.44-106.68cm)	2	2							
Test Pit 4, 0-6" (0-15.24cm)	105	37	1	3					
Test Pit 4, 6-12" (15.24-30.48cm)	57	30		1					
Test Pit 4, 12-18" (30.48-45.72cm)	31	67		2	1				
Test Pit 5, 0-12" (0-15.24cm)	36	22		4			1		

TABLE 4. FLAKES, FLAKE TOOLS, AND CHIPPING DEBRIS BY LEVEL

Unused Flakes and Chipping Debris: 1,717 specimens

A variety of flakes is represented at the site, from large, thick ones struck in primary percussion flaking of the cores to very small ones removed in the process of pressure flaking.

Discussion

The percentages of the various classes of chipped stone artifacts in different levels vary, as is indicated in Tables 1-4, but no definite patterns of change through time are indicated. This may be partly because so few artifacts of some classes were recovered, especially the individual projectile point types. Possibly, there was little change in the material culture during the time when the artifacts were being deposited, although this would seem unusual for a time span of approximately 600 years. Only the dominant point types, Pontchartrain, Kent, and Gary, were found in the deeper levels, and there is a hint that Gary was more important in the early occupation, while the Pontchartrain and Kent types took precedence in the later stages. Perhaps the material recovered from future excavations, together with the data recorded in Tables 1-4 will reveal more definite chronological change. The one fact revealed clearly in Tables 1-4 is a definite increase in the density of concentration of objects toward the top of the midden, suggesting a heavier occupation during the latter part of the site's time range.

Raw Materials of Flaked Stone Tools

Table 5 lists the raw materials for the specimens in all of the preceding categories. The first nine materials listed on the chart are all obtainable today within a few miles of the site and constitute the vast majority of the materials found there. With the possible exception of red chert and limonite, such stones in pebble or cobble form are plentiful in gravel formations in the edge of the hills to the east. Limonite is found there too, but generally occurs in separate formations.

Apparently, the red chert at Teoc Creek is a product of firing. Approximately half of this material exhibits potlid fractures, and none of the tools have the typically greasy look which appears on artifacts that have been heat treated before flaking. The term "brown-gray chert" represents stone which displays a continuum of colors from brown to tan and yellow through cream to shades of gray.

The material listed as gray chert is native to the hills of north Mississippi. It was used extensively in the Sardis and Grenada reservoir areas for the manufacture of late arrow points and is the predominant material used in the manufacture of one Early Archaic projectile point type there. It is found in boulder form in at least one outcropping in that vicinity. This gray chert is scarce at Teoc Creek, having been used in the manufacture of one thin biface and one ground and polished tool, probably a celt or adz.

Fort Payne chert, with a probable origin in Tennessee or Kentucky, is the most common imported material, followed by gray northern flint and "jasper." The northern flint, like Fort Payne chert, is gray, but tends to be lighter and, in some cases, blue gray. Obviously a superior flaking material, it has a smooth, waxy feel. Gray flints from southern Indiana, Illinois, and Ohio have been identified at the Poverty Point Site (Ford and Webb 1956:51) and the same sources were probably available to the Teoc Creek people. The "jasper" is various shades of mottled pink and red. It is the major material on most sites in the Tombigbee River drainage in northern Mississippi, but it decreases in popularity to the west. A possible source is somewhere in northeast Mississippi or northwest Alabama.*

*The Jasper has been demonstrated in experiments conducted by one of the authors to be heat-treated gravel chert (McGahey, unpublished MS). Still the source could be northeast Mississippi or Alabama, since those areas have a very high concentration of such heat-treated material. The distinction between "jasper" and red chert (heat treated) in Table 5 was made on the basis of color. Artifacts in the "red chert (heat treated)" category are basically solid red (although different specimens are different shades of red). The individual "jasper" artifacts are not a uniform, solid color but are varying shades of red, pink, or reddish pink.

Orthoquartzite appears also to have an easterly origin. On many sites in east central Mississippi, hardly any other lithic material occurs. Its source may be east central Mississippi or west central Alabama.

Two blades and two flakes are of exotic cream-colored material of unknown source. They have a waxy feel and appear to be excellent flaking material. One translucent, carnelian flake of reddish amber color was found, with what appears to be a remnant of chalk cortex on one side. The source is unknown. The presence of novaculite demonstrates contact with the Ouachita Mountains area of central Arkansas.

If the relative numbers involved are any indication, the sample of raw material listed in Table 5 shows that the strongest trade ties were to the north and east, while those to the west were of lesser importance. The data in Table 5 also demonstrate that trade materials were used sparingly in comparison with local cherts.

Slight evidence is seen for the importation of cores or large flakes or blades of exotic material. One core of Fort Payne chert, with a remnant of chalk cortex, is the only exotic specimen in the collection of 179 cores (Table 5). This is less than 1%. Only about 2.2% of the combined totals of biface cores and thick and thin bifaces are imported. There is a definite increase in the percentage of imported material in the projectile point category, however, approximately 11% being exotic. More than 41% of the projectile points in minority types, presumably of Poverty Point age but represented by six or less specimens each, are of imported material. Evidently, then, the exotic materials were usually brought in either as finished tools or as preforms.

	Brown Gray Chert	Red Chert (heat treated)	Quartzite	Banded Chert	Fossiliferous Chert	Limonite	Conglomerate	Quartz	Petrified Wood	Gray Chert	Fort Payne Chert	Northern Flint	"Jasper"	Orthoquartzite	Exotic Cream Chert	Carnelian	Novaculite
Biface Cores	124	17	17	4	14		2				1						
Thick Bifaces	130	13	8	3	15						3		3				1
Thin Bifaces	79	7	6	1	11					1	1						
Pontchartrain	92	15	7	7	13						3		3	1			1
Kent	15	5	3	2	1												
Gary	9	1											1				1
Motley											1						
Lozenge-shaped																	1
Delhi	2	1									1						
Ellis	1																
Marshall	2										1						
Maçon											1	1					
Madison	1																
Group I	4	1									1						
Group II	10	1			2								1				
Group III												1	1				
Group IV	2																

(cont. on next page)

TABLE 5. RAW MATERIALS OF FLAKED STONE TOOLS

	Brown Gray Chert	Red Chert (heat treated)	Quartzite	Banded Chert	Fossiliferous Chert	Limonite	Conglomerate	Quartz	Petrified Wood	Gray Chert	Fort Payne Chert	Northern Flint	"Jasper"	Orthoquartzite	Exotic Cream Chert	Carnelian	Novaculite
Group V												1	1				
Specimen A	1																
Specimen B											1						
Specimen C		1															
Specimen D		1															
Specimen E		1															
Specimen F	1																
Broken Points	132	29	4	3	17						7		6	5			5
Drills	39	4	1		4						1		1				
Adzes	3			1				1									
Circular Bifaces	11	2	1	1	3												
Blade Cores	6																
Blades and Blade Tools	271	36	2	12	13						2	18	9		2		
Flakes, Flake tools and Chipping Debris	1512	490	115	10	33	9	2	3	5		20	13	7	4	2	1	8

Table 5 (cont.)

Miscellaneous Raw Materials (Table 6)

Fire-cracked Rock

The most obvious surface characteristic of the Teoc Creek Site is the abundance of fire-cracked rock, which in places almost covers the ground. The particles, varying in size up to about half as large as a man's fist, are from the same source as most of the chipped stone. Pebble cortex is evident on many pieces, as are fire spall scars.

Fire-cracked rock is the only trait at the site which has so far shown a definite change of popularity through time. Present in small percentages from the lowest levels of the areas tested, and with no definite pattern of change from levels 6 through 2, these items suddenly increase in number in the upper level. In each of Webb's five test pits, they account for over two-thirds of the items recovered in the first level. With one exception (38% in the 12-18-inch [30.48-60.96-cm] level of Test Pit 4), at no point thus far excavated below a depth of one foot (30.48 cm) do they account for as much as a third of the total. The 1970 excavation, centering around Test Pit 4, revealed small but significant percentages of fire-cracked rocks in the bottom of the midden. Unfortunately, for purposes of this analysis, the critical plow zone had been removed prior to the start of the excavation, and possible corroborating evidence regarding this abrupt change was not obtained.

The quantity of fire-cracked rock suggests a connection with cooking or some other important activity. It would seem that if the rocks were used in cooking, there would have been a decrease in the popularity of Poverty Point objects in the upper level as the use of rocks increased. There appears to be clear evidence for this in Test Pit 4, where percentages of fire-cracked rock and Poverty Point object fragments respectively are: level 1, 70.8 and 3.3; level 2, 31.8 and 10.9; and level 3, 13.9 and 38.0. This shows the popularity of fire-cracked rock rising and that of Poverty Point objects

declining. Test Pit 3 revealed light midden in the first two levels, containing high percentages (over 70%) of fire-cracked rock, and the almost complete absence of Poverty Point objects. After passing through a sterile layer and again entering midden, the reverse situation was observed, with Poverty Point object fragments accounting for 70% of the number of objects recovered and fire-cracked rock accounting for only 8%.

Ferruginous Sandstone

Also present on the surface are pieces of ferruginous sandstone of various sizes. This material is readily obtainable in the hills a few miles east of the Yazoo Basin and was widely used by the aboriginal inhabitants in the manufacture of grinding stones and pitted stones, such as those found at the Teoc Creek Site. The material occurs in all levels, and does not appear to have varied significantly in popularity throughout the levels excavated.

Pebbles and Cobbles

This group of objects represents the unaltered raw materials from which the flaked tools were manufactured. As is indicated in Table 6, they were widely dispersed throughout the excavation in small quantities.

Other Materials

The remaining materials listed in Table 6 were relatively scarce. The limonite and hematite listed are both varieties which are to be found within a few miles of the site. The hematite used in plummet manufacture is much harder and heavier and is not local. The source of the pumice and iron pyrite fragments which are not of local origin, is not known. The material designated Catahoula sandstone, represented by one piece from the surface, is white, grainy, and porous. Its source is possibly central Louisiana. Three pieces of another type of nonferruginous sandstone were found. They are of a finer-grained and more compact nature and are apparently the same material as that from which the sandstone bowls were made.

	Fire-cracked Rock	Ferruginous Sandstone	Catahoula Sandstone	Other Nonferruginous Sandstone	Pebbles and Cobbles	Conglomerate	Limonite	Pumice	Hematite	Iron Pyrite
Surface	189	10	1		5				1	1
Level 1	146	239		2	13	2	2		1	
Level 2	16	142			12		10			
Level 3	10	72			2		2			
Level 4	3	22			2					
Level 5	17	18			4					
Level 6	14	12		1	3					
Test Pit 1, 0-12" (0-30.48cm)	139									
Test Pit 2, 0-12" (0-30.48cm)	57				2					
Test Pit 3, 0-6" (0-15.24cm)	162				3			1		
Test Pit 3, 6-12" (15.24-30.48 cm)	14									
Test Pit 3, 12-24" (30.48-60.96cm)					1					
Test Pit 3, 30-36" (76.20-91.44cm)		4								
Test Pit 3, 36-42" (91.44-106.68cm)	4	4								
Test Pit 4, 0-6" (0-15.24cm)	493	8			13					
Test Pit 4, 6-12" (15.24-30.48cm)	150	17			3					
Test Pit 4, 12-18" (30.48-45.72cm)	49	22							1	
Test Pit 5, 0-12" (0-30.48cm)	440	2			2					

TABLE 6. MISCELLANEOUS RAW MATERIALS BY LEVEL

Ground Stone Artifacts

Gorgets (Plate 8 A-O, Q-R; Plate 9; Figure 6)

Fifteen gorget fragments, eleven of limonite and four of slate, were taken from the surface of the Teoc Creek Site. Most of the limonite gorgets are banded with light and dark streaks. Two of the slate items are grayish green, one is brownish gray, and one is black. Twelve are plano-convex in cross section, one (Plate 8 F) is a flattened oval, one (8 H) is concavo-convex, and the other (8 L) is rectangular with flat faces. Drilling, accomplished with a solid point drill, was done from both faces, most of it coming from one direction. Thickness of the fragments varied from 7 mm (8 M-N) to 17 mm (8 H). Three of the limonite pieces (8 C-D, J) are notched around the periphery, and the four slate gorgets are engraved (Plate 8 L-O; Plate 9; Fig. 6), two with fine lines and two more heavily. Any representations intended by the makers have not been determined by the authors.

One of the slate gorgets (Plate 9 A) might more properly be termed a tablet than a gorget. Two drill holes, broken through their centers, appear on the left side and may have been placed there to help break the object to its present width. Smoothing of this and the opposite side had begun. This object may be a portion of a hooded figure in low relief, such as one found at Jaketown (Webb 1968: Fig. 7 CC). The small, semi-oval depression approximately centered above the chevron at the top appears to represent the lower lip. The lower portion of the object is ground thin, though not sharpened. This feature and the face, if there was one, are reminiscent of the votive celts of the Olmec Culture.

The gorgets, at least those of limonite, probably were manufactured on the site. Several large, unaltered slabs of limonite and some chips were found. Specimens Q and R in Plate 8 illustrate pieces of such slabs which have been

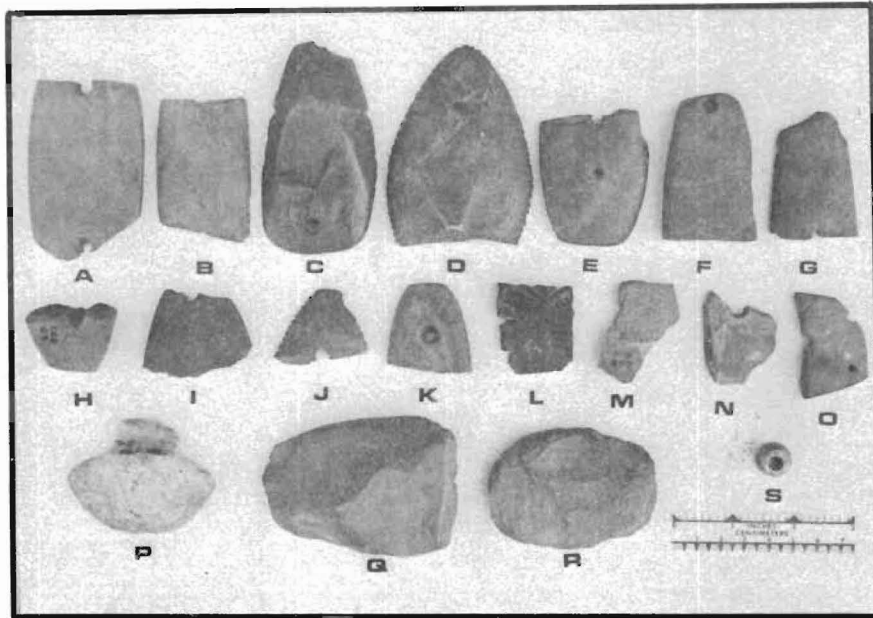


PLATE 8

GORGETS, BANNERSTONE, AND BEAD. A-O, gorget fragments from Teoc Creek Site; P, bannerstone from Neill Site; Q-R, gorget blanks from Teoc Creek Site; S, steatite bead from Teoc Creek Site (A-C, E-M, and P from the collection of C. G. Bryan).

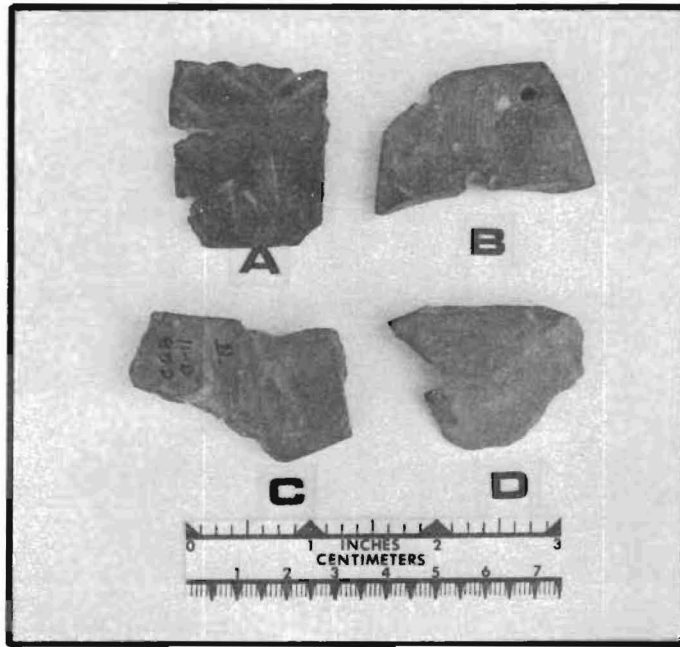


PLATE 9

ENGRAVED SLATE GORGET FRAGMENTS
(A and C from the collection of
C. G. Bryan).

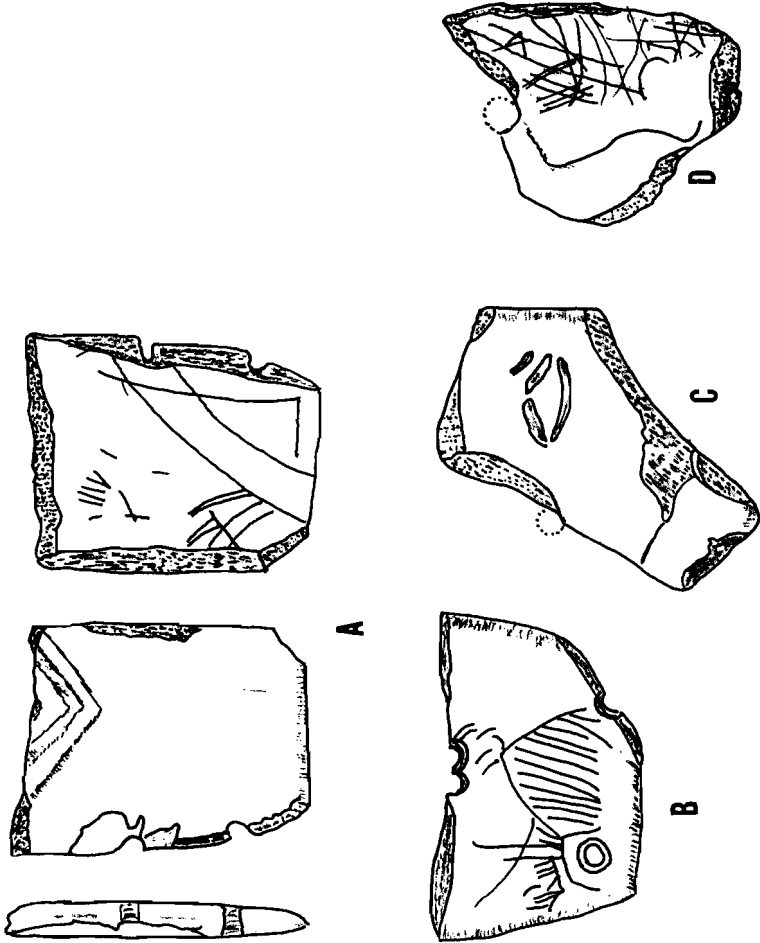
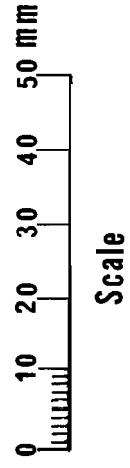


FIG. 6. ENGRAVED SLATE GORGETS



flaked into what appear to be good blanks for gorgets. Smoothing has begun on both of the pictured examples. Evidently, the procedure was to percussion flake the material into roughly the shape desired, grind it to the exact shape, and then add the perforations.

Bead (Plate 8 S)

Only one bead, a surface find, was collected from the site. Made of steatite, it is 15 mm in diameter and of uneven thickness varying from 7 mm to 10 mm. The counter-drilled perforation is approximately 4 mm in diameter at the center.

Plummets (Plate 10 A-G, K-L)

Eight objects from the surface seem to fall within the plummet category. Four are unfinished and four others are broken through the perforation. Of the four unfinished specimens, three have incomplete drill holes made by solid-point drills. Drilling on specimen B (hard, local quartzite) was begun from both sides. Specimen C (sandstone) and specimen L (hematite) exhibit only one drill hole each. A large, tear-drop-shaped lump of hematite, specimen A was apparently being made into a plummet, since it has the general form and shows considerable abrasion. Specimens D and G (limonite) and E and F (hematite) are all broken through the perforation. Specimen K, from the nearby Neill Site, is a whole, completed hematite plummet. The source of hematite is assumed to be northern Arkansas or southern Missouri.

Celts (Plate 10 H-J)

Four celts or celt fragments have been found on the surface. The only whole specimen (10 H) is a black and white, course-grained, granitic type of rock. Specimen J, the eroded remnant of a celt, appears to have been ground and polished at one time, although very little of the polished surface remains. The material is green chlorite schist, which is very soft and not well suited

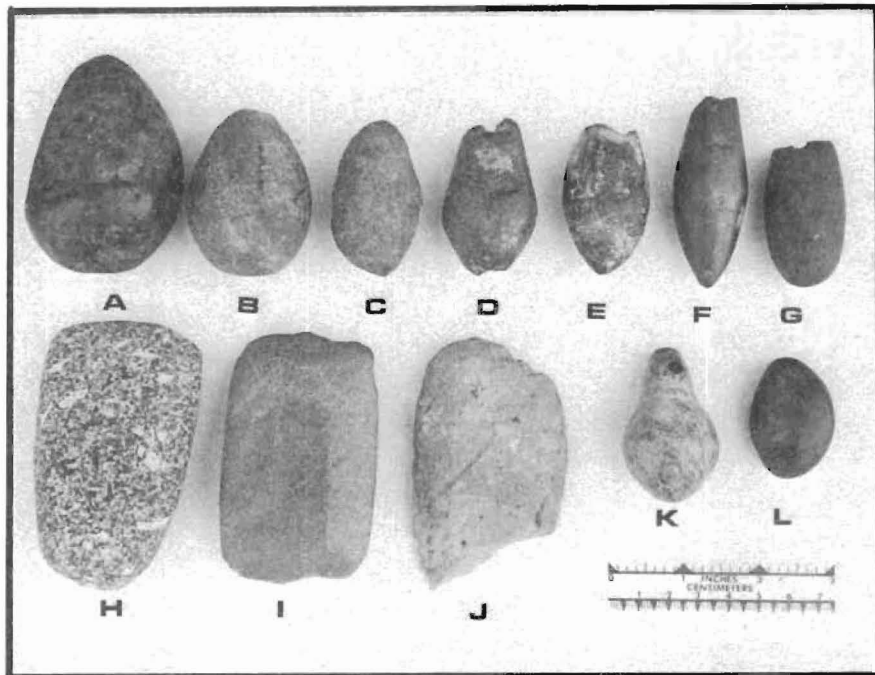


PLATE 10

PLUMMETS AND CELTS. A, hematite plummet blank; B-G, plummets from Teoc Creek Site; H-J, celts from Teoc Creek Site; K, plummet from Neill Site; L, incomplete plummet from Teoc Creek Site (A-F, H, K, and L from the collection of C. G. Bryan).

for use in the form of a celt. Webb discusses this kind of celt as a ceremonial implement (1968:313). Little can be said about the specific activity that damaged this object, but several long grooves appear to have been made by modern agricultural implements. Made of a hard, greenish, fine-grained stone, specimen I is damaged around the poll area, but seems to have been essentially rectangular. A fragment of one other celt, not shown, is made of a type of gray chert native to north Mississippi.

Pitted Stones

Eighteen pitted stones were found, seventeen of them on the surface. Sixteen are bifacially pitted and two are unifacially pitted. The size of the specimens ranges from 75 mm x 55 mm x 25 mm to 125 mm x 100 mm x 55 mm. The pits are up to 35 mm in width and 12 mm in depth. Seventeen of the specimens are hard ferruginous sandstone and one is nonferruginous sandstone. The one specimen not found on the surface was recovered near the west end of the profile trench at a point 3.3 feet (1 m) below the surface in association with another stone of approximately the same size. The other stone, a hard, unpitted sandstone cobble, shows considerable evidence of having been utilized in a grinding process. The two stones were in direct contact when uncovered, with a well-smoothed area of the unpitted one covering the pitted face of the other. The logical conclusion is that they were used together. The depression in the pitted stone is slightly shallower and broader than is commonly seen on objects of this nature.

Abraders

Use grooving is evident on one of the pitted ferruginous sandstones from the surface. Two other abraders were recovered. One, from level 3 of square 0-10E, is a small piece of nonferruginous sandstone, about 18 mm thick and 25 mm in diameter, on which sharpening or use-grooves are seen. The third abrader,

with a single groove, is broken and measures 44 mm x 31 mm x 18 mm. Made of brown sandstone, it was found in Test Pit 3 at a depth of 30 - 36 inches (76.20 - 91.44 cm).

Ground Quartzite Pebbles

Two of these objects, appearing in the surface collections, are naturally flattened pebbles which have been ground along the edges. This type of material was frequently used for making bannerstones, and these two could have been preforms for such a purpose. Both are rather small, however, measuring 65 mm x 49 mm x 22 mm and 48 mm x 40 mm x 25 mm.

Sandstone Slabs

Seventeen thin ferruginous sandstone slabs with evidence of artificial smoothing were recovered. Fourteen of these were surface finds, and three were excavated from squares O-CL, O-10E, and O-10W in level 1. Five are smoothed around the edges in varying degrees. One with a well-rounded edge was evidently used as a saw. An experiment conducted by McGahey indicates that sawing limonite will leave such an edge after a few minutes of work. On another, smoothing was evident completely around the periphery. Possibly, these slabs were used for smoothing and sawing in connection with the gorget and plummet industries or in making bone or antler tools. Thickness of these items ranges from 4 mm to 25 mm.

Miscellaneous Ground Stone

Three items in this category were found on the surface. One, a large oval object of unidentified material, is possibly a blank for a celt or adz. It is chipped, with some polish evident, and measures 135 mm x 65 mm x 32 mm. Two fragments of polished problematical objects were found. The light-colored claystone object with one smoothed and polished surface may be part of an unfinished tablet or gorget. The other object is granite, with one slightly curving, very smooth surface. It is possibly a bannerstone fragment.

Discussion

Most of the ground stone items, including all of the celts, plummets, gorgets, and the bead, are surface finds. The bead, the gorgets, and all but two of the plummets were apparently found within a fairly restricted area of the site. One plummet, the bead, and two gorget fragments were found by Connaway and McGahey during the 1970 excavation between the excavation area and the northern end of the surface midden arc. One of the gorget fragments was located immediately north of the excavation and the other three items were approximately halfway between this point and the north end of the midden. According to C. G. Bryan, collector of all but one of the remaining gorgets and all of the other plummets considered in this paper, five of the seven plummets found by him came from very near the same spot as the one found by the Archives and History team. The gorgets which he collected were all located in a fairly restricted area immediately to the northwest of the excavation area. This apparent patterning of artifact distribution suggests that specific areas of the site were set aside for specialized activities, contrary to a previous conclusion regarding domestic activities (see p. 25).

Miscellaneous

Clay Pipe Fragments

The surface collection includes two fragments of tubular clay pipes, one a stem and the other part of a midsection. As far as can be determined, considering the fragmentary nature of these pipes, they do not differ significantly from the tubular pipes at Jaketown (Ford, Phillips, and Haag 1955:101).

Hard Fired Clay

Twelve small lumps of very hard fired clay that were recovered are considerably harder than any of the other baked clay objects on the site. Red, with small whitish inclusions and some small fiber imprints, they varied in size up to 30 mm in diameter and 15 mm in thickness. All were found in

five of the six squares of the 1970 excavation. Ten were found in level 1, one in level 2, and one in level 6.

Small Clay Objects

Five small clay objects were excavated. Three of these, which are cylindrical and 9 mm, 10 mm, and 12 mm in diameter, are possibly mud which was in the hollow of cane that burned. Ford and Webb describe similar objects from the Poverty Point Site (1956:104). Another small clay object, apparently circular, was broken in half and has one concave and one convex surface. It is 10 mm thick and 20 mm in diameter. One additional clay object, a small clay ball 15 mm in diameter, was found in level 2 of square 10S-10E.

Hammerstones

Five hammerstones were found. The four surface finds were of hard sandstone, granite, and local chert. A fifth specimen from level 1 is of local chert.

Poverty Point Objects

Nine types of baked Poverty Point objects have been identified from the Teoc Creek Site: biconical plain, biconical extruded, biconical punched, cylindrical grooved, spheroidal, cross-grooved, melon-shaped plain, biscuit-shaped, and conical extruded. The total collection from the site includes 84 whole objects, 183 identifiable fragments, and a large number of fragments which could not be classified, for a total weight of approximately 8,966.4 grams, or close to 20 pounds. Color is usually a light orange, but may range through buff, brown, or light gray. The paste is homogeneous clay with varying amounts of fine sand, similar to that at Jaketown. No perforated clay balls have been found on the site. The classification of Poverty Point objects has been presented in previous publications (Ford and Webb 1956; Ford, Phillips, and Haag 1955), and since most such objects found at Teoc Creek fall into the categories

already established, no further descriptions are necessary, here other than mention of those characteristics peculiar to the objects from this site. The inventory of complete objects and identifiable fragments is broken down by type and level in Table 7.

Biconical Plain

Forty-six biconical plain objects were measured with the following results: average weight, 59.27 grams; average length, 4.71 cm; length range 3.5 - 6.6 cm; average diameter, 5.04 cm; diameter range, 3.9 - 6.6 cm. By comparison, the average weight of biconical plain objects at the Poverty Point Site is 51.6 grams (Webb, Ford, and Gagliano 1971). Two typical Teoc Creek examples are pictured in Plate 11 C, D. This type was predominant at the site, comprising approximately 57.1% of the whole objects and 85.8% of the classifiable fragments. Two exceptionally small specimens found in the surface collection measured 3.7 cm in length by 3.7 cm in diameter, and 2.4 cm in length by 2.7 cm in diameter. These measurements were not included in the averages for the collection. The smaller, unbroken one weighed only 14 grams. Feature 1 contained unusually large specimens, including one biconical plain object weighing 99 grams and measuring 6.6 cm in length by 3.5 cm in diameter--somewhat larger than the average. The first three columns of Table 7 present the number of biconical plain objects and fragments according to vertical level. It should be noted that the only two identifiable fragments from the deep midden were biconical plain and that this type was found in all levels of the excavation.

Biconical Extruded

Nine examples of biconical extruded objects were measured, giving the following results: average weight, 49.5 grams; average length, 5.16 cm; length range, 4.2 - 5.6 cm; average diameter, 4.76 cm; diameter range, 4.3 - 5.4 cm.

This type comprised about 10.7% of the whole objects and 6.0% of the identifiable fragments. The number of biconical extruded objects found in each level is shown in columns 4 and 5 of Table 7. Two typical examples are pictured in Plate 11 G-H.

Biconical Punched

Three biconical punched specimens were recovered. Their measurements are: average weight, 47.16 grams; average length 4.5 cm; length range, 4.4 - 4.6 cm; average diameter, 4.86 cm; diameter range, 4.4 - 5.4 cm. This group made up approximately 3.6% of the whole objects; no fragments were identified. Two of these objects are pictured in Plate 11 I-J, and their distribution by level is given in Table 7, column 14.

Cylindrical Grooved

Nine examples of cylindrical grooved objects gave the following measurements: average weight, 85.9 grams; average length, 5.8 cm; length range, 4.6 - 8.6 cm; average diameter, 4.3 cm; diameter range, 3.5 - 5.9 cm. This group comprised about 10.7% of the whole objects, and 1.6% of the identifiable fragments. Most of these objects were found in Features 1 and 2. As seen in Plate 11 A, B, those in Feature 1 were generally much larger, a difference which may have resulted simply from the personal preference of the maker. The average weight of the objects in Feature 1 (115.2 grams) was slightly more than twice that of the Feature 2 objects (56.6 grams). These weights may be compared with the average weight of 76.5 grams for this type at the Poverty Point Site (Webb, Ford, and Gagliano 1971). No specimens of this type were found below level 1 (Table 7, columns 6, 7).

Spheroidal

Only six complete spheroidal specimens were found, yielding the following measurements: average weight, 49.52 grams; average diameter, 4.23 cm; diameter range, 4.3 - 4.6 cm. This group comprised 7.1% of the whole objects and 5.5% of the identifiable fragments. Samples of this type were found in levels 1 through 6 and on the surface (Table 7, columns 8, 9). See Plate 11 E-F for two typical examples.

Cross-Grooved

One complete cross-grooved object was found on the surface in 1966, but has since been lost and no measurements are available. One identifiable fragment was found in the spoil bank near the east end of the profile trench.

Melon-shaped Plain or Ellipsoidal

This type is designated as plain because it is smoothed and does not have the grooves that are usually found on melon-shaped varieties. The objects are slightly elongated ovals (Plate 11 K). Two examples were measured with the following results: average weight, 35.3 grams; average length, 5.3 cm; length range, 4.7 - 5.9 cm; average diameter, 3.2 cm; diameter range, 3.1 - 3.3 cm. Found in Feature 2 (Table 7, column 15), they make up about 2.4% of all whole objects found.

Biscuit-shaped

Measurements of the two biscuit-shaped objects found were: average weight, 28.3 grams; thickness (of both specimens), 2 cm; average diameter, 4.75 cm; diameter range, 4 - 5.5 cm. These are small in comparison with biscuit-shaped objects elsewhere. At the Poverty Point and Claiborne sites, where most were 5 - 9 cm in diameter and 2 - 4 cm thick, less than one-fifth were as small as the objects found at Teoc Creek. The two Teoc Creek objects comprise about 2.4% of the collection of whole objects. One is pictured in Plate

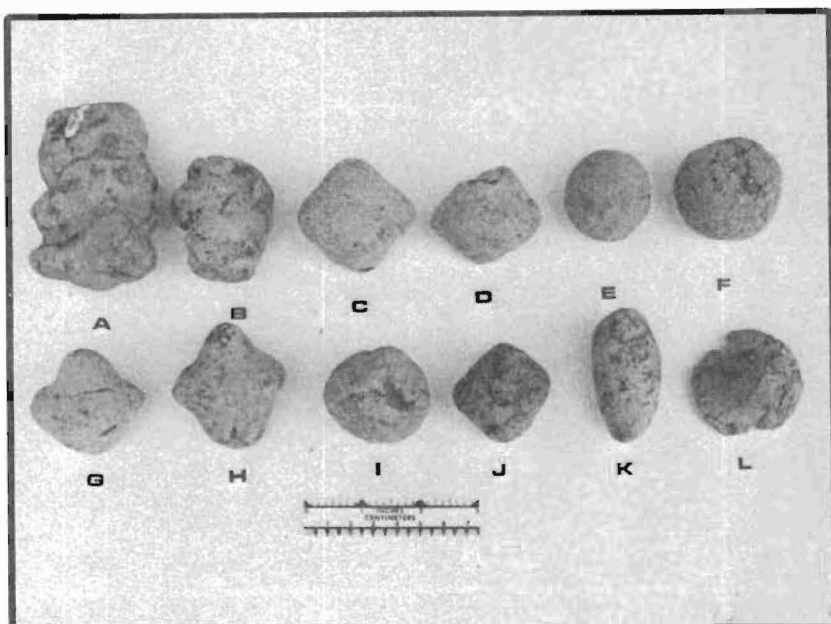


PLATE 11

TYPES OF POVERTY POINT OBJECTS FROM TEOC CREEK SITE. A-B, cylindrical grooved; C-D, biconical plain; E-F, spheroidal; G-H, biconical extruded; I-J, biconical punched; K, melon-shaped plain or ellipsoidal; L, biscuit-shaped.

	Biconical Plain	Small Biconical Plain	Biconical Plain fragments	Biconical Extruded	Biconical Extruded fragments	Cylindrical Grooved	Cylindrical Grooved fragments	Spheroidal	Spheroidal fragments	Cross-Grooved	Cross-Grooved fragments	Amorphous	Amorphous fragments	Biconical Punched	Melon-shaped Plain	Biscuit-shaped	Conical Extruded
Surface	4	2	6	2	2	1	1	1	1	1	1						
Level 1 0.8-1' (24.38-30.48cm)	8		48	3	4			1	1			1		1		1	
Level 2 1-1.4' (30.48-42.67cm)	3		16		3			1	1								
Level 3 1.4-1.8' (42.67-54.86cm)	3		19		1			2	2					1			
Level 4 1.8-2.2' (54.86-67.60cm)			30					1	1			1					
Level 5 2.2-2.6' (67.60-79.25 cm)	1		12					2	1							1	1
Level 6 2.6-3' (79.25-91.44cm)	1		4						2								
Level 8 3.4-3.8' (103.63-115.82cm)	1		3														
Deep Midden 8.2-9.2' (249.93-280.42cm)			2														
Test Pit 4 1-1.5' (30.48-45.72cm)			3										1				
Feature 1 Level 1	1					5	2										

TABLE 7. DISTRIBUTION OF POVERTY POINT OBJECT TYPES BY LEVEL (cont. on next page)

11 L, and their distribution by level is given in Table 7, column 16. No fragments of this type could be identified.

Conical Extruded

This unusual type, flattened on one end, is shaped like an extruded cone on the other end. The appearance is much like a regular biconical extruded type which has been cut in half. The single example weighs 70.7 grams, is 4.6 cm in length, and is 4.9 cm in diameter. Its location by level is shown in Table 7, column 17. It represents about 1.2% of the total number of whole objects.

Amorphous

Three amorphous objects, with an average weight of 35.2 grams, represent about 3.6% of the whole objects recovered from the excavation. Their distribution by level is given in Table 7, column 12. Column 13 shows the location of one fragment of this type, about 0.55% of all fragments identified.

Discussion

The horizontal and vertical distribution and clustering of Poverty Point objects and their associations with hearths and other features have been discussed in previous sections. The data derived from excavations at Teoc Creek tend to support those theories about the function of Poverty Point objects set forth in other publications. The sample from this site, however, is as yet comparatively small, and definite conclusions cannot be made until further supporting evidence has been collected from more extensive excavations.

Basketry-Impressed Baked Clay Objects

The most unusual type of artifact discovered during the 1970 excavation was the baked clay object with basketry impressions around the exterior surface. Although no complete examples were found, fifty fragments of various sizes were recovered, including five from a surface collection on the nearby Neill Site. Forty-three of these were collected from the excavation, including four from

level 1, one from level 2, six from level 3, ten from level 4, fourteen from level 5, and eight from level 6. The remaining two came from an unknown level in the profile trench and were recovered from the spoil bank.

In general, these objects are cylindrical to slightly cone-shaped, the flattened bottom with rounded edges being slightly larger in circumference than the top. Many exhibit a perforation, extending from the flattened top down through a portion of the object, but evidently never completely penetrating it. The basketry impressions cover the sides and bottom. Coloring is usually buff to light orange, and the interiors are generally homogeneous, although dark or black portions occasionally appear. Most examples are much harder than Poverty Point objects, possibly a result of hotter firing temperatures and/or the lack of sand in the clay.

This type of object appears to have been constructed by first making a small basket of split cane, then pressing it full of clay, adding a central perforation, and firing it to a brick hardness. It was then ready for whatever use was intended. There is a certain amount of variation in the several attributes of construction, perhaps due to physical or preferential differences among the individuals who made them. Each of these attributes will be discussed separately in order to present a more detailed picture of the artifact type.

Thirteen specimens exhibited a perforation, although in no case was the penetration complete. In the nine instances where measurements could be taken, three were in the longitudinal center of the object and six were noticeably located to one side. One example shows a definite, blunt, U-shaped termination of the hole within the object (Plate 12 A). The type of instrument used for making the perforation is not known, but some appear to have been made with a finger or other smooth object, while others are striated, as if a stick or

other rough-surfaced object were used. In one example, the opening is slightly flared and smoothed outward, as might have been the case in using a finger. Some of the perforations are very slightly tapered, with the larger end at the opening. Table 8 gives the average and range of the approximate diameters of these perforations.

The tops of the objects tend to be flattened, probably a result of pressing the clay into the basket. One example (Plate 12 B) shows three finger impressions, all of which were made by pressing the right side of a finger, probably on the right hand, into the clay. The finger was relatively small, the two end segments measuring only about 4 cm in length, and was probably that of a woman or child. One other example of an upper surface exhibits no finger impressions, but is roughened and flat.

As mentioned previously, the shape of the objects varies from cylindrical to slightly conical. The most complete example (about one-third was recovered) shows increased diameter contraction toward the top (Plate 12 C), which is rounded. The base is flattened. This specimen is somewhat smaller than some other examples, being only 70 mm in diameter, but it presents a general idea of the shape involved and is the only one in which the length could be measured (73 mm). There was no perforation present and many of the weave impressions had been eroded away, probably because of the object's unusually sandy texture. The average and range of approximate reconstructed diameters of eighteen measurable specimens are given in Table 8.

Six basal fragments were collected. The two in best condition have been used to illustrate the characteristics of the bases (Plate 12 D-E). In these examples, it was found that small round fibers, averaging approximately 0.5 mm in diameter, were placed in the bottom of the baskets and subsequently became pressed into the clay. As seen clearly in the photograph, these impressions are restricted to the bottom and are always between the clay and the basket

covering. In no instance were the fibers found to be mixed with the clay as a tempering material. The lack of any evidence of perforation on these basal portions added to the impression that the central hole only partially penetrated the object. All examples were flat with rounded edges.

The weave used in making the baskets is commonly called plaiting. In this form the weft strands were pushed together until they touched, while the warp strands were separated. This is true of all measurable examples found at the Teoc Creek and Neill sites. Since strips of split cane were evidently used for this work, the separation of warp bands was probably due to the rigidity of the material. This is likewise a probable factor in the preference of thin, narrow cane strips, since the small size of the baskets involved the use of very flexible material. The average and range of width of weft fibers and distance between warp fibers are given in Table 8. In most examples, the impressions exhibit striations, indicating that the outer layer of the cane was split off and the flat strips remaining were used, or that the flat side of the outer strip was facing the inside of the basket. Rarely could the smooth outer cover-

	average in millimeters	range in millimeters
approximate reconstructed diameter of objects (17 specimens Teoc, 1 Neill)	80.50	50-110
width of weft strands (36 specimens Teoc, 3 Neill)	4.34	3-7
distance between warp strands (21 specimens Teoc, 1 Neill)	7.47	2-11
approximate diameter of perforation (11 specimens Teoc, 1 Neill)	13.00	10-16

TABLE 8. BASKETRY-IMPRESSED BAKED CLAY OBJECT METRIC DATA

ing be seen in the weave impressions. Only one specimen exhibited the use of double strands of cane in the warp.

Two varieties of weave, shown in Plate 12, were noticed. In style 1, the warp is perpendicular to the weft; in style 2, the warp is diagonal to the weft. Of twenty-six measurable examples, half showed style 1 and half showed style 2 weaving. Style 2 may simply be a result of twisting the basket, perhaps in an effort to compress the clay inside. It was noted, however, that the direction of this possible twist was always the same, the warp leaning to the left. In the ten samples measured with style 2 weaving, the small angle formed by the warp and the weft ranged from 7° to 26° . In Plate 12, examples F-I and K are of style 2 weave, while J is of style 1.

Basketry-impressed baked clay objects have been found at other sites in Mississippi, at Poverty Point in Louisiana, and in California, but the similarity ends with the impressions. In what is considered to be a pre-Poverty-Point horizon at the Denton Site in Quitman County, Mississippi, flat fragments of fired clay objects with basket impressions on one side were found by Connaway (1976). The type of weave is the same, but the impressions appear to have been made by a mat on a flat surface. One example that shows a reverse side is slightly over 3 cm thick, more like a fragment of a hearth than a hand-shaped object. Heizer (1937:40) reported in American Antiquity the discovery of pentagonal objects from California. These, however, were pressed against a flat piece of basketry made by the coiling and open-work twining methods. Webb (1968:308) reports basketry impressions on clay loading in the Motley Mound and on baked clay balls at Poverty Point and other sites. As far as is known at present, no objects have been found elsewhere that are comparable to these at the Teoc Creek and Neill sites.

The function of this artifact is not known. It has been suggested that they were made and used by women, possibly in some aspect of cooking or

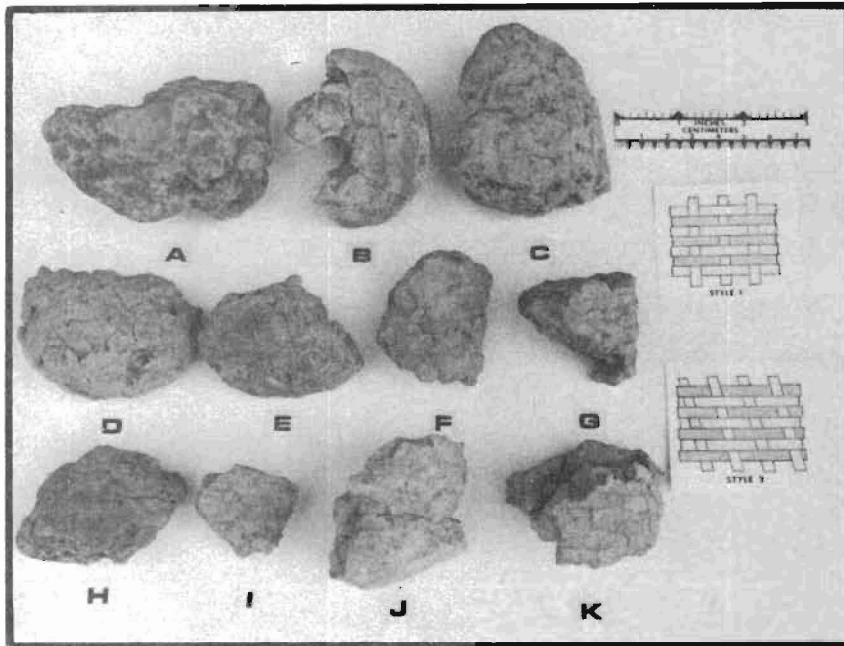


PLATE 12

BASKETRY-IMPRESSED BAKED CLAY OBJECTS. A, object showing definite termination of perforation; B, object with finger impressions; C, cone-shaped object; D-E, basal portion fragments with round fiber impressions; F-I, K, fragments with style 2 weave; J, fragment with style 1 weave.

weaving, but any conclusions at this point would simply be conjecture. They were found in all levels of the excavation and on the surface at the Neill Site, and may yet be discovered at other sites of this period. There is no noticeable change through time associated with these objects other than the fact that the largest concentration of fragments appeared in levels 4 and 5. However, the small size of the excavation area, the small number of specimens recovered, and their fragmentary nature must all be considered.

Pottery and Stone Vessels

Pottery and stone vessels are represented in the Teoc Creek collections by 211 ceramic sherds and 10 stone bowl sherds. Eleven of the potsherds and four of the stone bowl fragments were found in the course of the excavation, the remainder on the surface. The collection of ceramics includes every fragment of pottery large enough to be recognized as such. The small size of the specimens and frequent erosion made identification of surface treatment difficult.

Potsherds

Sand-tempered sherds: 91. A cord-marked sherd was found in the first six inches of Test Pit 4, and four plain ones came from the 0-to-12-inch (0-30.48-cm) level in Test Pit 5. All others are from the surface. Six of the examples are cord-marked, two are red-filmed, one is fabric-impressed, and the remainder are either plain or eroded to a point that identification of surface treatment is impossible.

These very sandy-textured sherds are mostly light orange or buff-colored. Thickness averages 6.1 mm, ranging from 3 mm to 10 mm. In addition to the sand, an occasional lump of clay or piece of sherd is included in the paste. In paste characteristics, this group of sherds most closely resembles that of Baytown Plain, var. Thomas (Phillips 1970:54). Based on the generally accepted association of sherds like these with later cultures and the fact that

none of them were found sufficiently deep within the excavation to preclude a shift by modern plowing, it seems safe to conclude that they are not a part of the Poverty Point complex at Teoc Creek.

Clay-tempered sherds: 70. Three of these, all plain, are from Test Pit 5, 0 to 12 inches (0 - 30.48 cm). The remainder are surface specimens. Three are cord-marked and one may be fabric-impressed. The others, as is the case with the sand-tempered pottery, are either plain or are too eroded for identification of surface treatment.

The clay-tempered material resembles the sand-tempered pottery in color. The sherds average 6.5 mm in thickness and vary from 4 mm to 10 mm. Included along with the clay tempering particles are occasional sand grains. Although classification cannot be too specific, the three cord-marked sherds seem to be Mulberry Creek Cord-marked (Phillips, Ford, and Griffin 1951:82). The paste characteristics of this category tend to fit those of Baytown as it is broadly defined by Phillips, Ford, and Griffin (1951:76-77). For the reasons mentioned above, it seems unlikely that these sherds belong with the Poverty Point complex.

Fiber-tempered sherds: 43. Of these, two were found in a subsoiler furrow in level 1 of square 0-CL, a third is from the profile trench spoil bank near the east end, and a fourth is from a depth of 2 feet in a pit dug for the collection of thermoluminescence-dating samples. It should be pointed out that this pit was small and was dug in large shovelfulls for the express purpose of recovering numerous samples of fired clay in a short period of time. Although the exact position of this sherd was recorded and it appeared to be in homogeneous midden, this does not eliminate the possibility that aboriginal disturbance may have caused a vertical shift in its position and that such a disturbance could have gone unnoticed by the excavator. The other sherds in this collection were found on the surface.

Most of the fiber-tempered material is orange or buff-colored and, in addition to small round casts left by the fibers, includes considerable sand. The average thickness is 9.7 mm, with a range of 5 - 16 mm. Six and possibly seven punctated sherds are apparently of the type Wheeler Punctated (Sears and Griffin 1950). The punctations are random, U-shaped, about 3 mm across, and 1 - 2 mm deep. One sherd is either brushed or incised and the remainder are plain or eroded.

The position of this fiber-tempered pottery in relation to the Poverty Point complex is uncertain. The two sherds in level 1 of square 0-CL were probably there as a result of modern plowing, but the sherd encountered at a depth of 2 feet would seem to be out of range of modern disturbance. We would not assign fiber-tempered pottery to the Poverty Point complex at this site on the basis of a single sherd, but the possibility must be kept open for at least the terminal stage of occupation.

Stone Vessel Sherds

Five steatite and five sandstone bowl fragments constitute the stone bowl collection. Two of the sandstone sherds were found in level 1 of square 0-10E and another in Test Pit 4 in the 12-18-inch (30.48-45.72-cm) level. One steatite sherd was found in level 4 of square 10S-10E. The sandstone bowl sherds are coarse grained and gray or white. They range in thickness from 11 mm to 20 mm, and the steatite sherds range from 12 mm to 20 mm. One steatite rim sherd with 70 mm of rim intact seems to have been part of a large vessel, approximately 50 cm in diameter.

Two of the stone vessel fragments, the one in Test Pit 4 and the one in level 4, square 10S-10E, were probably deep enough to have escaped modern disturbance. These two sherds constitute only a small collection, but it should be remembered that not many of them appear in the large surface collection. It seems probable that stone bowls were part of the complex.

GEOLOGICAL ANALYSIS

by Roger T. Saucier

Introduction

Lower Mississippi Valley area archaeological site reports of the last two or three decades traditionally have contained a chapter or section on the geologic history or the geologic setting of the site. Reflecting the popularity and wide acceptance of the pioneer work in alluvial geology by H. N. Fisk, nearly every report attempts to relate the site to one or more of the abandoned river channels or meander belts recognized by Fisk and portrayed so graphically by him (1944). The ultimate goal of each of these attempts, of course, has been to call upon the geologic history and chronology of river changes for an indication of either the relative or absolute age of the site. But unfortunately, the age suggested by the geologic evidence has disagreed all too frequently with the age suggested by the archaeological evidence or radiocarbon dating.

In present perspective, it appears that Fisk unwittingly misled the great majority of his readers into believing that his numbered and lettered river channels represented finite periods documented or supported by absolute age determinations. Regrettably, this was not the case and largely is still not the case. Valid relative-age determinations and conclusions, however, can and should be drawn from the huge volume of information contained in his works.

Recent studies by the writer (Saucier 1971) have made it painfully apparent that we are still a long way from developing an absolute chronology of Mississippi River activity and history. It is also apparent that archaeological evidence will probably contribute more than geological evidence in making such a chronology possible. Consequently, until we know a great deal more than we do now about the geologic history of the Mississippi Valley, a different approach to discussions such as this one is strongly advocated. In effect, the particular situation should be analyzed and a reconstruction of events formulated from observable facts. The relationship between the local situation and the regional picture is necessarily of secondary importance and is approached with caution. To promote a better understanding of the basic relationships between prehistoric man and the dynamic physical environment in which he lived, considerable attention is devoted to paleogeographic reconstruction. For example, subsequent chronological studies can be greatly simplified if it can be established whether or not prehistoric occupancy followed discernible patterns during cycles of river meander belt growth and decay.

Site Evidence and Investigations

The stratigraphy of the Teoc Creek Site itself contains perhaps the most diagnostic evidence that must be considered in an interpretation of the physiographic setting as it existed before, during, and after site occupation. As pointed out earlier, borings, test pits, and trenches revealed that a major episode of natural levee formation occurred at the site during the period of human occupancy. Since this is an unusual occurrence in Lower Mississippi Valley archaeology, particular attention was focused on this aspect.

Through the cooperation of the Mississippi Geological Survey, the writer was afforded an opportunity in April, 1971, to make a boring (Fig. 1) through the site to a depth of 28 feet and to examine the samples. To a depth of about 13 feet (3.96 m), the boring encountered well-oxidized sandy silt and silty

sand with several zones of well-developed midden almost identical to the sequence shown in Traverse 2 and the profile trench (Fig. 2). Based on prior knowledge of the area and observed characteristics of the sediments carried and deposited by various streams, it was concluded that these sandy sediments represent natural levee deposits of the Yalobusha and Tallahatchie Rivers. The sediments of these streams are distinctly courser-grained than those of the Mississippi River but finer-grained than those of streams like Teoc Creek.

From a depth of 13 - 20 feet (3.96 - 6.10 m), the 1971 boring encountered well-oxidized, plastic, silty to sandy clay. This is the same clay horizon that was encountered by the borings shown in Figure 2 immediately below the deepest midden horizon. All observations indicate that the contact between the midden and the clay horizon marks a soil or weathered zone developed on the land surface on which initial occupation took place. Geological evidence indicates that the land surface and underlying clayey sediments represent a natural levee formed by the Mississippi River.

Below a depth of 20 feet (6.10 m), the sediments were found to consist of heavily oxidized sandy clay that becomes progressively sandier with depth. This material is interpreted to be glacial outwash laid down by braided streams long before the Mississippi River began meandering and forming meander belt ridges.

Because of the apparent close relationship between the Teoc Creek Site and the Neill Site located about 1.5 miles (2.41 km) to the west, a boring was also made at the latter site by the Mississippi Geological Survey in April, 1971. Although drilling difficulties left some uncertainty in identification and interpretation of the deposits, it appears that initial occupation of the Neill Site is represented by a midden accumulation located at a depth of 7 - 8 feet (2.13 - 2.44 m) below the highest part of the site. This midden is located

directly on Mississippi River natural levee deposits (oxidized silty and sandy clay) and is overlain by natural levee deposits of the Yalobusha-Tallahatchie River (oxidized silty sand and sandy silt). As at the Teoc Creek Site, this upper zone of natural levee is interbedded with midden debris, indicating human occupancy coincident with natural levee formation.

These interpretations of the specific origins and modes of deposition of the sediments at the sites are based on the characteristics of the sediments themselves as well as a knowledge of the general sequence of geological events in this part of the Yazoo Basin. To develop a detailed reconstruction of the precise river channel sequence that was responsible for the various sedimentary units, the writer turned to existing geologic maps (Fish 1944; Kolb 35 et al. 1968) and aerial photos and photomosaics of the area. Evaluating the patterns of stream meandering and channel changes apparent on the photos in light of the other geologic and archaeologic evidence, the following interpretation of the geologic history and setting of the sites appears tenable.

Geologic Interpretations

Between 9,000 and 10,000 years ago, the landscape in the vicinity of the Teoc Creek Site was probably that of a flat to slightly undulating, well-drained, sandy plain that sloped gently westward from the base of the uplands just east of the site. The Mississippi River at that time was probably a few miles to the west of the site and occupied a broad, shallow, braided channel. About 9,000 years ago, the character of the river slowly changed from braided to meandering and, during the next 1,000 to 1,500 years, the first major Mississippi River meander belt in this part of the alluvial valley was created. Surviving remnants of this meander belt, designated No. 1, are delineated in Figure 7.

Although this meander belt considerably predates the Teoc Creek Site, it was responsible for a major physiographic change that almost certainly influenced later human occupancy in the area. Specifically, natural levee formation within

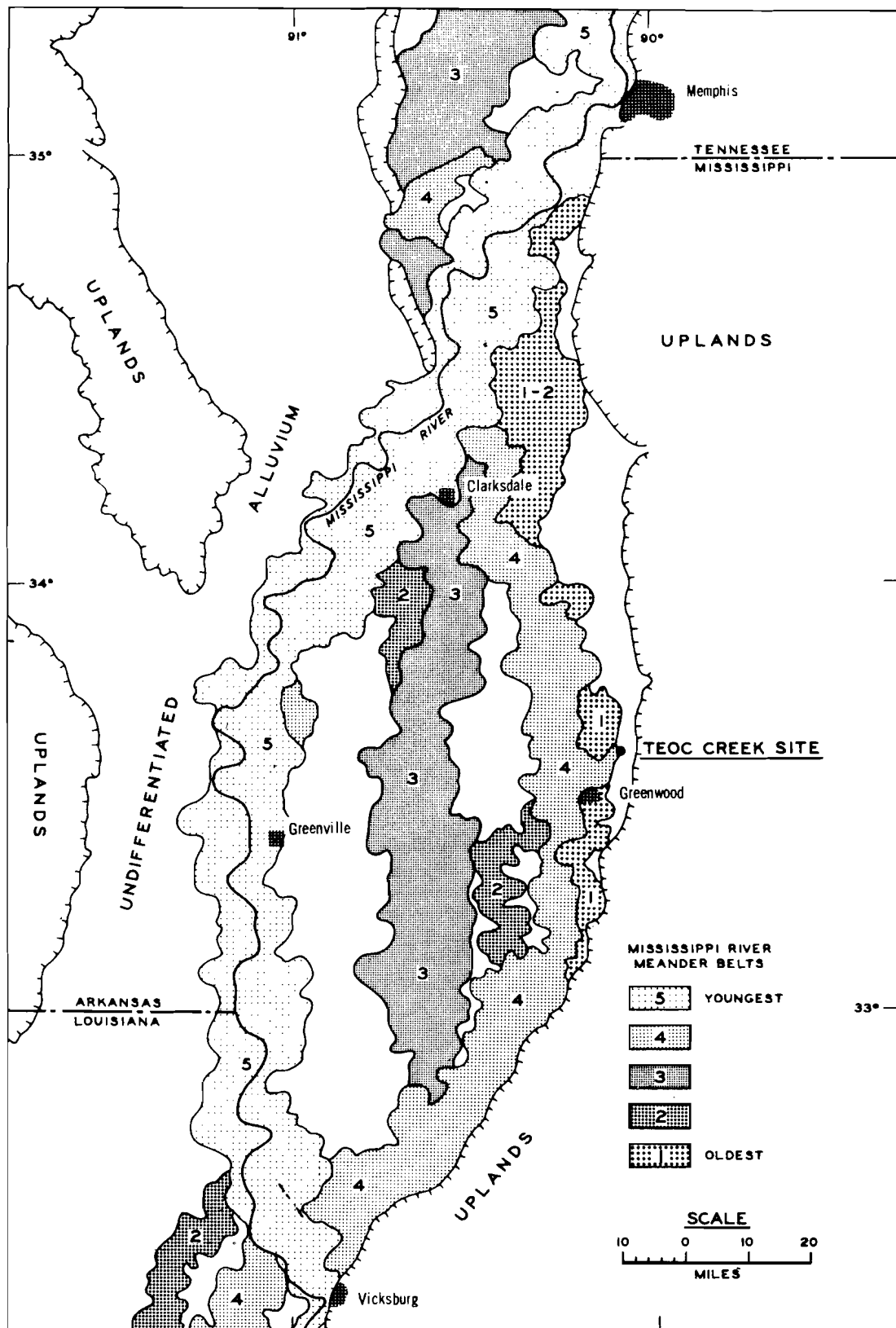


FIG. 7. MISSISSIPPI RIVER MEANDER BELTS.

the meander belt created a broad, low ridge that served to block or impede up-land drainage as it entered the alluvial valley. As a result, a more or less continuous band of swamp, probably with intermittent lakes, formed between the meander belt and the uplands. One need not elaborate on the significance of the swamp in terms of the prehistoric economies.

Another result of the development of this initial meander belt was the formation of a cutoff or abandoned channel of the Mississippi River just north of the position of the Teoc Creek Site. This channel, which subsequently will be referred to as the McIntyre Lake abandoned channel, is shown in Figure 8. It will be shown later how this feature plays an important role in the history of stream channel changes in the area.

About 7,500 years ago, the Mississippi River abandoned meander belt No. 1. During the next 2,500 years, the river developed two more meander belts farther westward (Nos. 2 and 3, Fig. 7). While this was taking place, few if any major physiographic changes should have occurred in the vicinity of the Teoc Creek Site location.

Major changes did occur, however, about 4,800 to 5,000 years ago when the Mississippi River reoccupied the approximate position of the initial meander belt and began forming meander belt No. 4 (Fig. 7). For at least several hundred years after this date, the general Teoc Creek Site area was characterized once again by a meandering Mississippi River channel, rapid natural levee growth, and probable enhancement of the swamp conditions prevailing between the meander belt and the uplands. The paleogeographic setting of the site area a few hundred years or so prior to initial occupation (ca. 4,000 years ago) is interpreted as shown in Figure 8 (Stage A).

To those familiar with the present Mississippi River, it should be immediately apparent that the Stage A river channel as shown in Figure 8 is significantly narrower than the present channel and hence must not represent a

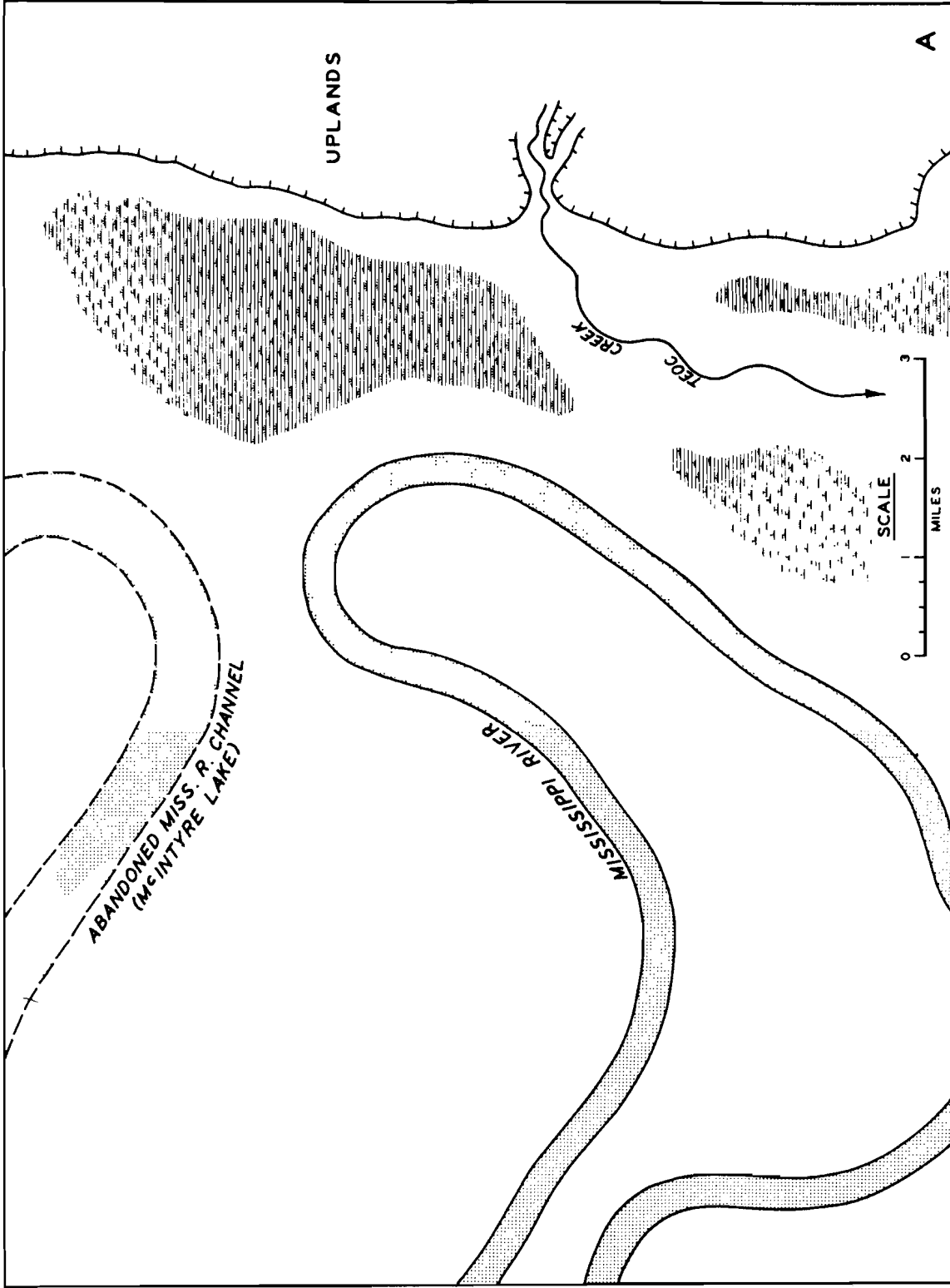


FIG. 8. STREAM CHANNEL CHANGES IN THE TEOC CREEK SITE AREA - STAGE A.

full-river discharge situation. In his 1944 study, Fisk interpreted this channel as being the Ohio River at a time (his Stage H) when the Ohio and Mississippi rivers flowed in separate channels to a point as far south as Vicksburg, Mississippi. This interpretation no longer is considered tenable, however (Saucier 1971). Instead, it is now felt that the channel in the Teoc Creek Site area represents combined flow of the Ohio and Mississippi rivers but flow that was about equally divided, as far as total discharge is concerned, between this channel and another one of similar size located along the general route of the present meander belt (No. 5, Fig. 7). This approximately equal division of discharge apparently lasted for several hundred years before total discharge was eventually diverted into the present meander belt about 2,800 years ago. As will be pointed out later, this diversion may have been significant in terms of the human occupancy of the area.

Certain important stream changes took place following the Stage A situation during the few hundred years leading up to initial site occupation (Stage B, Fig. 9). Perhaps the most important of these was the formation of a cutoff by the Mississippi River. This cutoff has been designated the Palusha Bayou abandoned channel (Fig. 9). Shortly after the cutoff occurred, Teoc Creek abandoned its former southerly course (Fig. 8) and diverted to a course that followed the lower leg of the Palusha Bayou abandoned channel (Fig. 9). It is inferred that this part of the abandoned channel rapidly filled with sediment, reducing the size of the once larger oxbow lake within the abandoned channel to that shown by stippling in Figure 9. It should be kept in mind that this oxbow lake was bounded and retained by the natural levees that had formed along the abandoned channel prior to cutoff.

Also during this period just prior to site occupation, geological evidence indicates that the Yalobusha and Tallahatchie rivers joined about 8 miles (12.87 km) north of the Teoc Creek Site location and flowed in a single channel

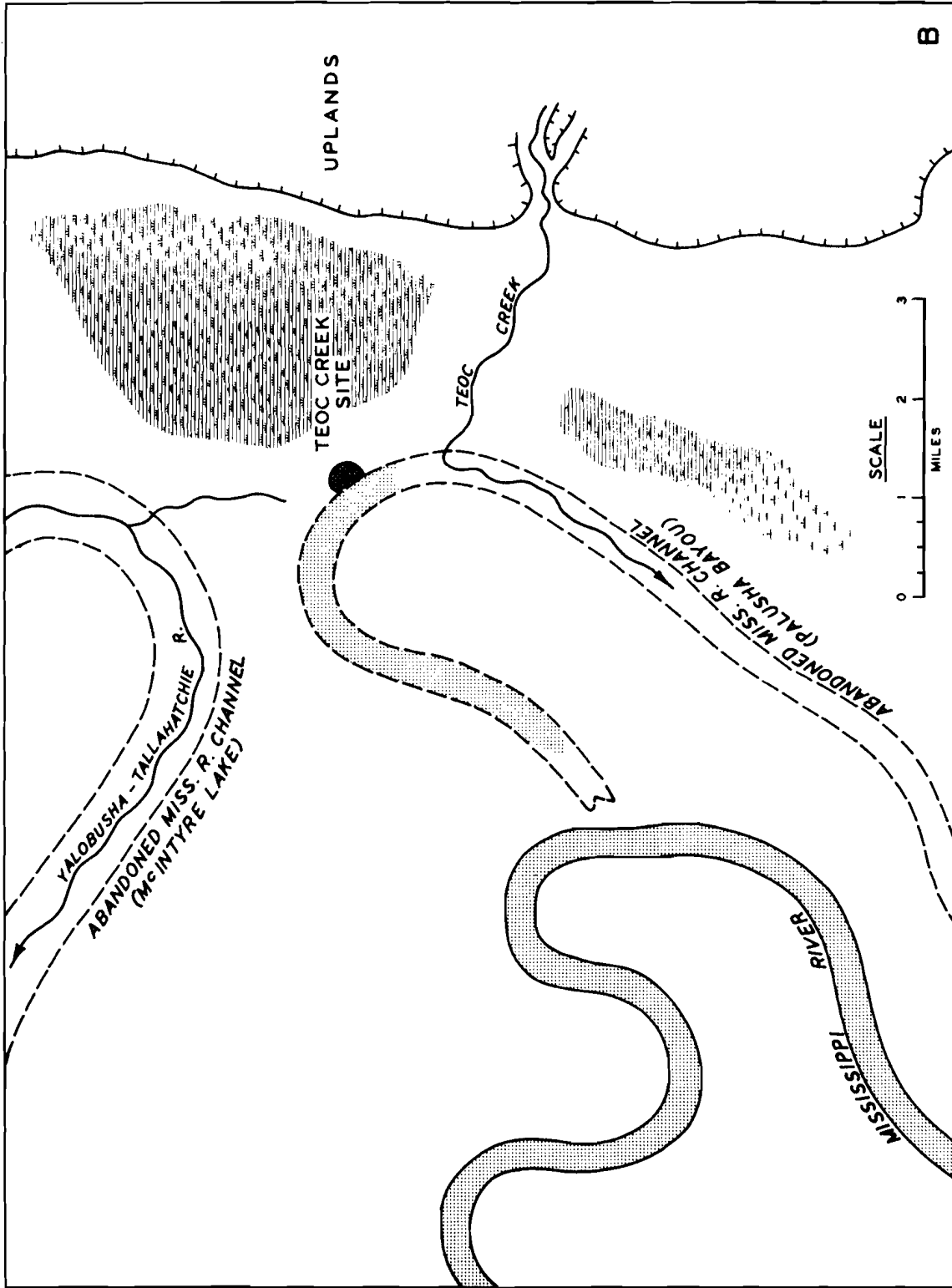


FIG. 9. STREAM CHANNEL CHANGES IN THE TEOC CREEK SITE AREA - STAGE B.

through the lower leg of the McIntyre Lake abandoned channel (Fig. 9). These two streams, flowing from the uplands into the alluvial valley, have had a long history of major course changes brought about by the growth and decay of Mississippi River meander belts. Both are characterized by rather significant loads of suspended sediment; thus natural levees can be rapidly formed, particularly where the two streams combine their flow in a single channel.

In most instances, the precise reasons why prehistoric man chose the specific locations he did for living sites will probably never be known. This is certainly true with regard to the Teoc Creek Site; however, the importance of factors such as the presence of relatively high natural levees overlooking a large body of fresh water, proximity of one or more tracts of swamp with inherently abundant wildlife, relative immunity from flooding, easy access to the main river channel, and easy access to the uplands and its resources cannot be overlooked. But whatever the reasons, the particular choice of a living site and the relationship of this site to the physiographic setting are shown in Figure 9.

Probably only archaeological evidence could ever indicate how long the Stage B setting lasted. This would be represented at the Teoc Creek Site by the duration of occupation of the lower midden, that is, the continuous midden accumulation located directly on the Mississippi River natural levee.

The Stage C setting (Fig. 10) was brought about largely by a change in the course of the Yalobusha-Tallahatchie River. Possibly by way of a minor tributary stream or drainageway that had existed during Stage B (Fig. 9), these rivers diverted southward into the Palusha Bayou abandoned channel directly past the Teoc Creek Site. This marked the beginning of the period of site occupation characterized by active natural levee growth. Along the lower leg of the abandoned channel, an actual relict stream course remains to mark the route of the rivers during this stage. The position of Teoc Creek probably changed little during this time; the stream was now tributary to the

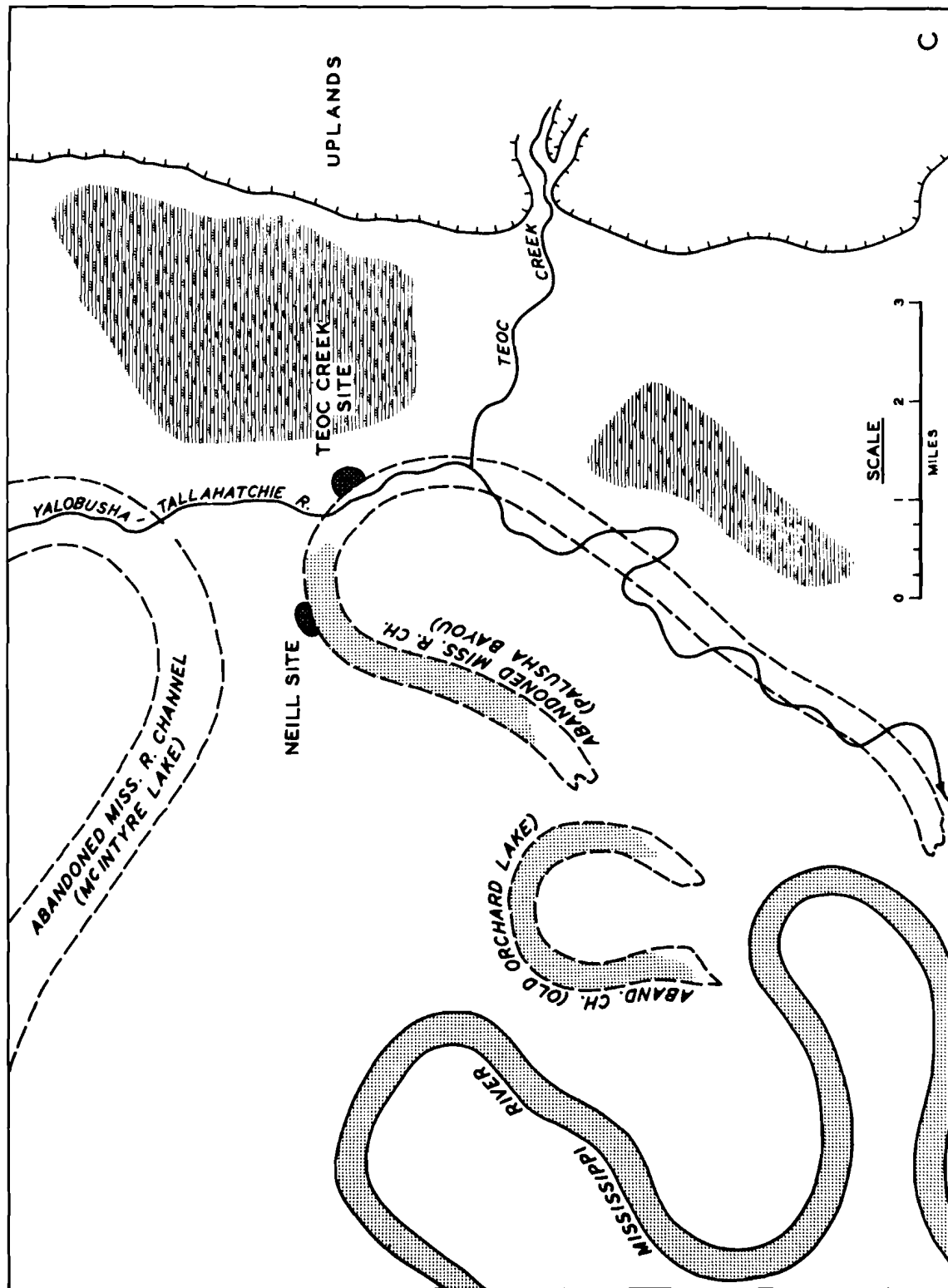


FIG. 10. STREAM CHANNEL CHANGES IN THE TEOC CREEK SITE AREA - STAGE C.

Yalobusha-Tallahatchie River rather than the Palusha Bayou abandoned channel. It is interpreted that a second Mississippi River cutoff also occurred during this stage, resulting in the formation of the Old Orchard Lake abandoned channel (Fig. 10).

The diversion of the Yalobusha-Tallahatchie River past the Teoc Creek Site and the onset of natural levee growth can be interpreted as a deterioration in living conditions at this location. Included in this deterioration would be the filling of the oxbow lake adjacent to the site. Although living conditions may have deteriorated, it is obvious that occupation of the site did not cease. Since the Neill Site area did not experience natural levee growth during Stage C and it is likely that the oxbow lake persisted in this vicinity, it is logical to assume this may have been either the time of initial occupation of the Neill Site or the beginning of a period of more intensive occupation at an existing site. Archaeological evidence suggests that the Neill Site was initially occupied during Stage B and consequently the latter possibility would be more tenable; however, geological evidence slightly favors initial site occupation during Stage C.

The stratigraphy of the Neill Site can be explained by the stream course changes reflected in the Stage D reconstructed setting (Fig. 11). The principal change involves abandonment by the Yalobusha-Tallahatchie River of its course along the lower leg of the Palusha Bayou abandoned channel in favor of one along the upper leg of the abandoned channel. When this occurred, relatively rapid natural levee development took place at the Neill Site just as it had somewhat earlier at the Teoc Creek Site.

It is interpreted that the change in course of the Yalobusha-Tallahatchie River shown in Figure 11 could only have taken place subsequent to the abandonment of the No. 4 Mississippi River meander belt. Thus, at that time (about 2,800 years ago), the river was located in its latest (No. 5) meander belt

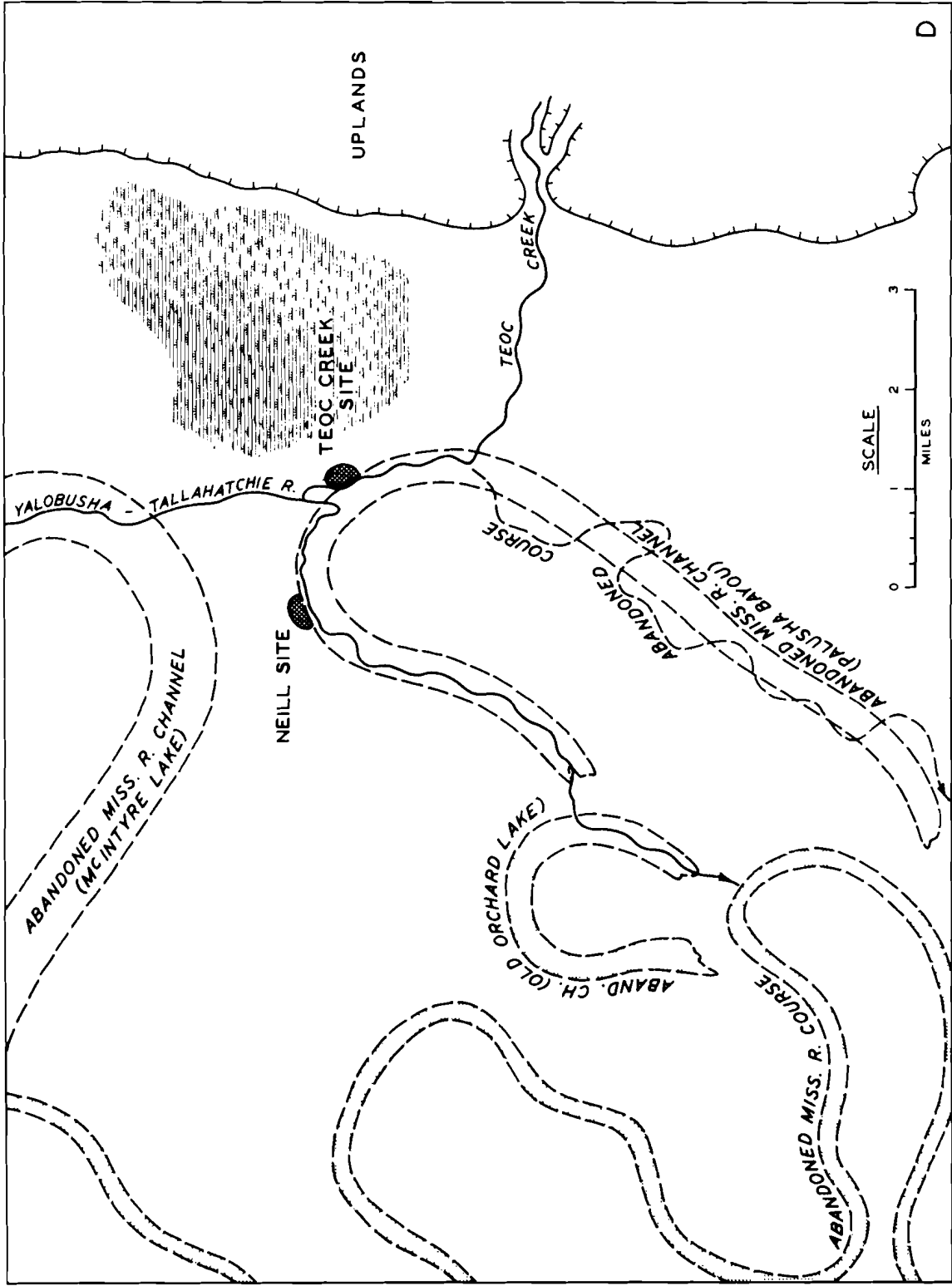


FIG. 11. STREAM CHANNEL CHANGES IN THE TEOC CREEK SITE AREA - STAGE D.

about 60 miles (96.54 km) to the west. It can only be a matter of conjecture whether or not this shift in the course of the Mississippi River was influential in the decline and eventual cessation of occupancy at the Teoc Creek and Neill sites. When one considers the appreciable number of Poverty Point sites that are associated with this meander belt in the alluvial valley and their specific relationships to channels and courses, it becomes apparent that the Mississippi River could have been a major factor in their location and distribution. While most sites are related to cutoffs created by the river while in the No. 4 meander belt, a few are related to the actual main river channel at a time when abandonment was in progress, but none are definitely known to post-date the final stage of abandonment.

Physiographic evidence suggests that the Teoc Creek Site was abandoned about or shortly after the time of the shift of the Yalobusha-Tallahatchie River from the lower to the upper leg of the Palusha Bayou abandoned channel (Fig. 11). This means that occupation of the Neill Site persisted for possibly as long as several hundred years past that of the Teoc Creek Site. During this time, Teoc Creek itself occupied a segment of the abandoned Yalobusha-Tallahatchie River course adjacent to the Teoc Creek Site, but the direction of flow was reversed. Being a meandering stream, Teoc Creek shifted laterally and, in the process of doing so, eroded into and truncated the western side of the Teoc Creek Site. Eventually, Teoc Creek reversed its direction of meandering opposite the site and ceased truncating it, but not before possibly as much as half of the site had been destroyed (see Stage E, Fig. 12). The topography of the Neill Site indicates that no such erosion or truncation occurred at this location; hence, the site remains intact.

As indicated in the Stage E or present setting (Fig. 12), few major stream changes have taken place since termination of Poverty Point occupation at the sites. Probably no later than 2,000 years ago, the Tallahatchie River

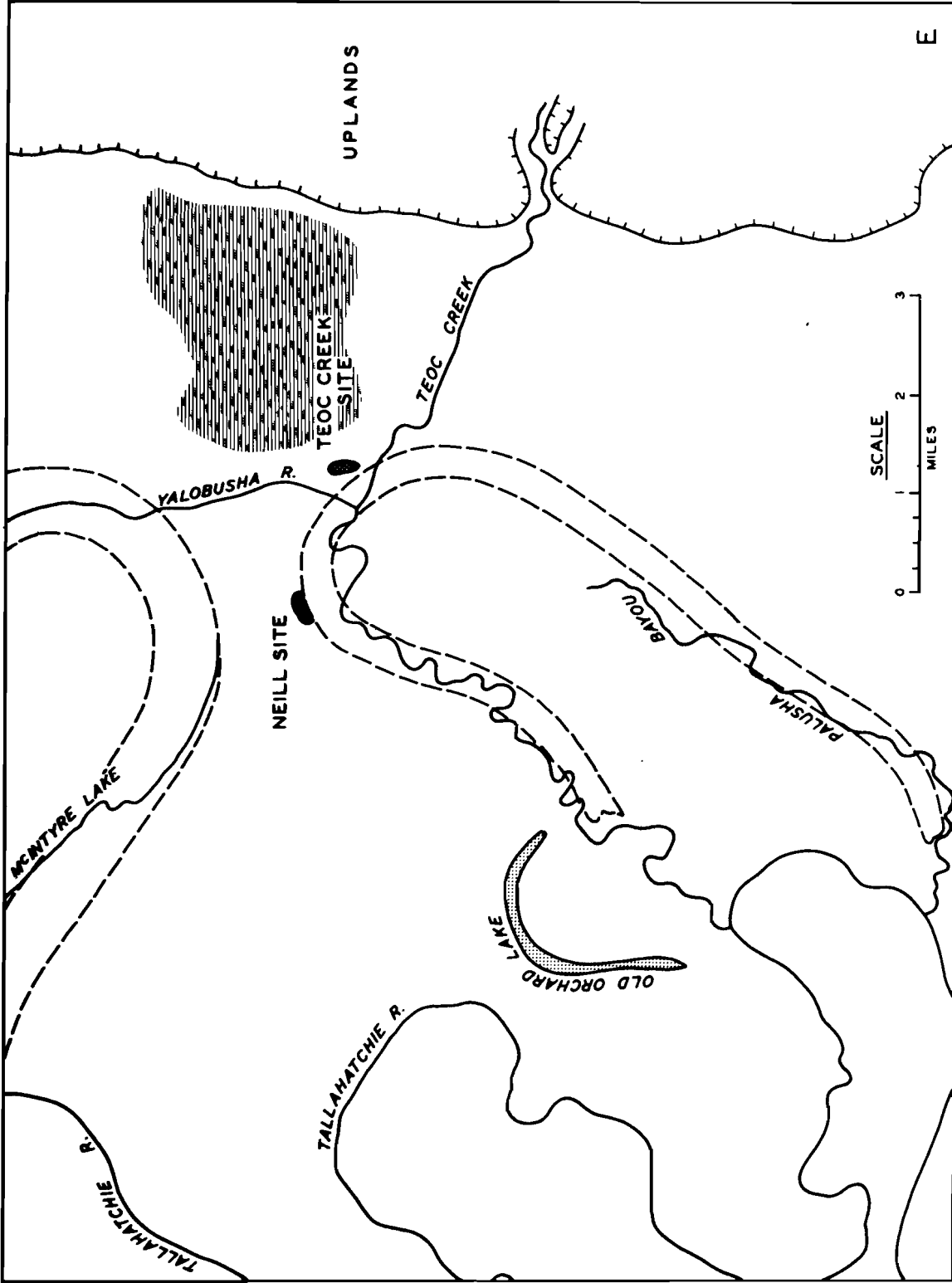


FIG. 12. STREAM CHANNEL CHANGES IN THE TEOC CREEK SITE AREA - STAGE E.

diverted into the recently abandoned Mississippi River course, leaving just the Yalobusha River in the course through the upper leg of the Palusha Bayou abandoned channel. Minor meandering has characterized all streams of the area, and there has probably been a persistent trend toward the filling of all oxbow lakes and a reduction in the size of swamp tracts.

Summary

Site stratigraphic evidence and regional geologic or physiographic evidence suggest that the Teoc Creek Site was initially occupied a few hundred years or so before the Neill Site and abandoned a few hundred years earlier than the Neill Site. Occupation at both sites persisted through a period of active natural levee growth by the Yalobusha-Tallahatchie River. It is felt that this natural levee growth produced a somewhat less attractive natural environment than had existed when the sites were initially occupied. The initial occupation at both sites took place on natural levees of Mississippi River origin flanking a recently created abandoned channel. An immediately adjacent oxbow lake and nearby swamp tracts were probably important factors in the economy of the Poverty Point people occupying the sites. Geological evidence cannot provide more precise dating of the sites than what is already available from archaeological and radiocarbon methods. In fact, it can only be stated that occupation of the sites probably occurred no earlier than 4,000 years ago and terminated no later than 2,000 years ago. A terminal date of approximately 2,800 years ago seems reasonable.

RADIOCARBON AND THERMOLUMINESCENCE DATES

With the cooperation of Dr. James B. Griffin and the University of Michigan Radiocarbon Dating Laboratory, nine dates were obtained from the 1970 excavation. These are outlined by square and level in Table 9. Because of insufficient samples, only one date each was recorded for levels 3 and 6.

The earliest date came from a collection of charcoal and charred seed and nutshell from the deep midden at the west end of the profile trench. This occupation zone was approximately 7.3 feet (2.23 m) below the surface near stake 1 (Fig. 2). The other dates were from samples composed of small bits of charcoal collected throughout each 0.4-foot (12.14-cm) level of the two 10-foot (3.05-m) squares indicated in Table 9, rather than from any single concentration.

Considering the one-sigma range given for these dates, they are generally consistent with their stratigraphic positions, with the exception of M-2393 (1450 B.C. \pm 160). This inconsistency could well have been caused by aboriginal pit digging or other disturbance. Assuming that all dates are correct and that any discrepancies are the result of aboriginal disturbance, the five dated levels of the excavation were built up over a period of around 500 years or at a rate of approximately 0.4 foot (12.19 cm) per 100 years.

The earliest date of 1700 B.C. \pm 160 (M-2395) from the deep midden tends to support the hypothesis that the earliest part of the site lies deeply buried

near the western edge. Additional dates are needed to confirm this, however.

Available dates indicate that the site had a much earlier initial occupation by people of the Poverty Point Culture than either Poverty Point (1200 B.C.± 120, O-66; Phillips 1970:957) or Jaketown (880 B.C.± 300, M-216; Ford 1969:30), and apparently most of its existence as a community was prior to these dates. Other than the type site, the nearest Poverty Point sites so far dated by radiocarbon which are contemporary with any part of the Teoc Creek time range are Linsley, near New Orleans, and Claiborne, at the mouth of the Pearl River in Mississippi. A single date from Claiborne, 1150 B.C. (Gagliano and Webb 1970), falls within the latter portion of the occupation at Teoc Creek. Linsley, with three accepted dates of 1590 B.C.± 120 (G-579), 1890 B.C. ±130 (G-578), and 1740 B.C.± 120 (G-580; Gagliano and Saucier 1963), apparently overlaps the earlier part of the Teoc Creek time range, while having an earlier initial occupation.

Thermoluminescence dating of a sample of Poverty Point objects taken from near the 1970 excavation area yielded an average date of 1070 B.C.± 220 years (see Weber 1970:100). The material was collected from 1 - 2 feet (30.48 - 60.96 cm) below the surface in a trench measuring 4 feet x 10 feet (1.22 m x 3.05 m) and located 10 feet (3.05 m) southeast of the southeast corner of the 1970 excavation. The five radiocarbon dates taken from approximately this depth average 1364 B.C., which is not within the range given for the average thermoluminescence date (850-1290 B.C.). Only two of these radiocarbon dates, 1070 B.C. and 1130 B.C., fall within this range.

	<u>Square 0-10E</u>	<u>Square 10S-10E</u>
Level 2, 1-1.4' (30.48-42.67cm)	1450 B.C.±160 (M-2393)	1070 B.C.±150 (M-2394)
Level 3, 1.4-1.8' (42.67-54.86cm)	1130 B.C.±150 (M-2415)	- - - - -
Level 4, 1.8-2.2' (54.86-67.60cm)	1520 B.C.±160 (M-2416)	1650 B.C.±160 (M-2412)
Level 5, 2.2-2.6' (67.60cm-79.25cm)	1430 B.C.±160 (M-2417)	1260 B.C.±250 (M-2413)
Level 6, 2.6-3' (79.25-91.44cm)	- - - - -	1320 B.C.±200 (M-2414)
7.3 feet beneath natural levee: 1700 B.C.± 160 (M-2395)		

TABLE 9. RADIOCARBON DATES FROM THE TEOC CREEK SITE

COMPARISONS WITH OTHER SITES

The similarities of the settlement plans and artifact complexes at the Teoc Creek and Neill sites are so numerous that one is tempted to conclude, cursorily, that they represent intermittent occupations by the same people or simultaneous occupations by related peoples. Yet there are certain distinct differences to be accounted for.

Figure 13 shows the comparative percentage distribution of the artifact classes in the two assemblages. Considerable qualitative and quantitative congruence is evident, even though we are handicapped by comparing a relatively small surface collection (467 objects) from Neill with a larger collection (2,239 objects) from the surface and excavations at Teoc Creek. Three major disconformities are evident in Figure 13. First, there is a greater proportion of identifiable Poverty Point clay objects at Teoc Creek. This large proportion is immediately accountable to recovery of these objects from excavations; when brought to the surface by cultivation they disintegrate rapidly. Second, there is a larger proportion of fiber-tempered sherds at Neill. This also reflects to some extent the inclusion of excavated materials in the Teoc Creek totals, since pottery is rare in the deeper levels. Even if the surface collection alone were used in calculating the percentage of the forty-three fiber-tempered sherds, however, the resultant figure (3.8%) would be

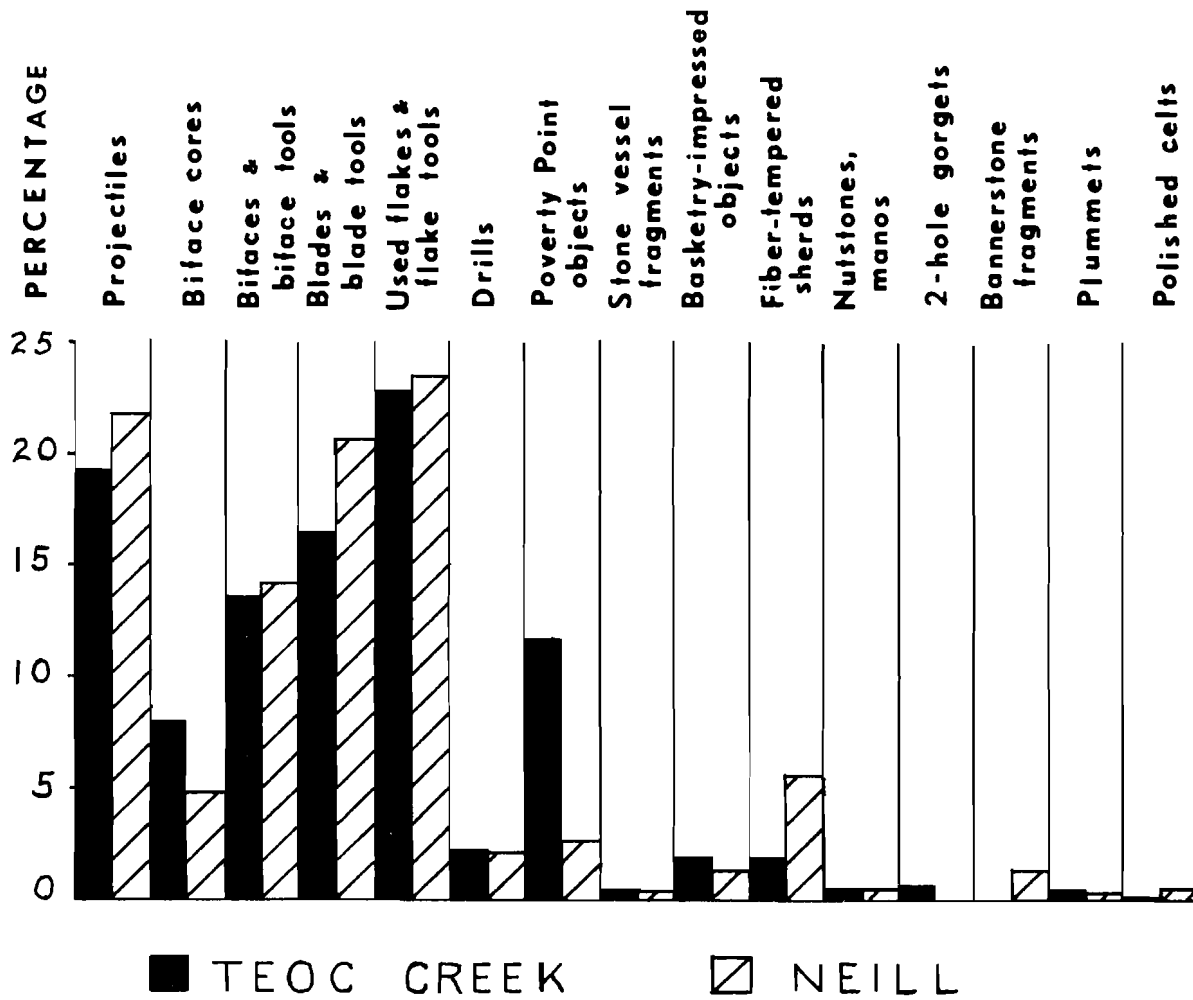


Fig 13. Comparative Artifact Distribution At Teoc Creek and Neill Sites

less than the Neill figure. Moreover, there are thirty sherds of the sand-tempered Alexander Plain type, including two rim sherds with typical punched-through nodes, at the Neill Site and none at Teoc Creek. These findings suggest relatively heavier terminal Poverty Point and incipient Tchula occupations at the Neill Site than at Teoc Creek. Third, there is an absolute contrast in atlatl weights, with bannerstone fragments at the Neill Site and two-hole gorgets at Teoc Creek. This finding exactly parallels the situation on the Mississippi coast, where bannerstones were part of the Late Archaic assemblage at the Cedarland Site and two-hole gorgets were in the Poverty Point assemblage at the adjoining Claiborne Site. The Cedarland-Claiborne shift occurred at approximately 1200 B.C. (Gagliano and Webb 1970:69).

A second line of inquiry concerning the assemblages at the Teoc Creek and Neill sites is afforded by the manufacturing trajectories from biface cores through bifaces to finished chipped stone tools. Table 10 shows a greater proportion of objects early in the manufacturing process at Teoc Creek and a shift to larger proportions of finished products at the Neill Site. Whether this reflects a difference in technological efficiency or a difference in the number of objects completely manufactured at the site (rather than brought in as finished or partly finished tools) is uncertain, but it does imply some

	Biface cores	Thick bifaces	Thin bifaces	Circular bifaces	Adzes, celts	Projectiles	Total Number
Teoc Creek	25.2%	24.9%	15.0%	2.5%	0.7%	31.7%	709
Neill	14.2%	15.8%	14.2%	7.9%	4.7%	43.3%	127

TABLE 10. PERCENTAGE DISTRIBUTION IN CHIPPED STONE MANUFACTURING TRAJECTORIES

differences in technology at the two sites and therefore a lack of near-identity.

The third test made for conformity-disconformity is with respect to materials from which chipped stone objects were made. Table 11 shows that 80% or more of all classes of objects at both sites were made of local materials. It might be observed further that most individual objects are indistinguishable, from site to site, with respect to materials, sizes, technology, and general appearance. Yet a distinction becomes apparent, in that 16% of chipped stone objects from the Neill Site are of foreign materials, in comparison with only 4% of the objects from Teoc Creek. The percentages vary with the different categories but in every instance the percentage of foreign materials is greater at the Neill Site. At both sites the highest proportion of foreign material is in the projectile point category, suggesting that finished points were brought to the sites more often than were other objects. At the Neill Site, three-fourths of the foreign material is novaculite and black chert,

	Percentage Made from Local Materials		Percentage Made from Foreign Materials	
	Teoc Creek	Neill	Teoc Creek	Neill
Projectile points and fragments	89.38	80.00	10.62	20.00
Bifaces and adzes	97.10	88.89	2.90	11.11
Biface cores	99.46	95.24	0.54	4.76
Blade industry	91.64	89.61	8.36	10.39
Flakes, flake tools, debris	97.54	82.46	2.46	17.52
Total	95.97	83.94	4.03	16.06

TABLE 11. PERCENTAGE OF CHIPPED STONE OBJECTS MADE FROM LOCAL AND FOREIGN MATERIALS

presumably from west of the Mississippi River--the novaculite from the Ouachita Mountains of Arkansas, the chert from northern Arkansas or eastern Oklahoma. At Teoc Creek, the exotic materials among the projectiles, blade industry, and flakes are predominantly of gray Fort Payne chert from Tennessee and gray flint, presumably from the quarries north of the Ohio River (Ford and Webb 1956:51). No black chert and relatively small amounts of Arkansas novaculite were found at Teoc Creek. Red jasper (see p. 58) and orthoquartzite, derived from sources to the east of Alabama and east central Mississippi, are modestly represented among the chipped stone objects at Teoc Creek but are infrequent (jasper) or missing (orthoquartzite) at the Neill Site. We must infer that the trade sources, however minimal, differ significantly at the two sites.

Within the various categories of objects, individual types show close similarity. At the Neill Site, Pontchartrain (42% of typed points), Kent (20%) and Gary (22%) are the dominant point forms, as they are at Teoc Creek, with the Gary type better represented than at the Teoc Creek Site. Five of the twelve Gary specimens at Neill are of foreign materials from the Arkansas mountains. Delhi and Palmillas types are represented at Neill by single specimens, and there are seven specimens (12.7%) of Group 3. The corner notched or barbed types like Motley, Ellis, and Marshall are missing at the Neill Site.

The biface, flake, and blade tools at Neill show no recognizable differences in technology or variety from those at the Teoc Creek Site; drills and chipped celts or adzes are also duplicative. Small hammerstones, pitted stone-mano combinations, polished celt fragments (some probably from the later ceramic component), and hematite plummets (Plate 10 K) parallel these objects at Teoc Creek. The import of the four (possibly five) bannerstone fragments (Plate 8 P) has been mentioned. Raw materials at the Neill Site include ferruginous sandstone, red ochre, limonite, and fire-cracked rocks, as at Teoc Creek. There is one fragment of cannel coal at Neill.

Poverty Point clay object types at the Neill Site are biconical, cylindrical grooved, and spheroidal, paralleling the frequencies at Teoc Creek; basketry-impressed object fragments are also present (Table 8).

On the basis of archaeological materials presently available, the Teoc Creek and Neill sites appear to be culturally related but not to show the kind of near-identity to be anticipated if they represented alternate living sites of the same population group moving back and forth seasonally over a period of time. Some differential occupation is suggested, and culturally determined preference of foreign materials is in evidence. The physiographic evidences are noted by Saucier to favor occupation at Neill at a later time than at the Teoc Creek Site, possibly incorporating a move from the latter to the former as living conditions changed. The archaeological findings do not support the kind of sequential occupation of these sites that is documented for the Cedarland-Claiborne sites (Gagliano and Webb 1970:69), with the accompanying sharp break in technology and cultural preference. In fact, some temporal priority to the assemblage from Neill over the Teoc Creek assemblage is indicated by the presence of bannerstones at the former and two-hole gorgets at the latter, and by the advent of corner-notched barbed points, well made of northern gray flint, at Teoc Creek but not at Neill. Conversely, the considerable amounts of fiber-tempered and Alexander type sand-tempered pottery at Neill indicate a late occupation, presumably post-1100 B.C. If we accept occupation at the Teoc Creek Site from 1700 to 1100 B.C., as indicated by the radiocarbon and thermoluminescence dates, it seems probable that the Neill Site was occupied by approximately 1500 B.C. and that overlapping (intermittent?) occupations of both sites covered a period of some four or five hundred years, with some occupation of Neill after 1000 B.C. These conjectures can only be resolved by more complete excavation of both sites, especially of the deep middens.

Teoc Creek and Neill are two of approximately twenty sites along Saucier's Meander Belt 4 (Fig. 7), on the eastern side of the Yazoo Basin, that are proved or thought to have Poverty Point occupations (Webb 1968; Phillips 1970; Webb 1970:5). All are situated on levees of relict courses of the Mississippi River and presumably most of them had environments similar to those at Teoc Creek and Neill. Few, however, were so close to the uplands. The extent of occupation at many is not known, but it seems to vary from one or two acres to as large as thirty to forty acres, usually in linear patterns along the crest and backslope of the natural levees.

The Teoc Creek Site shares its semicircular or arcuate occupation plan with the Cedarland-Claiborne sites on the Pearl River estuary, the Poverty Point and Caney Island sites on relict Arkansas River courses in Louisiana, and the Jaketown and Savory sites in the Yazoo Basin (Webb 1970:8). The other sites differ from Teoc Creek in having mounds in association, single or multiple. The Poverty Point, Jaketown, and Claiborne sites also have in their artifactual assemblages presumed esoteric or ceremonial items such as copper ornaments, lapidary objects, zoomorphic or anthropomorphic carvings, clay figurines, and decorated clay objects, which bolster their status as ceremonial centers. These special objects are, so far, minimal or lacking at the Teoc Creek Site, whose people seem to have pursued a more mundane life.

The Teoc Creek Site shows little evidence of close contacts with the Jaketown Site (Ford, Phillips, and Haag 1955), the presumed regional center of the Yazoo Basin area. Some differences are noted above. In addition, the tremendous numbers of microflint blades and blade tools, drawn from specially prepared angled-platform cores, at Jaketown (as at Poverty Point) are quite different from the simpler and limited microflint industry at Teoc Creek. The dominant Poverty Point clay object type at Jaketown is the cylindrical grooved, contrasted with the dominance of biconicals at the Teoc Creek and Neill sites.

A comparison of projectile point types is difficult, because of typing differences in the studies, but the Gary type is evidently more important at Jaketown and the Motley type is more frequent there than at Teoc Creek. From present datings it seems likely that the major occupation at Teoc Creek largely antedated those at the Jaketown, Poverty Point, and Claiborne sites (Weber 1970:100; Weber and Webb 1970:102). It may be that the Teoc Creek and Neill sites represent the early or incipient stages of Poverty Point cultural development in the Mississippi Valley, before the advent of high ceremonialism and extensive esoteric trade.

SUMMARY AND CONCLUSIONS

Investigations originally begun at the Teoc Creek Site in 1966 and continued in 1969-1970 have yielded valuable information about several aspects of the Poverty Point culture there. Evidently the Poverty Point occupation, which began around 1700 B.C., continued for approximately 700 years during the build-up of a natural levee over a portion of the site by the combined flow of the Tallahatchie and Yalobusha rivers. Most of this occupation preceded the initial settlements at the Poverty Point and Jaketown sites by people of the Poverty Point Culture. The Teoc Creek Site and the nearby Neill Site may thus have been two of the earliest settlements of this type in the Yazoo Basin.

Borehole traverses and a profile trench have contributed some understanding of the settlement plan. Population growth over several centuries evidently necessitated an expansion of the living area. Several factors seem to point to a relatively small initial settlement at the west side of the site where the deeply buried midden lies today. This occupation was possibly semi-circular in plan, retaining this form as it expanded to the east.

Although a start was made toward determining activity patterns through recording artifacts in situ, not enough soil was moved to afford a substantial understanding of this problem. Some facts were observed which seem pertinent to the question, however. Apparently, male-oriented and female-oriented

activity areas were not rigidly segregated. The manufacture of flint tools seems to have occurred in the same area as and simultaneously with cooking. The making of plummets and gorgets appears from surface data to have been restricted primarily to one part of the site, which may have been set aside for this activity by a group of special artisans.

One of the major disappointments of the excavations at this point was the failure to discover any architectural features. When and if such finds are made, many more questions may be answered concerning social organization. The absence of mounds and scarcity of other evidences of ceremonialism suggest that there was no elaborate stratification of society, and although the people participated to a certain extent in the overall cultural patterns of Poverty Point peoples elsewhere, there is no evidence that they were tied into a rigid hierarchical network. A considerable degree of independent adaptation and self-sufficiency is indicated. The preponderance of local materials indicates that little reliance was placed on trade items. Although there was some trade with several different areas, and therefore contact with other groups, cultural change appears slight during the long span of occupation.

Although a supposed cooking area was located, food remains were disappointingly scarce, and only a few vegetable and no identifiable animal remains were recovered. The physiographic situation of the site and surrounding area, however, suggests a wide variety of hunting, fishing, fowling, and gathering possibilities in riverine, swamp, upland, and river levee environments. Gathering in the fall of the year is demonstrated by the presence of charred remains of hickory nut, walnut, acorn, and persimmon. Nut gathering and fowling are further suggested by the presence of pitted stones, assumed to be nutting stones, and plummets, often assumed to be bolas weights. The large number of projectile points appears to demonstrate the importance of hunting. Various kinds of cutting, scraping, boring, and sawing, often with temporary use

of chance flakes, are indicated by the flake and blade industries. The tool assortment, which parallels that of many Late Archaic sites, suggests some kind of exploitation of forest economy. No evidence of agriculture was revealed, but it cannot yet be ruled out.

The data published in this report represent the beginning of what is hoped to be a continuing investigation at the site. There is much work yet to be done. It is hoped that the site will not be destroyed or seriously damaged before a more thorough understanding of its former inhabitants is obtained. Some protection has been assured by its placement on the National Register of Historic Places.

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